Annexes 1 - 11

Task 1.1.1 Scientific systematic reviews
Annex 1
Surveillance including surveys of drivers of obesity (behaviour, diet, family relations, infant feeding) and covering socio-economic status, ethnic minority, education, income and local deprivation indices.
Annex 2
Tracking including studies of the links between early deprivation and later obesity, early obesity and later disease, and their links to socio-economic status etc.
Annex 3
Costs and related economic issues, including costs to the economy, employers, health services, and also prices, fiscal impacts and fiscal behaviour.
Annex 4
Community interventions including those conducted in kindergartens, health centres, schools, workplaces, and also broader health promotion interventions in populations and subgroups.
Annex 5
Treatment of obesity including access and use of health services, and health professionals’ behaviour and practice.
Annex 6
Neighbourhoods including food environments and food deserts, built environments and green spaces, and neighbourhood security.
Annex 7
Policies and strategies which address obesity and attend to socio-economic differentials, sub-groups and health inequalities related to overweight and obesity.
Annex 8
Co-morbidities linked to obesity, which implicate socio-economic or related inequalities.

Task 1.1.1 Grey literature documents
Annex 9
Grey literature documents

Task 1.2.1 Costs of obesity
Annex 10.
Scientific papers (one) and grey literature documents (one) considering SES differentials in the costs of obesity

Task 1.2.2 Interventions
Annex 11.
Scientific papers showing SES differentials in the effectiveness of interventions
Annex 1  Surveillance including surveys of drivers of obesity (behaviour, diet, family relations, infant feeding) and covering socio-economic status, ethnic minority, education, income and local deprivation indices.

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<th>Authors</th>
<th>Title</th>
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<tr>
<td>Arries, Ebin J; Maposa, Sithokozile</td>
<td>Cardiovascular risk factors among prisoners: an integrative review.</td>
<td>Journal abbreviation: J Forensic Nurs Volume: 9 Year: 2013</td>
<td>Incarceration is characterized by inequalities in disease burden and an increased risk for cardiovascular disease (CVD). The aim of this review was to critique published empirical research studies on cardiovascular risk factors among prisoners and to summarize and synthesize current knowledge and findings across these studies. An integrative review of the studies was conducted. Cooper's five stage method was used as a framework to guide data collection, analysis, and synthesis. Quality appraisal of retrieved studies was done using a combined evaluation tool for quantitative research studies and a checklist. The following databases were searched: CINAHL, MEDLINE, PubMed, Cochrane, Indigenous Studies Portal (iPortal), Native Health Database, Criminal Justice Abstracts, and PsychInfo using keywords. Inclusion criteria were used to select published papers. A total of 12 studies that met the inclusion criteria were identified and analyzed. Hypertension, among other CVD risk factors such as smoking, physical inactivity and obesity, was one of the three most common CVD risk factors found in prisoners. Women and young offenders had a higher prevalence of hypercholesterolemia. Identifying prevalent risks factors among prisoners might influence the development of CVD prevention strategies that are specifically directed to at-risk prisoners.</td>
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<td>Backholer K, Mannan HR, Magliano DJ, et al.</td>
<td>Projected socioeconomic disparities in the prevalence of obesity among Australian adults.</td>
<td>Aust N Z J Public Health. 2012 Dec;36(6):557-63</td>
<td>To project prevalence of normal weight, overweight and obesity by educational attainment, assuming a continuation of the observed individual weight change in the 5-year follow-up of the national population survey, the Australian Diabetes, Obesity and Lifestyle study (AusDiab; 2000-2005). METHODS: Age-specific transition probabilities between BMI categories, estimated using logistic regression, were entered into education-level-specific, incidence-based, multi-state life tables. Assuming a continuation of the weight change observed in AusDiab, these life tables estimate the prevalence of normal weight, overweight and obesity for Australian adults with low (secondary), medium (diploma) and high (degree) levels of education between 2005 and 2025. RESULTS: The prevalence of obesity among individuals with secondary level educational attainment is estimated to increase from 23% in 2000 to 44% in 2025. Among individuals with a degree qualification or higher, it will increase from 14% to 30%. If all current educational inequalities in weight change could be eliminated, the projected difference in the prevalence of obesity by 2025 between the highest and lowest educated categories would only be reduced by half (to a 6 percentage point difference from 14 percentage points). CONCLUSION: We predict that almost half of Australian adults with low educational status will be obese by 2025. Current trends in obesity have the potential to drive an increase in the absolute difference in obesity prevalence between educational categories in future years. Implications: Unless obesity prevention and management strategies focus specifically on narrowing social inequalities in obesity, inequalities in health are likely to widen.</td>
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<td>Basu, S. Stuckler, D. McKee, M. Galea, G.</td>
<td>Nutritional determinants of worldwide diabetes: an econometric study of food markets and diabetes prevalence in 173 countries.</td>
<td>Public Health Nutrition; 2013. 16(1):179-186. 36 ref.</td>
<td>Objective: Ageing and urbanization leading to sedentary lifestyles have been the major explanations proposed for a dramatic rise in diabetes worldwide and have been the variables used to predict future diabetes rates. However, a transition to Western diets has been suggested as an alternative driver. We sought to determine what socio-economic and dietary factors are the most significant population-level contributors to diabetes prevalence rates internationally. Design: Multivariate regression models were used to study how market sizes of major food products (sugars, cereals, vegetable oils, meats, total joules) corresponded to diabetes prevalence, incorporating lagged and cumulative effects. The underlying social determinants of food market sizes and diabetes prevalence rates were also studied, including ageing, income, urbanization, overweight prevalence and imports of foodstuffs. Setting: Data were obtained from 173 countries. Subjects: Population-based survey recipients were the basis for diabetes prevalence and food market data. Results: We found that increased income tends to increase overall food market size among low- and middle-income countries, but the level of food importation significantly shifts the content of</td>
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Background While the relationship between socioeconomic disadvantage and cardiovascular disease (CVD) is well established, the role that traditional cardiovascular risk factors play in this association remains unclear. The authors examined the association between education attainment and CVD mortality and the extent to which behavioural, social and physiological factors explained this relationship. Methods Adults (n=38,355) aged 40-69 years living in Melbourne, Australia were recruited in 1990-1994. Subjects with baseline CVD risk factor data ascertained through questionnaire and physical measurement were followed for an average of 9.4 years with CVD deaths verified by review of medical records and autopsy reports. Results CVD mortality was higher for those with primary education only, compared with those who had completed tertiary education, with an HR of 1.66 (95% CI 1.10 to 2.49) after adjustment for age, country of birth and gender. Those from the lowest educated group had a more adverse cardiovascular risk factor profile compared with the highest educated group, and adjustment for these risk factors reduced the HR to 1.18 (95% CI 0.78 to 1.77). In analysis of individual risk factors, smoking and waist circumference explained why urbanization and income have been correlated with diabetes rates. Conclusions: Current diabetes projection methods may underestimate future diabetes rates poorly if they fail to incorporate the impact of nutritional factors. Imported sugars deserve further investigation as a potential population-level driver of global diabetes. Physical inactivity is an important contributor to non-communicable diseases in countries of high income, and increasingly so in those of low and middle income. Understanding why people are physically active or inactive contributes to evidence-based planning of public health interventions, because effective programmes will target factors known to cause inactivity. Research into correlates (factors associated with activity) or determinants (those with a causal relationship) has burgeoned in the past two decades, but has mostly focused on individual-level factors in high-income countries. It has shown that age, sex, health status, self-efficacy, and motivation are associated with physical activity. Ecological models take a broad view of health behaviour causation, with the social and physical environment included as contributors to physical inactivity, particularly those outside the health sector, such as urban planning, transportation systems, and parks and trails. New areas of determinants research have identified genetic factors contributing to the propensity to be physically active, and evolutionary factors and obesity that might predispose to inactivity, and have explored the longitudinal tracking of physical activity throughout life. An understanding of correlates and determinants, especially in countries of low and middle income, could reduce the effect of future epidemics of inactivity and contribute to effective global prevention of non-communicable diseases.
which might introduce biases into the results. Because one of the aims of this review was to assess the quality of the manuscripts, manuscripts of all quality were retained in the review and assessed using a quality appraisal instrument from the report on the methods used to develop the National Institute for Health and Care Excellence Public Health guidance. Quality assessors were not masked. Findings 124 manuscripts were identified through the search strategy after duplicates were removed. 23 manuscripts were read in full and ten studies were included in the review. The included manuscripts showed some evidence of a different prevalence of behavioural cardiovascular risk factors in the UK-born ethnic groups when compared with migrants and the white British ethnic group (appendix). In Indian women, the prevalence of smoking was 3.3% in the first generation but 10.2% in the second generation. Physical activity levels were higher in the second generation for all ethnic groups included; however, levels were still lower than in the general population. Compared with the general population, one manuscript suggested higher intakes of fried foods in UK-born ethnic minority participants (33.4% of UK-born Pakistanis eating fried food three or more times a week compared with 18.4% from the white group), but lower levels of alcohol intake and tobacco use. Some manuscripts attempted to minimise their risk of bias; however, underpowered samples and failure to adjust for important confounding variables limited the generalisability of their results. Because most manuscripts did not include socioeconomic factors in their regression models, we could not assess the contribution of this to differences in risk factors. Interpretation This review revealed some evidence of a different profile of cardiovascular risk factors in UK-born ethnic minorities, as compared with the migrant generation, although explanations for these differences are inadequate. Research with theoretical approaches and adequate sample sizes is needed to firmly establish any differences in prevalence between generations of ethnic minorities. As far as we are aware, this is the first manuscript to review and assess the quality of studies that examine the prevalence of cardiovascular behavioural risk factors in UK-born ethnic minorities. A limitation of this study is that the title and abstract screening was done by one person, although the final selection of manuscripts was agreed by all authors.

This review critically summarizes the literature on neighborhood determinants of obesity and proposes a conceptual framework to guide future inquiry. Thirty-seven studies met all inclusion criteria and revealed that the influence of neighborhood-level factors appears mixed. Neighborhood-level measures of economic resources were associated with obesity in 15 studies, while the associations between neighborhood income inequality and racial composition with obesity were mixed. Availability of healthy versus unhealthy food was inconsistently related to obesity, while neighborhood features that discourage physical activity were consistently associated with increased body mass index. Theoretical explanations for neighborhood-obesity effects and recommendations for strengthening the literature are presented.

The childhood obesity epidemic has stimulated the emergence of many policy and environmental strategies to increase healthy eating and active living, with relatively few research recommendations identifying the most effective and generalizable strategies. Yet, local, state, and national decision makers have an urgent need to take action, particularly with respect to lower-income and racial and ethnic populations at greatest risk. With the surge of promising and emerging policy and environmental strategies, this review provides a framework, criteria, and process modeled from existing expert classification systems to assess the strength of evidence for these strategies. Likewise, this review highlights evidence gaps and ways to increase the types and amount of evidence available to inform policy and environmental strategies. These priorities include documenting independent and interdependent effects, determining applicability to different populations and settings, assessing implementation fidelity and feasibility, identifying cumulative benefits and costs, ascertaining impacts on health equity, and tracking sustainability.

The purpose of this review was to evaluate factors in early childhood (=5 years of age) that are the most significant predictors of the development of obesity in adulthood. Factors of interest included exposures/insults in the prenatal period, infancy and early childhood, as well as other socio-demographic variables such as socioeconomic status (SES) or birth place that could impact all three time periods. An extensive electronic and systematic search initially resulted in 8,880 citations, after
McCargar, LJ 367
Brooks, RC; Simpson, SJ; Raubenheimer, D

The price of protein: combining evolutionary and economic analysis to understand excessive energy consumption

OBESITY REVIEWS
2010 11 887 894

Brown, I. Gould, J.

Qualitative studies of obesity: a review of methodology.
(Special Issue: Obesity and health.)


Buss J.

Associations between obesity and stress and shift work among nurses.

Workplace Health Saf. 2012 Oct;60(10):45 3-8;

Caird J, J Kavanagh, A O'Mara-Eves...

Does being overweight impede academic attainment? A systematic review

Health Education Journal June 6, 2013

duplicates were removed. Specific inclusion and exclusion criteria were set, and following two screening processes, 135 studies were retained for detailed abstraction and analysis. A total of 42 variables were associated with obesity in adulthood; however, of these, only seven variables may be considered as potential early markers of obesity based on the reported associations. Possible early markers of obesity included maternal smoking and maternal weight gain during pregnancy. Probable early markers of obesity included maternal body mass index, childhood growth patterns (early rapid growth and early adiposity rebound), childhood obesity and father's employment (a proxy measure for SES in many studies). Health promotion programmes/agencies should consider these factors as reasonable targets to reduce the risk of adult obesity.

Excessive weight gain appears, thermodynamically at least, straightforward: growing energy intake and/or falling energy expenditure create an energetic surplus, resulting in fat accumulation. The situation is, however, far more complex, with genetic, physiological, social, psychological and economic factors all implicated. Thus the causes of excessive weight gain remain difficult to disentangle. We combine two recent developments from different areas of nutrition research: the study of food prices in relation to energy content and the hypothesis that an evolved propensity to regulate protein intake more strongly than non-protein calories exerts powerful leverage on overall energy intake. We partition the energy content of a range of common supermarket foods, and show that increasing overall energy content only modestly raises the cost of foods, largely as a result of macronutrients having very different costs. Higher food prices are associated with higher protein content and lower carbohydrate content, whereas fat content was not significantly associated with food price. We show that the differential costs of energy from protein and carbohydrates may bias consumers towards diets high in carbohydrate energy, leading them to consume excessive energy to meet their dietary protein needs. We review evidence from physiology, evolution and economics that support our suggestion.

BACKGROUND: There is a developing interest in qualitative research to understand the perspectives and experiences of people living with obesity. However, obesity is a stigmatised condition associated with negative stereotypes. Social contexts emphasizing large body size as a problem, including research interviews, may amplify obesity stigma. This study reviews the methodology employed by qualitative studies in which study participants were obese and data collection involved face-to-face interviews. METHODS: Database searches identified qualitative studies meeting inclusion criteria from 1995 to 2012. Following screening and appraisal data were systematically extracted and analyzed from 31 studies. RESULTS: The studies included 1206 participants with a mean age of 44 years and mean BMI of 37 kg/m2. Women (78.8%) outnumbered men (21.2%) by four to one. Socio-economic background was not consistently reported. The studies employed similar, typically pragmatic, qualitative methodologies, providing rich textual data on the experience of obesity derived from face-to-face interviews. The majority considered quality issues in data collection, analyses and generalizability of findings. However, the studies were weak as regards researcher reflexivity in relation to interviewer characteristics and obesity stigma. CONCLUSIONS: The impact of obesity stigma has not been attended to in the qualitative research. Clear information about study participants is essential, but studies involving face-to-face interviews should also report on interviewer characteristics including body size.

Nurses' work is known to be stressful, and many nurses work shifts. Both stress and shift work are factors that can influence how and what nurses eat and may increase nurses' risk for weight gain and obesity. This literature review summarizes the evidence regarding the prevalence of obesity and overweight among nurses who work shifts and examine associations between stress and the eating behaviors of these nurses. The conclusion provides some implications for occupational health nurses who promote wellness for their employees.

Objectives: To examine evidence from studies exploring the relationship between childhood obesity and educational attainment. Design: A systematic review of secondary analyses and observational studies published in English after 1997 examining attainment as measured by grade point average or other validated measure, in children aged 6 to16 years, in high-income countries. Methods: Eleven databases from the fields of public health, education and social science were searched,
results: Twenty-nine studies were identified for inclusion. Overall, the evidence suggested that higher weight is weakly associated with lower educational attainment among children and young people. Differences between average attainment of overweight and non-overweight children were marginal, with potentially negligible real-world implications for test scores. Limited evidence suggested that little variation in achievement was explained by weight status alone. Almost half the studies found that other factors, such as socioeconomic status, may better explain much of the negative association between obesity and attainment. Conclusion: Theoretical and methodological inconsistencies were evident both within and between many of the studies. As such, the results of the included studies must be interpreted with caution. If the negative association between obesity and attainment is accepted, it still remains doubtful whether obesity is exerting a socially important effect upon educational attainment.

The objective of this study was to synthesize available information on prevalence and time trends of overweight and obesity in pre-school children in the European Union. Retrieval and analysis or re-analysis of existing data were carried out. Data sources include WHO databases, Medline and Google, contact with authors of published and unpublished documents. Data were analysed using the International Obesity Task Force reference and cut-offs, and the WHO standard. Data were available from 18/27 countries. Comparisons were problematic because of different definitions and methods of data collection and analysis. The reported prevalence of overweight plus obesity at 4 years ranges from 11.8% in Romania (2004) to 32.3% in Spain (1998-2000). Countries in the Mediterranean region and the British islands report higher rates than those in middle, northern and eastern Europe. Rates are generally higher in girls than in boys. With the possible exception of England, there was no obvious trend towards increasing prevalence in the past 20-30 years in the five countries with data. The use of the WHO standard with cut-offs at 1, 2 and 3 standard deviations yields lower rates and removes gender differences. Data on overweight and obesity in pre-school children are scarce; their interpretation is difficult. Standard methods of surveillance, and research and policies on prevention and treatment, are urgently needed.

Pregnancy has been proposed as a critical period for the development of subsequent maternal overweight and/or obesity. Excessive gestational weight gain is, in turn, associated with maternal complications such as cesarean delivery, hypertension, pre-eclampsia, impaired glucose tolerance, and gestational diabetes mellitus. Although there is substantial evidence that targeting at-risk groups for type 2 diabetes prevention is effective if lifestyle changes are made, relatively little attention has been paid to the prevention of excessive gestational weight gain and impaired glucose tolerance during pregnancy. Latinos are the largest minority group in the United States, with the highest birth and immigration rates of any minority group and are disproportionately affected by overweight and obesity. However, due to cultural factors, socioeconomic factors, and language barriers, Latinos have had limited access to public health interventions that promote healthy lifestyles. Therefore, the objective of this article is to review the scientific evidence regarding the association between physical activity, dietary behaviors, and gestational weight gain and impaired glucose tolerance among Latinos. A second objective is to discuss how lifestyle interventions including weight management through diet and exercise could be successful in reducing the risk of excessive gestational weight gain and gestational diabetes mellitus. Finally, recommendations are provided for future lifestyle intervention programs in this population with a focus on translation and dissemination of research findings.

Objective: To investigate whether personality traits, education, physical exercise, parental socio-economic conditions, and childhood neurological function are independently associated with obesity in 50 year old adults in a longitudinal birth cohort study. Method: The sample consisted of 5,921 participants born in Great Britain in 1958 and followed up at 7, 11, 33, 42, and 50 years with data on body mass index measured at 42 and 50 years. Results: There was an increase of adult obesity from 14.2% at age 42 to 23.6% at 50 years. Cohort members who were reported by teachers on overall clumsiness as “certainly applied” at age 7 were more likely to become obese at age 50. In addition, educational qualifications, traits Conscientiousness and Extraversion, psychological distress, and physical exercise were all significantly associated with adult obesity. The
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<td>Cohen DA.</td>
<td>Educational attainment and obesity: a systematic review</td>
<td>OBESITY REVIEWS</td>
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This umbrella review analysed the relationships between family variables and child/adolescent body weight, diet and physical activity. In line with theories of health behaviour change, it was assumed that behaviour-specific family variables (i.e. beliefs, perceptions and practices referring to food intake or physical activity) would have stronger support than more general family variables (i.e. socio-economic status or general parental practices). Data obtained from 18 systematic reviews (examining 375 quantitative studies) were analysed. Reviews of experimental trials generally supported the effectiveness of reward/positive reinforcement parental strategies, parental involvement in treatment or prevention programmes, and cognitive-behavioural treatment in reducing child/adolescent body mass and/or obesity. Results across reviews of correlational studies indicated that healthy nutrition of children/adolescents was related to only one parental practice (parental monitoring), but was associated with several behaviour-specific family variables (e.g. a lack of restrictive control over food choices, high intake of healthy foods and low intake of unhealthy foods by parents and siblings, low pressure to consume foods). With regard to adolescent physical activity, stronger support was also found for behaviour-specific variables (e.g. physical activity of siblings), and for certain socio-economic variables (e.g. parental education). Child and adolescent obesity prevention programmes should account for behaviour-specific family variables.

A global obesity epidemic is occurring simultaneously with ongoing increases in the availability and salience of food in the environment. Obesity is increasing across all socioeconomic groups and educational levels and occurs even among individuals with the highest levels of education and expertise in nutrition and related fields. Given these circumstances, it is plausible that excessive food consumption occurs in ways that defy personal insight or are below individual awareness. The current food environment stimulates automatic reflexive responses that enhance the desire to eat and increase caloric intake, making it exceedingly difficult for individuals to resist, especially because they may not be aware of these influences. This article identifies 10 neurophysiological pathways that can lead people to make food choices subconsciously or, in some cases, automatically. These pathways include reflexive and uncontrollable neurohormonal responses to food images, cues, and smells; mirror neurons that cause people to imitate the eating behavior of others without awareness; and limited cognitive capacity to make informed decisions about food. Given that people have limited ability to shape the food environment individually and no ability to control automatic responses to food-related cues that are unconsciously perceived, it is incumbent upon society as a whole to regulate the food environment, including the number and types of food-related cues, portion sizes, food availability, and food advertising. Although previous systematic reviews considered the relationship between socioeconomic status and obesity, almost 200 peer-reviewed articles have been published since the last review on that topic, and this paper focuses specifically on education, which has different implications. The authors systematically review the peer-reviewed literature from around the world considering the association between educational attainment and obesity. Databases from public health and medicine, education, psychology, economics, and other social sciences were searched, and articles published in English, French, Portuguese and Spanish were included. This paper includes 289 articles that report on 410 populations in 91 countries. The relationship between educational attainment and obesity was modified by both gender and the country's economic development level: an inverse association was more common in studies of higher-income countries and a positive association was more common in lower-income countries, with stronger social patterning among women. Relatively few studies reported on lower-income countries, controlled for a comprehensive set of potential confounding variables and/or attempted to assess causality through the use of quasi-experimental designs. Future research should address these gaps to understand if the relationship between educational attainment and obesity may be causal, thus supporting education policy as a tool for obesity prevention.
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<td>Jimenez-Rubio, D.</td>
<td>Health inequalities in developed societies are persistent. Arguably, the rising inequalities in unhealthy lifestyles might underpin these inequality patterns, yet supportive empirical evidence is scarce. We examine the patterns of inequality in unhealthy lifestyles in England and Spain, two countries that exhibit rising obesity levels with a high prevalence of smoking and alcohol use. This study is unique in that it draws from health survey data spanning over a period in which major contextual and policy changes have taken place. We document persistent income-related inequalities in obesity and smoking; both unhealthy lifestyles appear to be disproportionately concentrated among the relatively poor in recent decades. In contrast, alcohol use appears to be concentrated among richer individuals in both periods and countries examined. Purpose - The purpose of this paper is to describe and briefly discuss the prevalence of childhood obesity in selected countries of the WHO European Region in relation to socioeconomic status (SES) and ethnic origin. Emphasis was given on the most recent research papers available. Design/methodology/approach - A search was performed on relevant papers on &quot;Prevalence of Obesity and Overweight in relation to socio-economic status and ethnicity&quot; using MEDLINE and the ISI Web of Science. The search was limited to the age range 0-20 years to the countries of the WHO European Region. Findings - A growing number of studies suggest that children in lower-income families in developed countries are particularly vulnerable to becoming obese. Plausible explanations for the differences in obesity prevalence in migrant children and children with lower SES include poor diet, limited opportunity for physical activity and differences in the perception of ideal body weight together with possible food security issues. It is important to stress that the rising cost of a healthy diet is of great concern. Originality/value - Understanding the prevalence of obesity in children and the social and cultural parameters related to the phenomenon can facilitate the formation of effective public health intervention policies in counteracting childhood obesity. Obesity is a prevalent global-health problem associated with substantial morbidity, impairment and economic burden. Because most readily available forms of treatment are ineffective in the long term, it is essential to advance knowledge of obesity prevention by identifying potentially modifiable risk factors. Findings from experimental studies in non-human primates suggest that adverse childhood experiences may influence obesity risk. However, observations from human studies showed heterogeneous results. To address these inconsistencies, we performed Medline, PsycInfo and Embase searches till 1 August 2012 for articles examining the association between childhood maltreatment and obesity. We then conducted a meta-analysis of the identified studies and explored the effects of various possible sources of bias. A meta-analysis of 41 studies (190 285 participants) revealed that childhood maltreatment was associated with elevated risk of developing obesity over the life-course (odds ratio=1.36; 95% confidence interval=1.26-1.47). Results were not explained by publication bias or undue influence of individual studies. Overall, results were not significantly affected by the measures or definitions used for maltreatment or obesity, nor by confounding by childhood or adult socioeconomic status, current smoking, alcohol intake or physical activity. However, the association was not statistically significant in studies of children and adolescents, focusing on emotional neglect, or adjusting for current depression. Furthermore, the association was stronger in samples including more women and whites, but was not influenced by study quality. Child maltreatment is a potentially modifiable risk factor for obesity. Future research should clarify the mechanisms through which child maltreatment affects obesity risk and explore methods to remediate this effect.</td>
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<td>Danese A. and Human</td>
<td>Childhood maltreatment and obesity: systematic review and meta-analysis.</td>
<td>Mol Psychiatry</td>
<td>2014; May;19(5):544-54.</td>
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<td>Darmon, N. and Human</td>
<td>Social inequalities in health and food</td>
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Over one-third of all adults in the United States are obese and African Americans represent over 49.5% of these cases. Young adults with some college education show the most rapid increase in the prevalence of overweight and obesity, with African Americans leading among all groups. The purpose of this paper is to consider why students gain weight in college and if racial and ethnic differences exist in the context of weight gain. Both physical environment and psychological factors affect the college students' weight-related behaviors. College students experience significant increases in their weight and African Americans are disproportionately affected. However, the role of race and ethnicity is under-examined. Future research should explore racial and ethnic differences in weight gain in college students. Social inequalities in health are strongly pronounced in France, where they have worsened steadily over the past two decades. Between the two extremes on the social scale, these differences of a factor of 2 to 3 are found with several health indicators...
and for most nutrition associated diseases, obesity and diabetes in particular. Social disparities concerning food and physical activity are evidenced from childhood, and can contribute to social inequalities in health through a process of accumulation. This is usually the result of a decline in the individual's socio-economic position, with economic, structural and psychosocial constraints that limit the take-up of healthy behaviours. Nutrition policies have a key part to play in the reduction of these inequalities, particularly through the implementation of multi-factorial, territorial, participative and multi-partner interventions consistent with the principles health promotion.

Childhood overweight is a multifactorial health problem influenced by several factors. The interaction of behaviours such as physical activity, sedentary behaviour and eating behaviour determines whether or not a positive energy balance or weight gain is experienced. Knowing the correlates of these behaviours in 4- to 6-year-old children is of major interest for intervention development. According to the systematic literature search, attending a rural preschool was positively associated with physical activity. Gender, age and socioeconomic status were not associated with physical activity, while an indeterminate result was found for ethnicity. Gender and ethnicity were not associated with sedentary behaviour and indeterminate results were found for age and socioeconomic status. Preschoolers were more physically active as well as sedentary on weekdays. Watching television was associated with a higher consumption of snacks and sweet beverages. Strategies aiming to influence energy balance-related behaviours in preschoolers should target both boys and girls and all ethnic groups from low as well as high social status. During the week, there should be a focus on decreasing sedentary behaviour and in the weekend on increasing physical activity. Focusing on television viewing and the consumption of snacks and sweet beverages could/should also be a strategy.

Abstract: Preschoolers already spend significant proportions of their waking hours being sedentary. Screen time (i.e. television/DVD viewing and computer use) has been negatively associated with several health outcomes but interventions aiming to reduce preschoolers' sedentary behaviour are scarce. This study aimed to explore parents' perceptions of their preschool children's screen time. One hundred twenty-two parents of low and medium-high socioeconomic status from six European countries with children between 4 and 6 years old were involved in 24 focus groups. Following a qualitative content analysis, the available information and key findings were centrally analysed. Results showed that children tend to like watching television (TV) and most parents do not express worries about their children's TV viewing time. Education is considered to be the main benefit of watching TV and in general, parents only have informal rules about TV viewing. Computer and active games use are less frequent compared with TV viewing. No univocal results are found about the influence of siblings or friends on children's screen time. Weather conditions and parental habits at home are the most important factors influencing children's screen time. Alternatives for screen activities and information on how to set rules for screen time should be provided to parents to assist them in decreasing their preschool children's screen time. This review investigates the health of immigrants to Canada by critically examining differences in health status between immigrants and the native-born population and by tracing how the health of immigrants changes after settling in the country. Fifty-one published empirical studies met the inclusion criteria for this review. The analysis focuses on four inter-related questions: (1) Which health conditions show transition effects and which do not? (2) Do health transitions vary by ethnicity/racialized identity? (3) How are health transitions influenced by socioeconomic status? and (4) How do compositional and contextual factors interact to affect the health of immigrants? Theoretical and methodological challenges facing this area of research are discussed and future directions are identified. This area of research has the potential to develop into a complex, nuanced, and useful account of the social determinants of health as experienced by different groups in different places.

BACKGROUND: For the first time, public health, particularly obesity, is being seen as a driver of EU agricultural policy. In 2007, European Ministers of Agriculture were asked to back new proposals for school fruit and vegetable programmes as part of agricultural reforms. In 2008, the European Commission conducted an impact assessment to assess the potential impact of this new proposal on health, agricultural markets, social equality and regional cohesion. METHODS: A systematic review of
the effectiveness of interventions to promote fruit and/or vegetable consumption in children in schools, to inform the EC policy development process. RESULTS: School schemes are effective at increasing both intake and knowledge. Of the 30 studies included, 70% increased fruits and vegetables (FV) intake, with none decreasing intake. Twenty-three studies had follow-up periods > 1 year and provide some evidence that FV schemes can have long-term impacts on consumption. Only one study led to both increased fruit and vegetable intake and reduction in weight. One study showed that school fruit and vegetable schemes can also help to reduce inequalities in diet. Effective school programmes have used a range of approaches and been organized in ways which vary nationally depending on differences in food supply chain and education systems. CONCLUSIONS: EU agriculture policy for school fruits and vegetables schemes should be an effective approach with both public health and agricultural benefits. Aiming to increase FV intake amongst a new generation of consumers, it will support a range of EU policies including obesity and health inequalities.

This article investigates to what extent the worldwide increase in body mass index (BMI) has been affected by economic globalization and inequality. We used time-series and longitudinal cross-national analysis of 127 countries from 1980 to 2008. Data on mean adult BMI were obtained from the Global Burden of Metabolic Risk Factors of Chronic Diseases Collaborating Group. Globalization was measured using the Swiss Economic Institute (KOF) index of economic globalization. Economic inequality between countries was measured with the mean difference in gross domestic product per capita purchasing power parity in international dollars. Economic inequality within countries was measured using the Gini index from the Standardized World Income Inequality Database. Other covariates including poverty, population size, urban population, openness to trade and foreign direct investment were taken from the World Development Indicators (WDI) database. Time-series regression analyses showed that the global increase in BMI is positively associated with both the index of economic globalization and inequality between countries, after adjustment for covariates. Longitudinal panel data analyses showed that the association between economic globalization and BMI is robust after controlling for all covariates and using different estimators. The association between economic inequality within countries and BMI however, was significant only among high-income nations. More research is needed to study the pathways between economic globalization and BMI. These findings, however, contribute to explaining how contemporary globalization can be reformed to promote better health and control the global obesity epidemic.

BACKGROUND: There is evidence to suggest that immigrant populations from low or medium-income countries to high income countries show a significant change in obesogenic behaviors in the host society, and that these changes are associated with acculturation. However, the results of studies vary depending on how acculturation is measured. The objective of this study is to systematically review the evidence on the relationship between acculturation—as measured with a standardized acculturation scale—and overweight/obesity among adult migrants from low/middle countries to high income countries. METHODS: A systematic review of relevant studies was undertaken using six EBSCOhost databases and following the Centre for Reviews and Dissemination's Guidance for Undertaking Reviews in Health Care. RESULTS: The initial search identified 1135 potentially relevant publications, of which only nine studies met the selection criteria. All of the studies were from the US with migrant populations from eight different countries. Six studies employed bi-directional acculturation scales and three used uni-directional scales. Six studies indicated positive general associations between higher acculturation and body mass index (BMI), and three studies reported that higher acculturation was associated with lower BMI, as mainly among women. CONCLUSION: Despite the small number of studies, a number of potential explanatory hypotheses were developed for these emerging patterns. The 'Healthy Migrant Effect' may diminish with greater acculturation as the host culture potentially promotes more unhealthy weight gain than heritage cultures. This appears particularly so for men and a rapid form of nutrition transition represents a likely contributor. The inconsistent results observed for women may be due to the interplay of cultural influences on body image, food choices and physical activity. That is, the Western ideal of a slim female body and higher values placed on physical activity and fitness may counteract the obesogenic food environment for female migrants.
Globally, public health agencies recognise obesity trends among populations as a priority. Explanations for population obesity patterns are linked to obesogenic environments and societal trends which encourage patterns of overeating and little physical activity. However, obesity prevention and nutrition intervention focus predominantly on changing individual level eating behaviours. Disappointingly, behaviour-based nutrition education approaches to changing population eating patterns have met with limited success. Sociological perspectives propose that underlying social relations can help explain collective food and eating patterns, and suggest an analysis of the sociocultural context for understanding population eating patterns. We propose a theoretical framework for the examination of eating patterns as social phenomena. Giddens' structuration theory, in particular his concept of social practices understood as an interplay of 'agency' and 'social structure' (rules and resources), is used to study food choice patterns. We discuss the application of these concepts for understanding routine food choice practices of families, elaborating how rules and resources configure the enabling or constraining conditions under which actors make food choices. The framework assists in characterising how social structural properties are integral to food choice practices, and could direct attention to these when considering nutrition interventions aimed at changing population eating patterns.

In the USA, several nutrition-related issues confront the normal growth, maturation and development of children and adolescents including obesity and food insecurity. The purpose of this paper is to provide a review of the concept of food insecurity and a summary of studies that have examined the association between food insecurity and overweight/obesity in children and adolescents. Besides the initial case report, we review 21 studies (16 cross-sectional and five prospective studies) that have been published on this topic as of December 2009. As there is limited literature in this area, we review studies that sample children and adolescents in the USA. The results are mixed with positive, negative and null associations. The reasons for the mixed results are difficult to disentangle. Among earlier studies, small samples hampered definitive conclusions. More recent studies with larger samples have overcome these limitations and tend to find no associations between these constructs. Nonetheless, all of the studies to date have shown that food insecurity and overweight co-exist - that is, even though there may not be statistically significant differences in overweight between food-insecure and food-secure children, the prevalence of overweight remains relatively high in food-insecure children.

Background: The focus in understanding the causes of and preventing obesity has broadened from the individual level to include the obesogenic environment. Proving a causal relationship between environmental factors and eating patterns poses a great challenge because randomised controlled trials are seldom possible or feasible to conduct. Interactions between the environment and individuals are beginning to be explored in multilevel studies and qualitative and sociological research. Aim: The aim is to give an overview of the wider environmental determinants of diet such as the national food supply, food availability and accessibility in different settings as well as the economic food environment and in relation to socio-economic status. Results: The indicators suggested are based on the amount of data available in the scientific literature and the potential for intervention. They can be used to monitor societal interventions or evaluate 'natural' changes in the food environment. The indicators are of relevance to the Second WHO European Action Plan for Food and Nutrition Policy 2007-2012. Conclusion: The relatively weak empirical evidence does not imply the absence of causal relationships between environmental factors and diet. Potentially relevant factors have not been evaluated due to the complexity of the task and to lack of political will to change the food environment in a more healthy direction by use of legislation or economic instruments. Future intervention research, targeting the wider environmental determinants of diet, will give us better evidence to propose societal actions to counteract obesity and to strike the right balance between individual and societal action.

The prevalence of excess weight in children and adults worldwide has increased rapidly in the last 25 years. Obesity is positively associated with increased risk for many health issues such as type 2 diabetes, cardiovascular disease and psychosocial problems. This review focuses on child populations, as it is known that the sedentary behaviors of overweight/obese youth often endure into adulthood. Assessment of physical activity (PA), among other factors such as diet and socio-economic status, is important in understanding weight variation and in designing interventions. This review...
A systematic review of the effect of dietary exposure that could be achieved through normal dietary intake on learning and performance of school-aged children of relevance to UK schools.

Ells LJ, Hillier FC, Shucksmith J, Crawford L, Shield J, Wiggins A, Summerbell CD.


European nutrition and health report 2009.
Elmadfa, I.

The aim of the present review was to perform a systematic in-depth review of the best evidence from controlled trial studies that have investigated the effects of nutrition, diet and dietary change on learning, education and performance in school-aged children (4-18 years) from the UK and other developed countries. The twenty-nine studies identified for the review examined the effects of breakfast consumption, sugar intake, fish oil and vitamin supplementation and 'good diets'. In summary, the studies included in the present review suggest there is insufficient evidence to identify any effect of nutrition, diet and dietary change on learning, education or performance of school-aged children from the developed world. However, there is emerging evidence for the effects of certain fatty acids which appear to be a function of dose and time. Further research is required in settings of relevance to the UK and must be of high quality, representative of all populations, undertaken for longer durations and use universal validated measures of educational attainment. However, challenges in terms of interpreting the results of such studies within the context of factors such as family and community context, poverty, disease and the rate of individual maturation and neurodevelopment will remain. Whilst the importance of diet in educational attainment remains under investigation, the evidence for promotion of lower-fat, -salt and -sugar diets, high in fruits, vegetables and complex carbohydrates, as well as promotion of physical activity remains unequivocal in terms of health outcomes for all schoolchildren.

The main objective of this report, was not to generate new data, but rather to collect available and authorized data, published or unpublished, on the nutrition and health situation in the countries of the European Union (EU). The first European Nutrition and Health Report (ENHR) was released in 2004. Thirteen EU member states and Norway participated, allowing comparisons between these countries as well as the northern, southern, and western EU regions. In the ENHR 2009, an additional 11 countries joined the original contributors, resulting in the active participation of 24 EU member states and Norway. In all main chapters of the ENHR 2009, the impact of age and gender was emphasized and special attention paid to the different regions of the EU. Specific objectives of the ENHR 2009 were: to describe trends in food supply in the EU focusing also on the different regions; to compare average daily individual food availability at household level; to evaluate individual food consumption and energy and nutrient intake; to describe data on diet-related health indicators and status; and to analyse food and nutrition policies in countries of the EU. Different methods of nutrition surveillance were considered in this report, taking into account their potential and limitations. Food Balance Sheets of the Food and Agriculture Organization of the United Nations were used to calculate the trends of average food supply (chapter 4). The food availability at household level was derived from household budget survey data of the DAFNE (Data Food Networking) database (chapter 5). Information on individual food consumption of adults in European countries came from national and regional dietary surveys (chapter 6). Nutrition surveys at the national level considering demographic and socioeconomic characteristics such as age, gender, and education also provided data on energy and nutrient intake and allowed the description of the nutritional situation by age and gender (chapter 7). In addition to national health surveys, data from different sources (WHO, Eurobarometer, GLOBOCAN) served to describe and comment on health indicators and status including overweight, blood lipids, total, cardiovascular, and cancer-related mortality, the prevalence of different neoplasms and diabetes mellitus, as well as the health-related lifestyle parameters smoking, alcohol consumption, physical activity, and breastfeeding (chapter 8). Chapter 9 of the ENHR 2009 deals with Food and Nutrition Policies (FNPs) from the standpoint of the participating countries. A specially conducted survey considered types and implementing actions of FNPs, their role in ensuring diet quality, and their impact on health promotion and prevention of nutrition-related chronic diseases. More detailed information related to the nutrition and health situation in the participating countries is documented in the corresponding national reports (chapter 11).
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Childhood obesity is a major public health challenge worldwide. There is a growing literature documenting socioeconomic inequalities in childhood obesity risk. Here we draw inference from the literature about inequalities in childhood obesity risk in the UK. We summarize and appraise the extent peer-reviewed literature about socioeconomic inequalities in childhood obesity in the UK. Common area-level indices of socioeconomic position, including the Carstairs Deprivation Index, the Index of Multiple Deprivation and the Townsend Deprivation Index, as well as common household and individual-level metrics of childhood socioeconomic position, including head-of-household social class and maternal education, were generally inversely associated with childhood obesity in the UK. We summarize key methodological limitations to the extent literature and suggest avenues for future research.

**BACKGROUND:** There is a growing literature documenting socioeconomic inequalities in obesity risk among adults in the UK, with poorer groups suffering higher risk. METHODS: In this systematic review, we summarize and appraise the extent peer-reviewed literature about socioeconomic inequalities in adult obesity risk in the UK published between 1980 and 2010. Only studies featuring empirical assessments of relations between socioeconomic indicators and measures of obesity among adults in the UK were included. RESULTS: A total of 35 articles met inclusion criteria, and were reviewed here. CONCLUSION: Socioeconomic indicators of low socioeconomic position (SEP), including occupational social class of the head-of-household at birth and during childhood, earlier adulthood occupational social class, contemporaneous occupational social class, educational attainment, and area-level deprivation were generally inversely associated with adult obesity risk in the UK. Measures of SEP were more predictive of obesity among women than among men. We outline important methodological limitations to the literature and recommend avenues for future research.

**P>Ethnic minority groups are growing as a proportion of the British population. Although disparate, literature suggests inequalities in obesity risk within and among ethnic minority groups relative to Caucasians in the UK. We summarize and appraise the existing peer-reviewed literature about the prevalence and determinants of obesity among ethnic minority groups relative to Caucasians. There was no consensus about obesity prevalence relative to Caucasians among South Asian or Black children or among South Asian adults relative to Caucasians. Black adults generally had higher risk for obesity than Caucasians. Both Chinese children and adults had lower risk for obesity than Caucasians. Few studies have considered differences in the aetiology of obesity by ethnicity. The lack of consensus regarding obesity risk among large ethnic minority groups relative to Caucasians in the UK, and the paucity of studies concerned with differences in obesity aetiology by ethnicity warrant further research in this area. Certain obesity metrics may bias obesity prevalence among particular ethnic groups relative to Caucasians. We summarize key methodological limitations to the current literature and suggest avenues for future research.**

Over the past century, a major shift in North American food practices has been taking place. However, the literature on this topic is lacking in several areas. Some available research on food and cooking practices in the current context is presented, with a focus on how these are affecting health and how they might be contributing to health inequalities within the population. First, cooking and cooking skills are examined, along with the ambiguities related to terms associated with cooking in the research literature. Food choice, cooking, and health are described, particularly in relation to economic factors that may lead to health inequalities within the population. The importance of developing an understanding of factors within the wider food system as part of food choice and cooking skills is presented, and gaps in the research literature are examined and areas for future research are presented. Cooking practices are not well studied but are important to an understanding of human nutritional health as it relates to cultural, environmental, and economic factors.

Blacks have the highest rates of hypertension and cardiovascular disease, with earlier onset, greater severity, and more target organ damage including coronary disease, heart failure, stroke, and end-stage renal disease. A major reason is the greater prevalence of other cardiovascular disease risk factors, particularly obesity, inactivity, and diabetes mellitus, along with socioeconomic differences, adherence, and achievement of goals. This review focuses on the burden of cardiovascular disease in blacks. Therapeutic lifestyle changes and pharmacologic interventions to decrease clinical events in this high-risk group are...
Background: Recent research and literature reviews show that, among schoolchildren, some specific energy balance-related behaviors (EBRBs) are relevant for overweight and obesity prevention. It is also well known that the prevalence of overweight and obesity is considerably higher among schoolchildren from lower socio-economic backgrounds. This study examines whether sugared drinks intake, physical activity, screen time and usual sleep duration cluster in reliable and meaningful ways among European children, and whether the identified clusters could be characterized by parental education. Methods: The cross-sectional study comprised a total of 5284 children (46% male), from seven European countries participating in the ENERGY-project ("EuropeaN Energy balance Research to prevent excessive weight Gain among Youth"). Information on sugared drinks intake, physical activity, screen time and usual sleep duration was obtained using validated self-report questionnaires. Based on these behaviors, gender-specific cluster analysis was performed. Associations with parental education were identified using chi-square tests and odds ratios. Results: Five meaningful and stable clusters were found for both genders. The cluster with high physical activity level showed the highest proportion of participants with highly educated parents, while clusters with high sugared drinks consumption, high screen time and low sleep duration were more prevalent in the group with lower educated parents. Odds ratio showed that children with lower educated parents were less likely to be allocated in the active cluster and more likely to be allocated in the low activity/sedentary pattern cluster. Conclusions: Children with lower educated parents seemed to be more likely to present unhealthier EBRBs clustering, mainly characterized by their self-reported time spent on physical activity and screen viewing. Therefore, special focus should be given to lower educated parents and their children in order to develop effective primary prevention strategies.

The frequent consumption of energy-dense fast food is associated with increased body mass index. This systematic review aims to examine the methodology and current evidence on fast food access and its associations with outcomes. Six databases were searched using terms relating to fast food. Only peer-reviewed studies published in English during a 10-year period, with data collection and analysis regarding fast food access were included. Forty articles met the 16) used their own = aforementioned criteria. Nearly half of the studies (n set of features to define fast food. Studies predominantly examined the 21) and = relationship between fast food access and socioeconomic factors (n 76% indicated fast food restaurants were more prevalent in low-income areas compared with middle- to higher-income areas. Ten of 12 studies found fast food restaurants were more prevalent in areas with higher concentrations of ethnic minority groups in comparison with Caucasians. Six adult studies found higher body mass index was associated with living in areas with increased exposure to fast food; four studies, however, did not find associations. Further work is needed to understand if and how fast food access impacts dietary intake and health outcomes; and if fast food access has disparate socioeconomic, race/ethnicity and age associations.

Context: Obesity has emerged as a global public health challenge. The objective of this review was to examine epidemiological aspects of obesity in the Western Hemisphere. Evidence Acquisition: Using PubMed, we searched for publications about obesity (prevalence, trends, correlates, economic costs) in countries in North America, Central America, South America, and the Caribbean. To the extent possible, we focused on studies that were primarily population based in design and on four countries in the Western Hemisphere: Brazil, Canada, Mexico, and the United States. Evidence Synthesis: Data compiled by the International Obesity Task Force show a substantial level of obesity in all of or selected areas of the Bahamas, Barbados, Canada, Chile, Guyana, Mexico, Panama, Paraguay, Peru, St. Lucia, Trinidad and Tobago, the United States, and Venezuela. Furthermore, countries such as Brazil, Canada, Mexico, and the United States have experienced increases in the prevalence of obesity. In many countries, the prevalence of obesity is higher among women than men and in urban areas than in rural areas. The relationship between socioeconomic status and obesity depends on the stage of economic
Ford, PB; Dzewaltowski, DA

Disparities in obesity prevalence due to variation in the retail food environment: three testable hypotheses

NUTRITION REVIEWS 2008 66 216-228

Although the overall population in the United States has experienced a dramatic increase in obesity in the past 25 years, ethnic/racial minorities, and socioeconomically disadvantaged populations have a greater prevalence of obesity, as compared to white, and/or economically advantaged populations. Disparities in obesity are unlikely to be predominantly due to individual psychosocial or biological differences, and they may reflect differences in the built or social environment. The retail food environment is a critical aspect of the built environment that can contribute to observed disparities. This paper reviews the literature on retail food environments in the United States and proposes interrelated hypotheses that geographic, racial, ethnic, and socioeconomic disparities in obesity within the United States are the result of disparities in the retail food environment. The findings of this literature review suggest that poor-quality retail food environments in disadvantaged areas, in conjunction with limited individual economic resources, contribute to increased risk of obesity within racial and ethnic minorities and socioeconomically disadvantaged populations.

Franklin B, Jones A, Love D, Puckett S, Macklin J, White-Means S.

Exploring mediators of food insecurity and obesity: a review of recent literature.


One in seven American households experience food insecurity at times during the year, lack of money and other resources hinder their ability to maintain consistent access to nutritious foods. Low-income, ethnic minority, and female-headed households exhibit the greatest risk for food insecurity, which often results in higher prevalence of diet-related disease. The food insecurity-obesity paradox is one that researchers have explored to understand the factors that influence food insecurity and its impact on weight change. The aim of this inquiry was to explore new evidence in associations of food insecurity and obesity in youth, adult, and elderly populations. A literature search of publication databases was conducted, using various criteria to identify relevant articles. Among 65 results, 19 studies were conducted since 2005 were selected for review. Overall, the review confirmed that food insecurity and obesity continue to be strongly and positively associated in women. Growing evidence of this association was found in adolescents; but among children, results remain mixed. Few studies supported a linear relationship between food insecurity and weight outcomes, as suggested by an earlier review. New mediators were revealed (gender, marital status, stressors, and food stamp participation) that alter the association; in fact, newer studies suggest that food stamp participation may exacerbate obesity outcomes. Continued examination through longitudinal studies, development of tools to distinguish acute and chronic food insecurity, and greater inclusion of food security measurements tools in regional and local studies are warranted.

Fraser LK, Edwards KL, Cade J, Clarke GP.

The geography of Fast Food outlets: a review.


The availability of food high in fat, salt and sugar through Fast Food (FF) or takeaway outlets, is implicated in the causal pathway for the obesity epidemic. This review aims to summarise this body of research and highlight areas for future work. Thirty three studies were found that had assessed the geography of these outlets. Fourteen studies showed a positive association between availability of FF outlets and increasing deprivation. Another 13 studies also included overweight or obesity data and showed conflicting results between obesity/overweight and FF outlet availability. There is some evidence that FF availability is associated with lower fruit and vegetable intake. There is potential for land use policies to have an influence on the location of new FF outlets. Further research should incorporate good quality data on FF consumption, weight and physical activity.

Garaulet M, Ordovás JM, Madrid JA.

The chronobiology, etiology and pathophysiology of obesity.


The effect of CD on human health is an emerging issue. Many records link CD with diseases such as cancer, cardiovascular, cognitive impairment and obesity, all of them conducive to premature aging. The amount of sleep has declined by 1.5 h over the past century, accompanied by an important increase in obesity. Shift work, sleep deprivation and exposure to bright light at night increase the prevalence of adiposity. Animal models have shown that mice with Clock gene disruption are prone to developing obesity and MetS. This review summarizes the latest developments with regard to chronobiology and obesity, considering (1) how molecular clocks coordinate metabolism and the specific role of the adipocyte; (2) CD and its causes and
Kunst, AE; Brug, J; Giskes, K; Khokhar, S.; Gilbert, PA, Melanie 1 Damara; Jay, Gutnick, Stella M; Savarimuthu, Joey; Nicholson, Allison; Squires, Barbara; Tagliaferro, Lauren 1; Gerchow, European adults; overweight/obesity with weight gain and intakes associated inequalities in dietary socioeco of studies on A systematic review health. implications for groups in Europe and habits of ethnic Changing dietary Latina food patterns in the United States: a qualitative metasynthesis. Latinas living in the United States, and cultural food patterns contribute to this health concern. The aim of this study was to synthesize the qualitative results of research regarding Latina food patterns in order to (a) identify common patterns across Latino culture and within Latino subcultures and (b) inform future research by determining gaps in the literature. A systematic search of three databases produced 13 studies (15 manuscripts) that met the inclusion criteria for review. The Critical Appraisal Skills Program tool and the recommendations of Squires for evaluating translation methods in qualitative research were applied to appraise study quality. Authors coded through directed content analysis and an adaptation of the Joanna Briggs Institute Qualitative Assessment and Review Instrument coding template to extract themes. Coding focused on food patterns, obesity, population breakdown, immigration, acculturation, and barriers and facilitators to healthy eating. Other themes and categories emerged from this process to complement this approach. Major findings included the following: (a) Immigration driven changes in scheduling, food choice, socioeconomic status, and family dynamics shape the complex psychology behind healthy food choices for Latina women; (b) in Latina populations, barriers and facilitators to healthy lifestyle choices around food are complex; and (c) there is a clear need to differentiate Latino populations by country of origin in future qualitative studies on eating behavior. Healthcare providers need to recognize the complex influences behind eating behaviors among immigrant Latinas in order to design effective behavior change and goal-setting programs to support healthy lifestyles. A systematic review of the literature suggests the dietary habits of some ethnic groups living in Europe are likely to become less healthy as individuals increase consumption of processed foods that are energy dense and contain high levels of fat, sugar, and salt. Such products often replace healthy dietary components of the native diet, such as fruits, vegetables, nuts, and grains. Mixed food habits are emerging mainly amongst younger people in the second and third generations, most likely due to acculturation and adoption of a Western lifestyle. Age and immigrant generation are the major factors accounting for changes in dietary habits, whilst income, level of education, dietary laws, religion, and food beliefs are also important factors. Obesity, cardiovascular disease, diabetes, and hypertension present major problems for the mainstream European population. However, the risk of chronic disease is reported to be higher in ethnic populations, particularly South Asians, African Caribbeans, and Mexicans. Abstract: Obesity disproportionately affects Latinas living in the United States, and cultural food patterns contribute to this health concern. The aim of this study was to synthesize the qualitative results of research regarding Latina food patterns in order to (a) identify common patterns across Latino culture and within Latino subcultures and (b) inform future research by determining gaps in the literature. A systematic search of three databases produced 13 studies (15 manuscripts) that met the inclusion criteria for review. The Critical Appraisal Skills Program tool and the recommendations of Squires for evaluating translation methods in qualitative research were applied to appraise study quality. Authors coded through directed content analysis and an adaptation of the Joanna Briggs Institute Qualitative Assessment and Review Instrument coding template to extract themes. Coding focused on food patterns, obesity, population breakdown, immigration, acculturation, and barriers and facilitators to healthy eating. Other themes and categories emerged from this process to complement this approach. Major findings included the following: (a) Immigration driven changes in scheduling, food choice, socioeconomic status, and family dynamics shape the complex psychology behind healthy food choices for Latina women; (b) in Latina populations, barriers and facilitators to healthy lifestyle choices around food are complex; and (c) there is a clear need to differentiate Latino populations by country of origin in future qualitative studies on eating behavior. Healthcare providers need to recognize the complex influences behind eating behaviors among immigrant Latinas in order to design effective behavior change and goal-setting programs to support healthy lifestyles. 

Gerchow, Lauren 1; Tagliaferro, Barbara; Squires, Allison; Nicholson, Joey; Savarimuthu, Stella M; Gutnick, Melanie 1; Gilbert, PA; Khokhar, S.


Giskes, K; Avendano, M; Brug, J; Kunst, AE A systematic review of studies on socioeconomic inequalities in dietary intakes associated with weight gain and overweight/obesity conducted among European adults OBESITY REVIEWS 2010 11 413 429

pathological consequences; (3) the epidemiological evidence of obesity as a chronobiological illness; and (4) theories of circadian disruption and obesity. Energy intake and expenditure, relevance of sleep, fat intake from a circadian perspective and psychological and genetic aspects of obesity are examined. Finally, ideas about the use of chronobiology in the treatment of obesity are discussed. Such knowledge has the potential to become a valuable tool in the understanding of the relationship between the chronobiology, etiology and pathophysiology of obesity.

P>This Review examined socioeconomic inequalities in intakes of dietary factors associated with weight gain, overweight/obesity among adults in Europe. Literature searches of studies published between 1990 and 2007 examining socioeconomic position (SEP) and the consumption of energy, fat, fibre, fruit, vegetables, energy-rich drinks and meal patterns were conducted. Forty-seven articles met the inclusion criteria. The direction of associations between SEP and energy intakes were inconsistent. Approximately half the associations examined between SEP and fat intakes showed higher total fat intakes among socioeconomically disadvantaged groups. There was some evidence that these groups consume a diet lower in fibre. The most consistent evidence of dietary inequalities was for fruit and vegetable consumption; lower socioeconomic groups were less likely to consume fruit and vegetables. Differences in energy, fat and fibre intakes (when found) were small-to-moderate in magnitude; however, differences were moderate-to-large for fruit and vegetable intakes. Socioeconomic inequalities in the consumption of energy-rich drinks and meal patterns were relatively under-studied compared with other dietary factors. There were no regional or gender differences in the direction and magnitude of the inequalities in the dietary factors examined. The findings suggest that dietary behaviours may contribute to socioeconomic inequalities in overweight/obesity in Europe. However, there is only consistent evidence that fruit and vegetables may make an important contribution to inequalities in weight status across European regions.
to understanding obesogenic environments?

Giskes, K; van Lenthe, F; Avendano-Pabon, M; Brug, J


Gregori, D; Foltran, F; Ghidina, M; Berchialla, P

Understanding the influence of the snack definition on the association between snacking and obesity: a review. International Journal of Food Sciences and Nutrition 2011 62 270-275

Gundersen C, Mahatmya D, Garasky S, Lohman B


P> This study examined whether physical, social, cultural and economical environmental factors are associated with obesogenic dietary behaviours and overweight/obesity among adults. Literature searches of databases (i.e. PubMed, CSA Illumina, Web of Science, PsychInfo) identified studies examining environmental factors and the consumption of energy, fat, fibre, fruit, vegetables, sugar-sweetened drinks, meal patterns and weight status. Twenty-eight studies were in-scope, the majority (n = 16) were conducted in the USA. Weight status was consistently associated with the food environment; greater accessibility to supermarkets or less access to takeaway outlets were associated with a lower BMI or prevalence of overweight/obesity. However, obesogenic dietary behaviours did not mirror these associations; mixed associations were found between the environment and obesogenic dietary behaviours. Living in a socioeconomically-deprived area was the only environmental factor consistently associated with a number of obesogenic dietary behaviours. Associations between the environment and weight status are more consistent than that seen between the environment and dietary behaviours. The environment may play an important role in the development of overweight/obesity, however the dietary mechanisms that contribute to this remain unclear and the physical activity environment may also play an important role in weight gain, overweight and obesity.

Food security is a fundamental human right yet many people are food insecure, even in high-income countries. Reviewed here is the evidence for the physical, economic, sociocultural, and political environmental influences on household food security in high-income countries. The literature was evaluated using the ANGELO framework, which is a lens developed for understanding the environmental factors underpinning the obesity pandemic. A review of the literature identified 78 articles, which mostly reported on cross-sectional or qualitative studies. These studies identified a wide range of factors associated with food security. Foremost among them was household financial resources, but many other factors were identified and the complexity of the issue was highlighted. Few studies were prospective and even fewer tested the use of interventions other than the supplemental nutrition assistance program to address food security. This indicates a solution-oriented research paradigm is required to identify effective interventions that work. In addition, comprehensive top-down and bottom-up interventions at the community and national levels are urgently needed.

The aim of the present study is to understand how different definitions of snacking influence the estimated probability of obesity in the presence of concurrent risk factors. Factors influencing obesity were evaluated by reviewing the relevant literature through a PUBMED search. Six different modalities to define snack consumption were identified. A Bayesian network model in which nodes represent the variables that the retrieved studies indicate as affecting the probability of obesity was implemented and used to estimate the individual risk of developing obesity taking into account the concurrent effect of the considered risk factors. For a subject with a given profile of factors, the probability of obesity varies according to the chosen definition of snacking, up to maximum of 70%. The variability of the probability of obesity attributable to the chosen definition of snacking is very high and may threaten any conclusion about the effect of snacking, which may be related to the specific definitions adopted in the study.

Research has established a wide array of genetic and environmental factors that are associated with childhood obesity. The focus of this review is on recent work that has established the relationship between one set of environmental factors, stressors and childhood obesity. These stressors are particularly prevalent for low-income children, a demographic group that has high rates of obesity in the USA and other developed countries. In this review, we begin by summarizing the psychosocial stressors faced by children followed by health outcomes associated with exposure to these stressors documented in the literature. We then summarize 11 articles which examined the connection between psychosocial stressors in the household and obesity and eight articles which examined the connection between individual psychosocial stressors and obesity. Policy recommendations emerging from this research include recognizing reductions in childhood obesity as a potential added benefit of social safety net programmes that reduce financial stress among families. In addition, policies and programmes geared towards childhood obesity prevention should focus on helping children build resources and capacities to teach them how to cope effectively with stressor exposure. We conclude with suggestions for future research.
Childhood obesity is one of the most serious global public health challenges of the 21st century. The prevalence of this problem has increased at an alarming rate in many countries. The main causes of childhood obesity are; sedentary lifestyle, unhealthy eating patterns, genetic factors, socio-economic status, race/ethnicity, media and marketing, and the physical environment. Children are clearly being targeted as a receptive market by the manufacturing industry. Undoubtedly, television provides one of the most powerful media through which products can be advertised. Furthermore, food advertising accounted for the largest percentage of these advertisements in virtually all countries. Detailed nutritional analysis of food advertisements identified that up to 90% of food products have a high fat, sugar or salt content. Therefore TV viewing is recently identified as one of the risk factors contributing to development of childhood obesity by several mechanisms. This review provides some facts and figures about the global trend of rising obesity among children, amount and content of television and especially food advertisements being watched by children and its possible mechanisms how to cause adverse effects on children's health and contribute to childhood obesity.

Description of the consumer food environment has proliferated in publication. However, there has been a lack of systematic reviews focusing on how the consumer food environment is associated with the following: (1) neighborhood characteristics; (2) food prices; (3) dietary patterns; and (4) weight status. We conducted a systematic review of primary, quantitative, observational studies, published in English that conducted an audit of the consumer food environment. The literature search included electronic, hand searches, and peer-reviewed from 2000 to 2011. Fifty six papers met the inclusion criteria. Six studies reported stores in low income neighborhoods or high minority neighborhoods had less availability of healthy food. While, four studies found there was no difference in availability between neighborhoods. The results were also inconsistent for differences in food prices, dietary patterns, and weight status. This systematic review uncovered several key findings. (1) Systematic measurement of determining availability of food within stores and store types is needed; (2) Context is relevant for understanding the complexities of the consumer food environment; (3) Interventions and longitudinal studies addressing purchasing habits, diet, and obesity outcomes are needed; and (4) Influences of price and marketing that may be linked with why people purchase certain items.

Chronic heart and respiratory diseases are two of the leading causes of morbidity and mortality affecting women. Patterns of and disparities in chronic diseases between sub-populations of women suggest that there are social as well as individual level factors which enhance or impede the prevention or development of chronic respiratory and cardiovascular diseases. By examining the sex, gender and diversity based dimensions of women's lung and heart health and how these overlap with environmental factors we extend analysis of preventive health beyond the individual level. We demonstrate how biological, environmental and social factors interact and operate in women's lives, structuring their opportunities for health and abilities to prevent or manage chronic cardiovascular and respiratory diseases. This commentary is based on the findings from two evidence reviews, one conducted on women's heart health, and another on women's lung health. Additional literature was also reviewed which assessed the relationship between environmental factors and chronic heart and lung diseases. This paper explores how obeseogenic environments, exposure to tobacco smoke, and the experience of living in deprived areas can affect women's heart and respiratory health. We discuss the barriers which impede women's ability to engage in physical activity, consume healthy foods, or avoid smoking, tobacco smoke, and other airborne contaminants. Sex, gender and diversity clearly interact with environmental factors and shape women's promotion of health and prevention of chronic respiratory and cardiovascular diseases. The environments women live in structure their opportunities for health, and women navigate these environments in unique ways based on gender, socioeconomic status, race/ethnicity and other social factors. Future research, policy and programs relating to the prevention of chronic disease need to move beyond linear individually-oriented models and address these complexities by developing frameworks and interventions which improve environmental conditions for all groups of women. Indeed, in order to improve women's health, broad social and economic policies and initiatives are required to eliminate negative environmental impacts on women's opportunities for health.

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<td>Hemsing, Natalie; Greaves, Lorraine.</td>
<td>Women, environments and chronic disease: shifting the gaze from individual level to structural factors.</td>
<td>Volume: 2 Pages: 127-135 Year: 2009</td>
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BACKGROUND: The burden of non-communicable diseases (NCDs) is disproportionately carried by low-income and middle-income countries and disadvantaged sectors of society such as prisoners. No systematic analysis has been done to assess the prevalence of poor diet, inadequate physical activity, and overweight and obesity in prisoners. We aim to synthesise current evidence and to highlight areas for action and further research. METHODS: We systematically searched online databases for reports published between 1948 and May, 2011. Studies were screened against eligibility criteria; two authors then independently extracted data with previously agreed proformas. The risk of bias was assessed for each study with a domain-based assessment. Data on body-mass index and physical activity were presented in forest plots; no overall estimates were calculated on account of data heterogeneity. Available data from the population subgroup most similar in terms of age and sex were used to calculate age-adjusted and sex-adjusted prevalence ratios, which estimate the likelihood of insufficient activity and obesity prevalence in prisoners compared with the national population. FINDINGS: 31 eligible studies were reported in 29 publications, including more than 60,000 prisoners in 884 institutions in 15 countries. Male prisoners were less likely to be obese than males in the general population (prevalence ratios ranged from 0·33 to 0·87) in all but one study (1·02, 0·92-1·07), whereas female prisoners were more likely to be obese than non-imprisoned women in the USA (1·18, 1·08-1·30) and Australia (prevalence ratios ranged from 1·15 to 1·20). Australian prisoners were more likely to achieve sufficient activity levels than the general population compared with prisoners in the UK (prevalence ratio 1·19, 95% CI 1·04-1·37, for women in Australia in 2009 vs 0·32, 0·21-0·47, for women in the UK; prevalence ratios ranged from 1·37 to 1·59 for men in Australia vs 0·71, 0·34-0·78, for men in the UK). Female mean energy intake exceeded recommended levels and sodium intake was about two to three times the recommended intake for all prisoners. INTERPRETATION: Contact with the criminal justice system is a public-health opportunity to promote health in this vulnerable population; the costs to the individual and to society of failing to do so are likely to be substantial. Improved monitoring and further research is essential to inform appropriate targeting of public health interventions.

Obesity is a public health concern worldwide, arising from multifaceted and complex causes that relate to individual choice and lifestyle, and the influences of wider society. In addition to a long-standing focus on both childhood and adult obesity, there has been more recent concern relating to maternal obesity. This review explores the published evidence relating to maternal obesity incidence and associated inequalities, the impact of obesity on maternity services, and associated guidelines. Epidemiological data comprising three national maternal obesity datasets within the UK have identified a significant increase in maternal obesity in recent years, and reflect broad socio-demographic inequalities particularly deprivation, ethnicity and unemployment. Obese pregnancies present increased risk of complications that require more resource intensive antenatal and perinatal care, such as caesarean deliveries, gestational diabetes, haemorrhage, infections and congenital anomalies. Healthcare professionals also face difficulties when managing the care of women in pregnancy as obesity is an emotive and stigmatising topic. There is a lack of good-quality evidence for effective interventions to tackle maternal obesity. Recently published national guidelines for the clinical management and weight management of maternal obesity offer advice for professionals, but acknowledge the limitations of the evidence base. The consequence of these difficulties is an absence of support services available for women. Further evaluative research is thus required to assess the effectiveness of interventions with women before, during and after pregnancy. Qualitative work with women will also be needed to help inform the development of more sensitive risk communication and women-centred services.

Background: Low-income, ethnic/racial minorities and rural populations are at increased risk for obesity and related chronic health conditions when compared to white, urban and higher-socio-economic status (SES) peers. Recent systematic reviews highlight the influence of the built environment on obesity, yet very few of these studies consider rural areas or populations. Utilizing a CBPR process, this study advances community-driven causal models to address obesity by exploring the difference in resources for physical activity and food outlets by block group race and income in a small regional city that anchors a rural health disparate region. To guide this inquiry we hypothesized that lower income and racially diverse block groups would have fewer food outlets, including fewer grocery stores and fewer physical activity outlets. We further hypothesized that...
Zoellner, J; Wandel, M; Ottesen, G; Trost, SG; Okely, AD; Salmon, J; Hinkley, T; Zoellner, J

- Europe. South Asians in health: a focus on habits after migration.

Changes in dietary habits after migration and consequences for health: a focus on South Asians in Europe.

Intention and nutrition related diseases, such as type 2 diabetes (T2D) and cardiovascular disease (CVD) is found in some immigrant groups, especially in South Asians. Aim: To review dietary changes after migration and discuss the implication for health and prevention among immigrants from low-income countries to Europe, with a special focus on South Asians. Method: Systematic searches in PubMed were performed to identify relevant high quality review articles and primary research papers. The searches were limited to major immigrant groups in Europe, including those from South Asia (India, Pakistan, Bangladesh, Sri Lanka). Articles in English from 1990 and onwards from Europe were included. For health implications, recent review articles and studies of particular relevance to dietary changes among South Asian migrants in Europe were chosen. Results: Most studies report on dietary changes and health consequences in South Asians. The picture of dietary change is complex, depending on a variety of factors related to country of origin, urban/rural residence, socioeconomic and cultural factors and situation in host country. However, the main dietary trend after migration is a substantial increase in energy and fat intake, a reduction in carbohydrates and a switch from whole grains and pulses to more refined sources of carbohydrates, resulting in a low intake of fiber. The data also indicate an increase in intake of meat and dairy foods. Some groups have also reduced their vegetable intake. The findings suggest that these dietary changes may all have contributed to higher risk of obesity, T2D and CVD. Implications for prevention: A first priority in prevention should be adoption of a low-energy density - high fiber diet, rich in whole grains and grain products, as well as fruits, vegetables and pulses. Furthermore, avoidance of energy dense and hyperprocessed foods is an important preventive measure.

Hinkley, T; Salmon, J; Okely, AD; Trost, SG

- Correlates of sedentary behaviours in preschool children: a review

INTERNATIONAL JOURNAL OF BEHAVIORAL NUTRITION AND PHYSICAL ACTIVITY 2010 7

Background: Sedentary behaviour has been linked with a number of health outcomes. Preschool-aged children spend significant proportions of their day engaged in sedentary behaviours. Research into the correlates of sedentary behaviours in the preschool population is an emerging field, with most research being published since 2002. Reviews on correlates of sedentary behaviours which include preschool children have previously been published; however, none have reported results specific to the preschool population. This paper reviews articles reporting on correlates of sedentary behaviour in preschool children published between 1993 and 2009. Methods: A literature search was undertaken to identify articles which examined correlates of sedentary behaviours in preschool children. Articles were retrieved and evaluated in 2008 and 2009. Results: Twenty-nine studies were identified which met the inclusion criteria. From those studies, 63 potential correlates were identified. Television viewing was the most commonly examined sedentary behaviour. Findings from the review suggest that child's sex was not associated with television viewing and had an indeterminate association with sedentary behaviour as measured by accelerometry. Age, body mass index, parental education and race had an indeterminate association with television viewing and outdoor playtime had no association with television viewing. The remaining 57 potential correlates had been investigated too infrequently to be able to draw robust conclusions about associations. Conclusions: The correlates of preschool children's sedentary behaviours are multi-dimensional and not well established. Further research is required to provide a more comprehensive understanding of the influences on preschool children's sedentary behaviours to better inform the development of interventions.

Holmboe-Ottesen, G; Wandel, M

- Changes in dietary habits after migration and consequences for health: a focus on South Asians in Europe

Food & Nutrition Research; 2012. 56:18891. 100 ref.

Background: Immigrants from low-income countries comprise an increasing proportion of the population in Europe. Higher prevalence of obesity and nutrition related diseases, such as type 2 diabetes (T2D) and cardiovascular disease (CVD) is found in some immigrant groups, especially in South Asians. Aim: To review dietary changes after migration and discuss the implication for health and prevention among immigrants from low-income countries to Europe, with a special focus on South Asians. Method: Systematic searches in PubMed were performed to identify relevant high quality review articles and primary research papers. The searches were limited to major immigrant groups in Europe, including those from South Asia (India, Pakistan, Bangladesh, Sri Lanka). Articles in English from 1990 and onwards from Europe were included. For health implications, recent review articles and studies of particular relevance to dietary changes among South Asian migrants in Europe were chosen. Results: Most studies report on dietary changes and health consequences in South Asians. The picture of dietary change is complex, depending on a variety of factors related to country of origin, urban/rural residence, socioeconomic and cultural factors and situation in host country. However, the main dietary trend after migration is a substantial increase in energy and fat intake, a reduction in carbohydrates and a switch from whole grains and pulses to more refined sources of carbohydrates, resulting in a low intake of fiber. The data also indicate an increase in intake of meat and dairy foods. Some groups have also reduced their vegetable intake. The findings suggest that these dietary changes may all have contributed to higher risk of obesity, T2D and CVD. Implications for prevention: A first priority in prevention should be adoption of a low-energy density - high fiber diet, rich in whole grains and grain products, as well as fruits, vegetables and pulses. Furthermore, avoidance of energy dense and hyperprocessed foods is an important preventive measure.
In low income countries worldwide, rising standards of living have spurred an unprecedented rise in obesity. However, in numerous wealthy countries the trend frequently reverses with poorer and less educated women more likely to be overweight than their wealthier compatriots. One prominent explanation for this reverse gradient is that economic deprivation leads to food choices which paradoxically increase energy intake. If true, this would challenge current evolutionary accounts for the modern obesity epidemic and have serious implications for how policy makers tackle increasing obesity in the US and worldwide. In this article, we critically review the hypothesis that deprivation leads people to choose cheaper foods which in turn foster overconsumption of energy. Though the hypothesis is consistent with numerous cross-sectional studies, available longitudinal studies from high-, middle-, and low-income countries show the reverse—that when populations experience resource declines, they experience either declines in BMI or decelerations in BMI growth. Most notably, the recent recession in the US coincides with a clear deceleration in women’s obesity across income groups. We conclude by briefly reviewing other plausible explanations for the reverse gradient among women in developing countries. Finally, we discuss how theoretical perspectives and comparative, historical approaches from human biology are useful tools for examining the current wealth of hypotheses about obesity in population health.

Food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Food insecurity is the converse state, is often associated with poverty and low income, and has important implications for the health and nutrition of individuals. Given their contribution to food production and preparation, their role in society as childbearers and caregivers, the increasing number of female-headed households worldwide, and their disproportionately poor economic status, women need special consideration in discussions of food insecurity and its effect on health, nutrition, and behavior. This article reviews the scientific literature on issues related to women and food insecurity. Food insecurity is associated with obesity, anxiety, and depressive symptoms; risky sexual behavior; poor coping strategies; and negative pregnancy outcomes in women, although evidence about the direction and causality of associations is unclear. There is a lack of evidence and understanding of the effects of food insecurity in resource-poor settings, including its effect on weight, nutritional outcomes, and pregnancy outcomes, as well as its effect on progression of diseases such as HIV infection. More research is needed to guide efficient interventions that address food insecurity among women. However, practical experience suggests that both short-term assistance and longer-term strategies that improve livelihoods, address behavioral and coping strategies, acknowledge the mental health components of food insecurity, and attempt to ensure that women have the same economic opportunities, access to land, and economic power as men are important.

Consumption of takeaway and fast food continues to increase in Western societies and is particularly widespread among adolescents. Since food is known to play an important role in both the development and prevention of many diseases, there is no doubt that the observed changes in dietary patterns affect the quality of the diet as well as public health. The present review examines the nutritional characteristics of takeaway and fast food items, including their energy density, total fat, and saturated and trans fatty acid content. It also reports on the association between the consumption of such foods and health outcomes. While the available evidence suggests the nutrient profiles of takeaway and fast foods may contribute to a variety of negative health outcomes, findings on the specific effects of their consumption on health are currently limited and, in recent years, changes have been taking place that are designed to improve them. Therefore, more studies should be directed at gathering firmer understanding of the nutrition and health consequences of eating takeaway and fast foods and determining the best strategy to reduce any negative impact their consumption may have on public health.

Purpose of review Cardiovascular disease (CVD) is the leading cause of mortality in type 2 diabetes mellitus (T2DM), and modifying cardiovascular risk through lifestyle intervention and pharmacologic therapy is paramount. This review focuses on recent advances in treatment of classical (traditional) cardiovascular risk factors and highlights the impact of novel risk factors, including sleep disorders, socioeconomic status and chronic psychological stress on CVD in T2DM. Recent finding Obesity is a substantial cardiovascular risk factor, and recently, large trials of lifestyle and surgical (e.g. gastric bypass)
interventions impact on CVD in overweight and obese patients have been reported. Lifestyle intervention including low calorie diet and exercise reduced individual cardiovascular risk factors but did not decrease the rate of long-term cardiovascular events. Bariatric surgery was beneficial in reducing cardiovascular risk factors and long-term cardiovascular events. Sleep insufficiency, poor sleep quality and obstructive sleep apnoea lead to higher CVD and further research is needed to characterize the benefit of treating sleep disorders on long-term cardiovascular events in T2DM. Lastly, socioeconomic status and chronic psychological stress independently have a major impact on increasing CVD in T2DM, and public health policies to reduce this burden will be important to address over the coming decade. SummaryCVD in T2DM is multifactorial and requires a multifaceted approach in reducing known cardiovascular risks at the individual patient level through lifestyle, pharmacotherapy and surgical interventions and at the societal level through public health policies that support reduction in classical and novel cardiovascular risk factors.

Chronic non-communicable diseases (NCDs), including cardiovascular diseases, cancers, chronic respiratory diseases, diabetes, etc., are the major causes of mortality in the world, notably in low- and middle-income countries. A growing body of evidence suggests that NCDs have a complex etiology resulting from the interaction of genetic factors, gender, age, ethnicity, and the environmental factors. It is well-documented that chronic diseases in adulthood origins in early life. In recent years, much attention has been focused on primordial and primary prevention of NCD risk factors. There are many biological and epidemiological studies on beneficial effects of breastfeeding during infancy on chronic diseases in adulthood, particularly on hypertension, obesity, diabetes, hypercholesterolemia, and cardiovascular diseases. This review article aims to summarize the current literature on the long-term effects of breastfeeding on prevention of NCDs and their risk factors. The current literature is controversial about these effects; however, a growing body of evidence suggests that breastfeeding has protective roles against obesity, hypertension, dyslipidemia, and type II diabetes mellitus during adulthood. In addition to its short-term benefits, encouraging breastfeeding can have long-term beneficial health effects at individual and population levels.

This article is a comprehensive review on developmental origins of health and disease regarding various factors related to the origins of cardiovascular diseases from early life. It presents a summary of the impacts of various factors such as epigenetics; gene environment interaction; ethnic predisposition to cardiovascular diseases and their underlying risk factors; prenatal factors; fetal programming; maternal weight status and weight gain during pregnancy; type of feeding during infancy; growth pattern during childhood; obesity; stunting; socioeconomic status; dietary and physical activity habits; active, secondhand, and thirdhand smoking, as well as environmental factors including air pollution and global climate change on the development and progress of cardiovascular diseases and their risk factors. The importance of early identification of predisposing factors for cardiovascular diseases for primordial and primary prevention of cardiovascular diseases from early life is highlighted.

Tackling socioeconomic inequalities in health risk factors is an important pathway for alleviating health inequalities. The aim of this study was to analyze the current state of inequality in health risk factors by socioeconomic status in Korea through a literature review of recently published studies and description of secondary data from the Korea National Health and Nutritional Examination Survey (KNHANES). We evaluated the extent and trends of socioeconomic inequalities in health behavior (smoking, high-risk alcohol drinking, moderate exercise, and nutritional deficiency) and clinical risk factors (hypertension, diabetes mellitus, hypercholesterolemia, and obesity) with 1998 to 2010 KNHANES data based on socioeconomic status. Furthermore, we summarized the impact of several distal health determinants like income, education and occupation, and childhood period on health inequalities in Korea. The results showed that a wide range of health risk factors including more distal causes were socio-economically patterned to varying degrees. In order to reduce health inequalities by socioeconomic status, more comprehensive monitoring and measures, and well-designed studies are required for promoting the understanding of the causal pathway and developing interventional strategies.

There is growing evidence of social disparities in overweight among European children. This paper examines whether there is an association between socioeconomic inequality and prevalence of child overweight in European countries, and if

Kong, APS; Xu, G; Brown, N; So, WY; Ma, RCW; Chan, JCN

Diabetes and its comorbidities—where East meets West

Community energy balance: a framework for contextualizing cultural influences on high risk of obesity in ethnic minority populations.


Kumanyika, S, Taylor WC, Grier SA, Lassiter V, Lancaster KJ, Morssink CB, Renzaho AM.

Recent findings concerning childhood food insecurity.

Curr Opin Clin Nutr Metab Care. 2009 May;12(3):310

Darmon, N. Rutter, H. McKee, M. Weitzman M. Kursmark V, Lancaster SA, Lassiter WC, Grier Kumanyika Chan, JCN Ma, RCW; So, WY; Brown, N; Kong, APS; McKee, M. Darmon, N.

Food insecurity. Concerning childhood

Recent findings

Purpose of review: Food insecurity is a relatively new measure of household and child malnutrition. This paper reviews recent studies that have examined aspects of its etiology and adverse child health and development. Recent findings: Smoking by adults in children's homes has recently been found to be highly associated with childhood food insecurity. Much recent research has also examined the relationship between food insecurity and childhood obesity, and thus far, whereas suggestive, results are conflicting. Some studies have found that parenting practices and parental depression are factors that...
Differences in overweight and obesity among migrant and native origin: a systematic review of the European literature


Climate change and food security: health impacts in developed countries.

To review the prevalence regarding overweight and obesity among children and adolescents from migrant and native origin within Europe, a systematic review (1999-2009) was performed, using Embase, PubMed and citation snowballing. Literature research resulted in 19 manuscripts, reporting studies in six countries, mostly situated in Western and Central Europe. From this review, it appears that, in most of the European countries for which data are available, especially non-European migrant children are at higher risk for overweight and obesity than their native counterparts. The prevalence of overweight in migrant children ranged from 8.9% to 37.5% and from 8.8% to 27.3% in native children. The prevalence of obesity in migrant children ranged from 1.2% to 15.4% and from 0.6% to 11.6% in native children. Some limitations of the review are discussed, especially the problematic classification of migrant and native children. Apparently, migrant children display an even more sedentary way of life or adverse dietary patterns, as compared with native children. To what degree these differences can be explained by socioeconomic and cultural factors remains to be investigated. As overweight and obese children are at risk for many chronic health problems, further research is urgently needed in order to develop preventive interventions. During the last decades, eating out of home (OH) has gained importance in the diets worldwide. We document the nutritional characteristics of eating OH and its associations with energy intake, dietary quality and socioeconomic status. We carried out a systematic review of peer-reviewed studies in eight databases up to 10 March 2011. Of the 7,319 studies retrieved, 29 met the inclusion criteria and were analysed in this review. The quality of the data was assessed and a sensitivity analysis was conducted by isolating nationally representative or large cohort data from 6 and 11 countries, respectively. OH foods were important sources of energy in all age groups and their energy contribution increased in adolescents and young adults. Eating OH was associated with a higher total energy intake, energy contribution from fat in the daily diet and higher socioeconomic status. Two large studies showed how eating OH was also associated with a lower intake of micronutrients, particularly vitamin C, Ca and Fe. Although the studies were cross-sectional and heterogeneous in the way they classified eating OH, we conclude that eating OH is a risk factor for higher energy and fat intake and lower micronutrient intake.

Background: Anthropogenic climate change will affect global food production, with uncertain consequences for human health in developed countries. Objectives: We investigated the potential impact of climate change on food security (nutrition and food safety) and the implications for human health in developed countries. Methods: Expert input and structured literature searches were conducted and synthesized to produce overall assessments of the likely impacts of climate change on global food production and recommendations for future research and policy changes. Results: Increasing food prices may lower the nutritional quality of dietary intakes, exacerbate obesity, and amplify health inequalities. Altered conditions for food production may result in emerging pathogens, new crop and livestock species, and altered use of pesticides and veterinary medicines, and affect the main transfer mechanisms through which contaminants move from the environment into food. All these have implications for food safety and the nutritional content of food. Climate change mitigation may increase consumption of foods whose production reduces greenhouse gas emissions. Impacts may include reduced red meat consumption (with positive effects on saturated fat, but negative impacts on zinc and iron intake) and reduced winter fruit and vegetable consumption. Developed countries have complex structures in place that may be used to adapt to the food safety consequences of climate change, although their effectiveness will vary between countries, and the ability to respond to nutritional challenges is less certain. Conclusions: Climate change will have notable impacts upon nutrition and food safety in

-6.
developed countries, but further research is necessary to accurately quantify these impacts. Uncertainty about future impacts, coupled with evidence that climate change may lead to more variable food quality, emphasizes the need to maintain and strengthen existing structures and policies to regulate food production, monitor food quality and safety, and respond to nutritional and safety issues that arise.

Many demographic, socioeconomic, and behavioral risk factors predict mortality in the United States. However, very few population-based longitudinal studies are able to investigate simultaneously the impact of a variety of social factors on mortality. We investigated the degree to which demographic characteristics, socioeconomic variables and major health risk factors were associated with mortality in a nationally-representative sample of 3617 U.S. adults from 1986 to 2005, using data from the 4 waves of the Americans’ Changing Lives study. Cox proportional hazard models with time-varying covariates were employed to predict all-cause mortality verified through the National Death Index and death certificate review. The results revealed that low educational attainment was not associated with mortality when income and health risk behaviors were included in the model. The association of low income with mortality remained after controlling for major behavioral risks. Compared to those in the “normal” weight category, neither overweight nor obesity was significantly associated with the risk of mortality. Among adults age 55 and older at baseline, the risk of mortality was actually reduced for those who were overweight (hazard rate ratio = 0.83) and those who were obese (hazard rate ratio = 0.68), controlling for other health risk behaviors and health status. Having a low level of physical activity was a significant risk factor for mortality (hazard rate ratio = 1.58). The results from this national longitudinal study underscore the need for health policies and clinical interventions focusing on the social and behavioral determinants of health, with a particular focus on income security, smoking prevention/cessation, and physical activity.

BACKGROUND: Poor dietary patterns and obesity, established risk factors for chronic disease, have been linked to neighborhood deprivation, neighborhood minority composition, and low area population density. Neighborhood differences in access to food may have an important influence on these relationships and health disparities in the U.S. This article reviews research relating to the presence, nature, and implications of neighborhood differences in access to food. METHODS: A snowball strategy was used to identify relevant research studies (n=54) completed in the U.S. and published between 1985 and April 2008. RESULTS: Research suggests that neighborhood residents who have better access to healthy foods.

CONCLUSIONS: Neighborhood disparities in access to food are of great concern because of their potential to influence dietary intake and obesity. Additional research is needed to address various limitations of current studies, identify effective policy actions, and evaluate intervention strategies designed to promote more equitable access to healthy foods.

Disparities in the prevalence of obesity in youth place minority and low socioeconomic status youth at increased risk for the development of chronic disease, such as metabolic syndrome and type 2 diabetes. Contributing factors to the increases in obesity include a decline in positive health behaviors, such as making healthy dietary choices, engaging in physical activity, and limiting sedentary behaviors. Family and physical environmental contextual factors related to health behaviors are increasingly the focus of health behavior interventions in line with the bioecological model that encourages a system-focused perspective on understanding health behavior influences. Physical environmental characteristics, such as home and neighborhood characteristics and resources, provide the tangible means to support health behaviors and are important contextual variables to consider that may increase intervention effectiveness. Therefore, the current review seeks to highlight the importance of investigating influences of behavior beyond individual characteristics in understanding factors related to the
risk of developing metabolic syndrome and type 2 diabetes in youth at high risk for developing chronic disease. The current study reviews the non-intervention literature on family and physical environmental factors related to health behaviors (i.e., diet, physical activity, and sedentary behavior) in youth who are considered to be at-risk for developing metabolic syndrome and type 2 diabetes. Results on 38 published articles of diet, physical activity, and sedentary behaviors showed support for the role of parenting and physical environmental factors, particularly parental monitoring and neighborhood context, such as social cohesion, as they relate to health behaviors in high-risk youth. Implications and recommendations for future research are discussed.

In this article, we review studies that have used dietary indexes to assess different aspects of diet in relation to health outcomes and sociodemographic factors in childhood populations of developed countries. Eighty-four papers published from 1980 to mid-2010 including 90 unique dietary indexes were reviewed. Seventy-two indexes were developed (or have been adapted) specifically for childhood populations; 38 of these were used to assess diet-disease associations, mostly of diet and obesity. In the majority of these studies, small inverse associations between dietary indexes and obesity indexes were shown. Children who were younger, female, and from high-income families had better dietary quality scores. Forty-nine indexes (of 90) were compared with other aspects of dietary intakes or behaviors, with correlations ranging from very low to modest (~r = 0.05-0.50). Only 2 validation studies compared an index with nutritional biomarkers, and correlations were quite weak for most plasma nutrients (P < 0.10). Overall, a large number of indexes have been created and used, but the majority of studies are descriptive. Fewer analytic studies on index-health associations have been performed, and most analyses insufficiently adjusted for confounders. Thus, prospective and intervention research in diverse populations is needed to further test these tools. In conclusion, indexes are potentially useful methods for dietary assessment, because they offer valuable information on overall dietary patterns in children. However, understanding the advantages and limitations when applying them in research and public health settings is important, and more research is needed to further develop their utility.

Recent environmental changes play a role in the dramatic increase in the prevalence of cardiometabolic risk factors (CMRFs) such as obesity, hypertension, type 2 diabetes, dyslipidemias and the metabolic syndrome in industrialized countries. Therefore, identifying environmental characteristics that are associated with risk factors is critical to develop more effective public health interventions. We conducted a systematic review of the literature investigating relationships between characteristics of geographic life environments and CMRFs (131 articles). Most studies were published after 2006, relied on cross-sectional designs, and examined whether sociodemographic and physical environmental characteristics, and more recently service environment characteristics, were associated with obesity or, to a lesser extent, hypertension. Only 14 longitudinal studies were retrieved; diabetes, dyslipidemias and the metabolic syndrome were rarely analysed; and aspects of social interactions in the neighbourhood were critically underinvestigated. Environmental characteristics that were consistently associated with either obesity or hypertension include low area socioeconomic position; low urbanization degree; low street intersection; service availability and residential density; high noise pollution; low accessibility to supermarkets and high density of convenience stores; and low social cohesion. Intermediate mechanisms between environmental characteristics and CMRFs have received little attention. We propose a research agenda based on the assessment of underinvestigated areas of research and methodological limitations of current literature.

INTRODUCTION: In past decades, the growth in obesity has been associated with changes in the lifestyle of the population, including comprehensive dietary changes, especially in the intake of micronutrients. OBJECTIVE: To describe micronutrient intake and review its consequences on nutritional status. METHODS: A literature review was performed covering domestic and international articles published over the past 11 years, on the SciELO, LILACS, MEDLINE and governmental databases, using descriptors such as "micronutrients", "food consumption", "excess weight", "health", "nutritional status" in Portuguese and in English. RESULTS: Micronutrient intake deficiency is a global health problem, affecting about 2 billion people and seems to be associated with an increased risk for non-communicable diseases and disorders, including obesity. Insufficient intake of vitamin A favors overweight by altering thyroid metabolism, while vitamin C is related to the synthesis of carnitine.
Food prices and food affordability are important determinants of food choices, obesity and non-communicable diseases. As governments around the world consider policies to promote the consumption of healthier foods, data on the relative price and affordability of foods, with a particular focus on the difference between less healthy' and healthy' foods and diets, are urgently needed. This paper briefly reviews past and current approaches to monitoring food prices, and identifies key issues affecting the development of practical tools and methods for food price data collection, analysis and reporting. A step-wise monitoring framework, including measurement indicators, is proposed. Minimal data collection will assess the differential price of healthy and less healthy fonts; expanded monitoring will assess the differential price of healthy and less healthy foods; and the optimal approach will also monitor food affordability, by taking into account household income. The monitoring of the price and affordability of healthy and less healthy fonts and diets globally will provide robust data and benchmarks to inform economic and fiscal policy responses. Given the range of methodological, cultural and logistical challenges in this area, it is imperative that all aspects of the proposed monitoring framework are tested rigorously before implementation.

Abstract: Over the past several decades, there has been a sharp increase in obesity across all population groups in the United States. In fact, the United States has one of the highest rates of obesity compared to other countries throughout the world. Obesity has become a national public health concern because it is related to a number of negative health, social, psychological, and economic outcomes. It is particularly concerning because racial/ethnic minorities and populations with the least education and highest poverty rates bear the largest burden of obesity. In addition, disparities in obesity tend to be gendered, with women experiencing the largest disparities in obesity by income, education, and race/ethnicity. In this review, I describe how social inequality is linked to obesity in the United States. I highlight elements of disadvantage at the individual-, family-, school-, and neighborhood-level that are linked to energy intake and expenditure, which are directly related to obesity, and that draw from evidence and theories from multiple fields of the social and medical sciences. I also highlight the important role stress may play in linking disadvantage to obesity, particularly for women. I argue that understanding the complex mechanisms and processes that link social inequality to obesity requires multidisciplinary and multilevel frameworks. Adapted from the source document.

Diet, physical activity (PA) and sedentary behavior are important, yet modifiable, determinants of obesity. Recent research into the clustering of these behaviors suggests that children and adolescents have multiple obesogenic risk factors. This paper reviews studies using empirical, data-driven methodologies, such as cluster analysis (CA) and latent class analysis (LCA), to identify clustering patterns of diet, PA and sedentary behavior among children or adolescents and their associations with socio-demographic indicators, and overweight and obesity. A literature search of electronic databases was undertaken to identify studies which have used data-driven methodologies to investigate the clustering of diet, PA and sedentary behavior among children and adolescents aged 5-18 years old. Eighteen studies (62% of potential studies) were identified that met the inclusion criteria, of which eight examined the clustering of PA and sedentary behavior and eight examined diet, PA and sedentary behavior. Studies were mostly cross-sectional and conducted in older children and adolescents (>9 years). Findings from the review suggest that obesogenic cluster patterns are complex with a mixed PA/sedentary behavior cluster observed most frequently, but healthy and unhealthy patterning of all three behaviors was also reported. Cluster membership was found to differ according to age, gender and socio-economic status (SES). The tendency for older children/adolescents, particularly females, to comprise clusters defined by low PA was the most robust finding. Findings to support an association between obesogenic cluster patterns and overweight and obesity were inconclusive, with longitudinal research in this area limited. Diet, PA and sedentary behavior cluster together in complex ways that are not well understood. Further research, particularly in
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<td>Availability of data assessing the prevalence and trends of overweight and obesity among European adolescents.</td>
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<td>Henriksen, H. B.</td>
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Younger children, is needed to understand how cluster membership differs according to socio-demographic profile. Longitudinal research is also essential to establish how different cluster patterns track over time and their influence on the development of overweight and obesity.

Objective: To review recent data on objectively measured overweight/obesity in national representative samples of European adolescents (aged 10-18 years), as well as availability of studies assessing trends in overweight/obesity in this target group. Attention was paid to the ability of the data to describe the obesity epidemic, especially in sociodemographic subgroups.

Results: Objectively measured data on national representative samples were selected and described with regard to the years of data collection, sample sizes, response rates, age ranges included, trends by age, type of measures of overweight/obesity, sociodemographic variables and the sources of information. Results: Objectively measured data on national representative samples were identified for only half of the countries, and the trend studies were mainly conducted applying subnational samples. Most studies used the criteria from the International Obesity Task Force (IOTF) to define overweight/obesity, but the age ranges studied and the years of data collection varied, and information on sample sizes and response rates were often not presented. Data on trends of overweight/obesity over time are increasing, and the most recent studies indicate that the prevalence rate of overweight/obesity has stabilized. Few studies reported data by sociodemographic subgroups other than gender and age.

Conclusions: Objectively measured data on national representative samples of adolescents appear scattered, and there is a large heterogeneity with respect to the quality and comparability of available data. Increasing use of the IOTF criteria for overweight/obesity contributes to improved comparability across studies. Data by sociodemographic subgroups, and in particular by socio-economic status, are scarce.

In the United States, health disparities in obesity and obesity-related illnesses have been the subject of growing concern. To better understand how obesity-related health disparities might relate to obesogenic built environments, the authors conducted a systematic review of the published scientific literature, screening for studies with relevance to disadvantaged individuals or areas, identified by low socioeconomic status, black race, or Hispanic ethnicity. A search for related terms in publication databases and topically related resources yielded 45 studies published between January 1995 and January 2009 with at least 100 participants or area residents that provided information on 1) the built environment correlates of obesity or related health behaviors within one or more disadvantaged groups or 2) the relative exposure these groups had to potentially obesogenic built environment characteristics. Upon consideration of the obesity and behavioral correlates of built environment characteristics, research provided the strongest support for food stores (supermarkets instead of smaller grocery/convenience stores), places to exercise, and safety as potentially influential for disadvantaged groups. There is also evidence that disadvantaged groups were living in worse environments with respect to food stores, places to exercise, aesthetic problems, and traffic or crime-related safety. One strategy to reduce obesity would involve changing the built environment to be more supportive of physical activity and a healthy diet. Based on the authors’ review, increasing supermarket access, places to exercise, and neighborhood safety may also be promising strategies to reduce obesity-related health disparities.

OBJECTIVE: To review available qualitative evidence in the literature for health beliefs and perceptions specific to UK South Asian adults. Exploring available insight into the social and cultural constructs underlying perceptions related to health behaviours and lifestyle-related disease. METHODS: A search of central databases and ethnic minority research groups was augmented by hand-searching of reference lists. For included studies, quality was assessed using a predetermined checklist followed by metaethnography to synthesise the findings, using both reciprocal translation and line-of-argument synthesis to look at factors impacting uptake of health behaviours. RESULTS: A total of 10 papers varying in design and of good quality were included in the review. Cultural and social norms strongly influenced physical activity incidence and motivation as well as the ability to engage in healthy eating practices. CONCLUSIONS: These qualitative studies provide insight into approaches
A review of the literature on the social and environmental factors which influence children (aged 3-5) to health among UK South Asians in view of their social and cultural norms. Acknowledgement of their approach to lifestyle behaviours may assist acceptability of interventions and delivery of lifestyle advice by health professionals.

This article examines the current state of science of Community-based Childhood Obesity Prevention Environmental Nutrition Interventions (CCOPENIs). Findings from the literature review indicate that CCOPENIs are effective in altering "obesogenic" community behaviors, reducing the prevalence of childhood obesity. However, the shortage of long-term community-wide interventions that address community characteristics limits our understanding of their effectiveness, feasibility, and sustainability. CCOPENIs have the potential to be utilized within clinical practice as well as within public health practice; however, further interdisciplinary research utilizing a CCOPENI framework is necessary to create innovative CCOPENIs that are effective, feasible, and sustainable long term.

The current literature on obesity in typically developing children shows that the family context, and specifically the way parents parent their children are major determinants of childhood obesity. The influence of these factors on obesity in children with disability, however, remains unclear. A systematic review of the literature was undertaken to identify the parental and parenting risk factors associated with obesity in children and adolescents with disability. Articles were identified through Medline, Academic Search Complete, PsycINFO, ProQuest, ISI, CINAHL, Cochrane and Scopus databases. There was no restriction on publication dates. The inclusion criteria were empirical papers that tested associations between parental and parenting risk factors and obesity in children and adolescents with intellectual and other developmental disabilities. Only 11 studies met the selection criteria and subsequently included in this review. Results suggest that obesity in children and adolescents with disability may be associated with socioeconomic status; parents’ body mass index, perception and attitude towards their children's weight and physical activity; and levels of activity in both parents and children. Firm conclusions about these associations cannot be reached, however, due to mixed findings and methodological limitations of the studies.

Recommendations for future research are provided.

Childhood obesity is a growing problem worldwide. In recent years, out-of-home (OH) eating has been highlighted as one of the many factors contributing to the obesogenic environment. This review seeks to identify a range of existing guidelines for the provision of healthy food options for families who eat OH frequently. Nationally available nutrition policies were identified using targeted and untargeted searches of the internet to identify established strategies for providing food for children in the family eating out sector in America (US), Australia, Canada and the WHO's European Region (EUR). These were categorised on the basis of eleven pre-defined criteria including: family eating out sector included as stakeholder; inclusion of children's food OH; cost strategies for healthier food choices; provision of nutrition information for customers; nutrition training of catering staff; and monitoring and evaluation structures. Fifty-five policies were reviewed, of which 71% addressed children's food served OH, but principally only for food available in schools. Two voluntary programmes, from Colorado and Slovenia, were identified as possible best practice models as they met a majority of the evaluation criteria. The most frequently used strategy by policies to promote healthier eating OH was the provision of nutrition information on menus, while monitoring and evaluation plans were poorly incorporated into any OH strategies, thus raising issues about their effectiveness. This review has identified a range of initiatives that could be employed to make healthier eating OH more accessible for families. However, to establish best practice guidelines for healthier OH food choices further investigations are required.

Abstract: This article aims to review the previously published literature on the social and environmental factors which influence children (aged 3-5 years) to be obese/overweight and the accuracy of parental perceptions. Obesity levels are on the increase in today's society and habits are being passed from parents to children, with family lifestyle choices often influencing this health condition. Childhood obesity has many consequences; therefore it is vital that action is taken to stop this epidemic spreading further. A variety of databases and websites were used to search for relevant and up-to-date research studies and information on the subject of childhood obesity. There appears to be a dearth of research focusing on nursery and primary one-aged children, especially within the United Kingdom (UK). Therefore the literature focuses on this group within the

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population. Several studies on childhood obesity were identified and critically analysed in the following areas: childhood obesity and environment, childhood obesity and socioeconomic status. It became obvious from the identified studies that there is no clear solution to solving the issue of obesity in young children. It appears that targeting several factors within their lives is the only way to begin to see a change in children's lifestyles which will hopefully be passed onto future generations.

Establishing healthy eating habits early in life is one important strategy to combat childhood obesity. Given that early maternal child feeding practices have been linked to child food intake and weight, identifying the maternal correlates of maternal child feeding practices is important in order to understand the determinants of childhood obesity; this was the overall aim of the current review. Academic databases were searched for studies examining the relationship between maternal child feeding practices and parenting, personal characteristics and psychopathology of mothers with preschoolers. Papers were limited to those published in English, between January 2000 and June 2012. Only studies with mothers of normally developing children between the ages of 2 and 6 years were included. There were no restrictions regarding the inclusion of maternal nationality or socioeconomic status (SES). Seventeen eligible studies were sourced. Information on the aim, sample, measures and findings of these was summarised into tables. The findings of this review support a relationship between maternal controlling parenting, general and eating psychopathology, and SES and maternal child feeding practices. The main methodological issues of the studies reviewed included inconsistency in measures of maternal variables across studies and cross-sectional designs. We conclude that the maternal correlates associated with maternal child feeding practices are complex, and the pathways by which maternal correlates impact these feeding practices require further investigation.

The aim of this paper was to review the evidence for early-life (from conception to 5 years of age) determinants of obesity. The design is review of published systematic reviews. Data sources included Medline, Embase, Web of Science, Cochrane Library, CINAHL, PsycINFO. Identification of 22 eligible reviews from a database of 12,021 independent publications. Quality of selected reviews assessed using the Assessment of Multiple Systematic Reviews score. Articles published after the reviews were used to confirm results. No review was classified as high quality, 11 as moderate and 11 as low. Factors associated with later overweight and obesity: maternal diabetes, maternal smoking, rapid infant growth, no or short breastfeeding, obesity in infancy, short sleep duration, <30 min of daily physical activity, consumption of sugar-sweetened beverages. Other factors were identified as potentially relevant, although the size of their effect is difficult to estimate. Maternal smoking, breastfeeding, infant size and growth, short sleep duration and television viewing are supported by better-quality reviews. It is difficult to establish a causal association between possible determinants and obesity, and the relative importance of each determinant. Future research should focus on early-life interventions to confirm the role of protective and risk factors and to tackle the high burden obesity represents for present and future generations.

This review presents a conceptual framework for understanding the relationship between social position and obesity, focusing on stress as a contributing factor. Through a systematic review of the literature, the studies that assess associations between social position, stress levels, dietary behaviors, and obesity risk in human beings were identified. Fourteen studies were retained based upon a priori inclusion/exclusion criteria. Across studies, individuals in higher status positions tended to have lower stress levels, healthier eating patterns, and lower body weight. Higher stress was associated with less healthy dietary behaviors and with higher body weight. These patterns were more pronounced in women than in men. The nature of the stress-eating relationship is complicated, and this literature must be developed further, because its advancement may be instrumental in identifying successful stress management techniques that can be used by food and nutrition practitioners to improve nutrition-related outcomes.

Valid and reliable measures of energy balance-related behaviours are required when evaluating the effectiveness of public health interventions aiming at prevention of childhood obesity. A structured descriptive review was performed to appraise food intake, physical activity and sedentary behaviour assessment tools used in obesity intervention strategies targeting mainly preschool children across Europe. In total, 25 papers are described, addressing energy balance-related behaviours as study outcomes and targeting individuals or clusters of individuals at school- or home-based environment. Parentally reported food
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obesity prevention strategies: review of studies during preschool.

A systematic review of the quality, content, and context of breakfast consumption.

Gestational weight gain and long-term postpartum weight retention: a meta-analysis.

Disability pension, employment and obesity status: a systematic review.

neonatal outcomes and postpartum weight retention (PPWR) and thus for overweight in women. Does IOM recommendations on postpartum weight retention. DESIGN: We systematically reviewed 5 databases and bibliographies of various publications supplemented by hand search for relevant articles published in English or German and performed meta-analyses to quantify the effect estimate of PPWR by using a random-effects model. We split the data into 4 categories of follow-up: <0.5, 0.5-1, 3, and ≥15 y. RESULTS: Of 1770 search hits, 9 observational studies remained suitable for the analysis. PPWR increased after longer time spans after delivery irrespective of whether GWG had been below, within, or above the guidelines. Compared with women with GWG within the recommendations, those with a GWG above the recommendations retained an additional 3.06 kg (95% CI: 1.50, 4.63 kg) after 3 y and 4.72 kg (95% CI: 2.94, 6.50 kg) on average after ≥15 y postpartum. Inadequate GWG was associated with less PPWR (-2.99 kg; 95% CI: -3.72, -2.27 kg) <6 mo after pregnancy. This association faded over time and became nonsignificant (-1.41 kg; 95% CI: -3.03, 0.21 kg) after ≥15 y. The results remained stable in sensitivity analyses that accounted for changes in IOM criteria over time and potential effect modification by low social class. A funnel plot did not suggest publication bias. CONCLUSION: GWG in accordance with the IOM recommendations is associated with long-term effects on PPWR. Disability pensions incur huge societal costs in many countries. In Sweden, the three greatest drivers of such productivity losses are musculo-skeletal, circulatory and psychiatric disorders, all closely associated with weight status. We identified 16 studies investigating the body mass index (BMI)-disability pension relation. In cross-sectional studies, a significantly greater proportion of obese compared with normal weight subjects were disability pensioners. In longitudinal studies, a J-shaped

Purpose - Consumption of breakfast is often associated with important health-related behaviours. For example, skipping breakfast is related to obesity and eating breakfast is also correlated to cognitive, behavioural, and affective components. The purpose of this paper is to review the breakfast eating literature, and investigate the circumstances under which people consume breakfast, what is actually being consumed, and how much breakfast is eaten therefore.

Design/methodology/approach - This systematic review summarises the results from 24 studies which focus on who is eating what, where, and with whom. Findings - All 24 of the included studies are of a self-report nature, from which nine were analysed from second-hand survey data. Sample sizes vary from 100 to a total of 35,119 with a reported participants’ age range from two years old to 70 years of age. Ready-to-eat cereal and dairy foods are the most commonly consumed breakfast items across the studies. Between 1.7 and 30 per cent of participants are found to skip breakfast and approximately one-quarter of the studies report that those with lower socio-economic status, non-whites, and females were the groups more likely to omit breakfast. Research limitations/implications - The evidence provided in this review suggests that there is still considerable variation in studies into breakfast consumption. This has implications for future research into breakfast eating if interventions are based on these studies. Originality/value - There are very few systematic reviews detailing the quality, context, and content of breakfast consumption and the lack of consistency in the results show the need for further research to be conducted to find a degree of consistency in how breakfast should be defined and measured.

BACKGROUND: Gestational weight gain (GWG) is known to be a potential risk factor for short-term postpartum weight retention (PPWR) and thus for overweight in women. Does GWG also determine the long-term risk of overweight in women? OBJECTIVE: We aimed to study the short- and long-term effects of GWG in accordance with the Institute of Medicine (IOM) recommendations on postpartum weight retention. DESIGN: We systematically reviewed 5 databases and bibliographies of various publications supplemented by hand search for relevant articles published in English or German and performed meta-analyses to quantify the effect estimate of PPWR by using a random-effects model. We split the data into 4 categories of follow-up: <0.5, 0.5-1, 3, and ≥15 y. RESULTS: Of 1770 search hits, 9 observational studies remained suitable for the analysis. PPWR increased after longer time spans after delivery irrespective of whether GWG had been below, within, or above the guidelines. Compared with women with GWG within the recommendations, those with a GWG above the recommendations retained an additional 3.06 kg (95% CI: 1.50, 4.63 kg) after 3 y and 4.72 kg (95% CI: 2.94, 6.50 kg) on average after ≥15 y postpartum. Inadequate GWG was associated with less PPWR (-2.99 kg; 95% CI: -3.72, -2.27 kg) <6 mo after pregnancy. This association faded over time and became nonsignificant (-1.41 kg; 95% CI: -3.03, 0.21 kg) after ≥15 y. The results remained stable in sensitivity analyses that accounted for changes in IOM criteria over time and potential effect modification by low social class. A funnel plot did not suggest publication bias. CONCLUSION: GWG in accordance with the IOM recommendations is associated with long-term effects on PPWR. Disability pensions incur huge societal costs in many countries. In Sweden, the three greatest drivers of such productivity losses are musculo-skeletal, circulatory and psychiatric disorders, all closely associated with weight status. We identified 16 studies investigating the body mass index (BMI)-disability pension relation. In cross-sectional studies, a significantly greater proportion of obese compared with normal weight subjects were disability pensioners. In longitudinal studies, a J-shaped

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relation with BMI was generally found in both men and women of various ages. Different definitions of obesity status complicated interpretation, as several studies mixed the underweight and normal weight, which appear to have different disability pension risks. In middle-aged men, relative risks were elevated for circulatory causes only for the overweight and obese, while associations for mental disorders were similar in the underweight and overweight but much higher in the obese.

In both sexes, monotonic increases and decreases were seen for circulatory and respiratory causes respectively. In intervention studies, reduced disability pension incidence and increased gainful employment were reported after surgery. In summary, BMI was significantly associated with disability pension, but the direction of causality may vary with underlying cause.

Interventions had positive productivity effects in the morbidly obese, but whether this holds for the overweight remains to be proven.

The objective of this article is to review the epidemiologic literature examining the role of plant foods and plant-based diets in the prevention of childhood obesity. Available data suggest a protective effect of ready-to-eat cereal on risk of obesity, although prospective studies are still needed. Studies on fruit and vegetables; grains other than cereal; high-protein foods, including beans, legumes, and soy; fiber; and plant-based dietary patterns are inconsistent or generally null. The evidence base is limited, and most studies are fraught with methodological limitations, including cross-sectional design, inadequate adjustment for potential confounders, and lack of consideration of reporting errors, stage of growth, and genetic influences. Well-designed prospective studies are needed. The lack of evidence showing an association between plant-based diets and childhood obesity does not mean that such diets should not be encouraged. Plant foods are highlighted in the Dietary Guidelines for Americans, and children do not meet the current recommendations for most plant foods. Although the advice to consume a plant-based, low-energy-dense diet is sound, ethical questions arise concerning the relatively high price of these diets in the United States and the way in which such diets are perceived in other parts of the world. Reducing the burden of childhood obesity, eliminating health disparities, and preventing the further spread of the disease around the globe will require not only policy interventions to ensure that plant foods are affordable and accessible to children of all income levels but also awareness of sociocultural norms that affect consumption.

The first wave of studies on early feeding and its consequences/correlates of breast-feeding, compared to being formula fed, showed higher levels of total blood cholesterol, lower levels of pre-prandial blood glucose and insulin and lower levels of adiposity. However, a key issue is whether these early differences at a period of rapid development programme/influence cardiovascular risk factors and outcomes in later life. Evidence of long-term effects of early feeding, largely from observational studies, has shown that those breast-fed have lower levels of blood total cholesterol, lower risk of type-2 diabetes and marginally lower levels of adiposity and blood pressure in adult life. There is no strong evidence to suggest effects of early feeding on adult levels of blood glucose, blood insulin and CHD outcomes, although further data are needed. However, the influence of confounding factors, such as maternal body size, maternal smoking and socio-demographic factors, and exclusivity of early feeding on these potentially beneficial associations needs to be considered before inferring any causal effects. Moreover, fewer studies have
examined whether duration of exclusive breast-feeding has a graded influence on these risk factors and outcomes; such data would help further in deciding upon causal associations. While strong observational evidence suggests nutritional programming of adult cholesterol levels, associations with other markers of cardiometabolic risk and their consequences in later life need to be confirmed in well-conducted observational and experimental studies.

Summary

Health data and statistics are the foundation of health policy. Over the last 20 years, numerous government documents have been commissioned and published to inform obesity strategies in the UK. The Health Survey for England, an annual cross-sectional survey of a nationally representative random general population sample in England, collects information on health, lifestyle and socioeconomic factors, physical measurements and biological samples. Heights and weights measured by the Health Survey for England are believed to have played a major part in promoting, shaping and evaluating obesity strategies. A formal review of how these data have been used has not been conducted previously. This paper reviews government documents demonstrating the contribution of Health Survey for England examination data to every stage of the policy making process: quantifying the obesity problem in England (e.g. Chief Medical Officer's reports); identifying inequalities in the burden of obesity (Acheson report); modelling potential future scenarios (Foresight); setting and monitoring specific, measurable, attainable targets (calorie reduction challenge in manufacturers' Responsibility Deal); developing and informing strategies and clinical guidance; and evaluating the success of obesity strategies (Healthy Weights, Healthy Lives progress report). Measurement data are needed and used by governments to produce evidence-based strategies to combat obesity.

The purpose of this review is to describe the amount of time children spend in sedentary behaviour and to determine if there are specific factors that associate with sedentary behaviour in children. The following search terms were used to identify relevant articles: sedentary behaviour, inactivity, television, computer, video games, small screen, sitting, prevalence, patterns, correlates, factors and determinants. The databases used to conduct the search included PubMed, PsycINFO, ERIC (Education Resources Information Center) and Academic Search Premier. The studies reviewed were limited to those that sampled children (2-18 years), were written in English and used a measure of sedentary behaviour as the dependent variable. Several studies reported the time spent watching television or the proportion of children at or above a threshold for television viewing (eg, ≥3 h/day). Among the accelerometer studies included, the National Health and Nutrition Examination Survey is the largest and reported ∼6.1, 7.5 and 8.0 h/day mean sedentary time in children 6-11, 12-15 and 16-19 years old, respectively. Taken together, the existing literature across the world indicates a slightly higher level of sedentary behaviour in older children. Higher levels of sedentary behaviour were also reported in non-white children, children from lower socioeconomic status background and children from households with more access to television/computers. Lower levels of sedentary behaviour were reported in children whose parents have rules/limitations on screen time.

Background: There is growing recognition that the urban built environment influences physical activity at the population level, although the effects on disadvantaged groups are less well understood. Using the examples of open/green space and street connectivity, this paper explores whether enhancements to the built environment have potential for addressing physical activity-related health inequalities among Maori, Pacific and low income communities in New Zealand. Method: A high-level review of the international literature relating open space and street connectivity to physical activity and/or related health outcomes at a population level was completed. Consideration was given to whether these features of the built environment have a disproportionate effect on disadvantaged populations. Results: Findings from international studies suggest that open space and street connectivity have a beneficial effect on physical activity. Enhancing the built environment may be particularly advantageous for improving physical activity levels among disadvantaged populations. Conclusion: It is likely that open space and street connectivity have a positive effect on physical activity behaviour; however due to the cross-sectional nature of existing research and the paucity of research among disadvantaged populations definitive conclusions about the effect in these populations cannot be made. Further research is required (e.g. natural experiments or quasi experimental research designs) to determine the effect of changing the environment on physical activity and obesity.
BACKGROUND: By improving two social determinants of health (poverty and unemployment) in low- and middle-income families on or at risk of welfare, in-work tax credit for families (IWTC) interventions could impact health status and outcomes in adults. OBJECTIVES: To assess the effects of IWTCs on health outcomes in working-age adults (18 to 64 years). SEARCH METHODS: We searched 16 electronic academic databases, including the Cochrane Public Health Group Specialised Register, Cochrane Database of Systematic Reviews (The Cochrane Library 2012, Issue 7), MEDLINE and EMBASE, as well as six grey literature databases between July and September 2012 for records published between January 1980 and July 2012. We also searched key organisational websites, handsearched reference lists of included records and relevant journals, and contacted academic experts. SELECTION CRITERIA: We included randomised and quasi-randomised controlled trials and cohort, controlled before-and-after (CBA) and interrupted time series (ITS) studies of IWTCs in working-age adults. Included primary outcomes were: self rated general health; mental health/psychological distress; mental illness; overweight/obesity; alcohol use and tobacco use. DATA COLLECTION AND ANALYSIS: Two review authors independently extracted data and assessed the risk of bias in included studies. We contacted study authors to obtain missing information. MAIN RESULTS: Five studies (one CBA and four ITS) comprising a total of 5,677,383 participants (all women) fulfilled the inclusion criteria. All included studies carried a high risk of bias (especially from confounding and insufficient control for underlying time trends). The small and methodologically limited existing body of evidence with a high risk of bias provides no evidence for an effect of IWTC on mental health and alcohol use. No adverse effects of IWTC were identified. One study also found no detectable effect of IWTC on the number of bad physical health days and of risky biomarkers for inflammation, cardiovascular disease and metabolic conditions eight years after implementation. One study found that IWTC had a large, positive effect on income from wages or salaries one year after implementation. Two studies found no effect on employment two and five years after implementation, whereas two found a moderate increase five and eight years after implementation and one a large increase in employment due to IWTC one year after implementation. No differences in outcomes between groups with different educational status were found for self rated health and mental health/psychological distress. In one study European-American women with lower levels of education were more likely to reduce tobacco use, while tobacco use did not change among African-American women with lower levels of education. However, no differences in tobacco use by educational status were observed in a second study. Two studies found that the intervention may have reduced inequity with respect to employment, where women with less education were more likely to move into employment (although one did not establish whether this difference was statistically significant), while two studies found no such difference and no studies found differences by ethnic group on employment rates. AUTHORS' CONCLUSIONS: In summary, the small and methodologically limited existing body of evidence with a high risk of bias provides no evidence for an effect of in-work tax credit for families interventions on health status (except for mixed evidence for tobacco smoking) in adults.
appropriate T2D self-management intervention in Latinos. DESIGN: Evidence presented in this article was drawn from 1) systematic reviews identified through PubMed searches, 2) backward searches that were based on articles cited, 3) experts in the field, and 4) the author's personal files. RESULTS: The preponderance of the evidence supported an association of acculturation with poor dietary quality and obesity. These associations appeared to be modified by several socioeconomic and demographic factors and were not always linear. The association between acculturation and T2D is unclear. CONCLUSIONS: Longitudinal studies and more sophisticated analytic approaches are needed to better understand if and how acculturation affects health-disparity outcomes in Latinos. Tailoring interventions to the acculturation level of individuals is likely to help reduce health disparities in Latinos.

Purpose of review To address the recent evidence which suggests that inappropriate gestational weight gain (GWG) may have consequences that extend to the longer term health of the child. Recent findings Inadequate GWG is associated with low birthweight, and excessive GWG to delivery of large for gestational age infants. Recent studies report relationships between excessive GWG and neonatal adiposity, and with childhood and adult obesity. These appear to be independent of confounders such as socioeconomic status and a shared family environment, or hereditary traits for obesity, supporting the 'developmental origins of disease' hypothesis. Summary Because of periods of developmental plasticity, the early life metabolic environment may contribute to the risk of metabolic and cardiovascular disease in later life. The mechanisms which explain the relationships between maternal GWG and later life obesity remain unknown. Large, well conducted, intervention randomized controlled trials in pregnant women are required to address relationships between GWG and offspring risk of disease, including characterization of potential mediators. These should lead to more targeted and effective intervention strategies.

Context: Pricing policies have been posited as potential policy instruments to address the increasing prevalence of obesity. This article examines whether altering the cost of unhealthy, energy-dense foods, compared with healthy, less-dense foods through the use of fiscal pricing (tax or subsidy) policy instruments would, in fact, change food consumption patterns and overall diet enough to significantly reduce individuals' weight outcomes. Methods: This article examined empirical evidence regarding the food and restaurant price sensitivity of weight outcomes based on a literature search to identify peer-reviewed English-language articles published between 1990 and 2008. Studies were identified from the Medline, PubMed, Econlit, and PAIS databases. The fifteen search combinations used the terms obesity, body mass index, and BMI each in combination with the terms price, prices, tax, taxation, and subsidy. Findings: The studies reviewed showed that when statistically significant associations were found between food and restaurant prices (taxes) and weight outcomes, the effects were generally small in magnitude, although in some cases they were larger for low-socioeconomic status (SES) populations and for those at risk for overweight or obesity. Conclusions: The limited existing evidence suggests that small taxes or subsidies are not likely to produce significant changes in BMI or obesity prevalence but that nontrivial pricing interventions may have some measurable effects on Americans' weight outcomes, particularly for children and adolescents, low-SES populations, and those most at risk for overweight. Additional research is needed to be able to draw strong policy conclusions regarding the effectiveness of fiscal-pricing interventions aimed at reducing obesity.

Background/aims: Parent-offspring adiposity associations are well-established: offspring of obese parents have elevated risks of overweight/obesity. The aim of studies based on the 1958 British birth cohort has been to gain insights into explanations of these associations, such as whether parent-offspring BMI associations are due to offspring lifestyles or depend on socioeconomic conditions. Methods: All major studies on intergenerational adiposity associations in the three generations of the 1958 birth cohort were reviewed. In addition, BMI data for parents (G1) and the cohort (G2) were analysed stratified by social class. Results: BMI of G1 and G2 were correlated both when offspring were children and in mid-adulthood: a 1 kg/m² higher parental BMI was associated with an average 0.24-0.35 kg/m² higher offspring (mothers/fathers vs sons/daughters) BMI at 45 years. Associations were little affected by adjustment for lifestyle and socio-economic factors, but varied by social class: average BMI gain in offspring relative to parents was greater in lower classes, e.g. for males vs fathers by 3.6 and 2.5 kg/m² in classes IV & V and I & II, respectively. Parent-offspring BMI associations were stronger for recent (G2 and G3) than older
### Raat, H; Wijtzes, A; Jaddoe, VWV; et al

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### Raman J, Smith E, Hay P.

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### Reichert FF, Baptista AM, Wells JC, Carvalho Dumith S, Hallal PC.

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Adolescent obesity has increased dramatically in several countries in recent decades; however, the contribution of physical activity level to adolescent adiposity requires clarification. This article investigates the effect of physical activity on subsequent levels of adiposity in adolescence. The methodological aspects of the studies included in this article, particularly in terms of measurement accuracy for both exposure (physical activity) and outcome (adiposity) variables, are also evaluated. Systematic searches of the literature were undertaken using online databases, including PubMed/MEDLINE, examination of citations and contacting of authors. The online databases were searched from their earliest records until 2007. Only longitudinal studies with 50 or more adolescents were included. Two independent reviewers assessed the quality of the studies using the Downs and Black checklist. Thirteen observational, five experimental and six quasi-experimental studies (without a control group) were identified. Almost all studies were carried out in high-income settings and showed protective effects of physical activity for both prevention and treatment of adolescent obesity. However, experimental studies undertaken with obese adolescents at baseline usually combined physical activity with dietary changes, making it difficult to assess the effect of physical activity itself on the treatment of obesity. Physical activity estimated from questionnaires and body mass index (BMI) were the most frequently used measures. Despite the feasibility of using these approaches in epidemiological studies, significant limitations are evident. Questionnaires are subjective and adolescents may not report physical activity level accurately. Furthermore, BMI is not an accurate measure of fatness for adolescents, as it is also associated with lean mass, hence bias may arise from its longitudinal association with physical activity level. Despite the majority of studies reviewed showing protective effects of physical activity on adiposity, particularly in individuals who are obese at baseline, the current literature on this issue is sparse and several methodological drawbacks are evident. The main limitations relate to a lack of validity in the measurements of both physical activity and body composition. Further studies are needed in order to generate evidence-based recommendations for the quantity and quality of adolescent physical activity required to prevent or treat...
Sedentary behaviour and obesity development in children and adolescents.

Infant nutrition and later health: a review of current evidence.

A narrative literature review of the development of obesity in infancy and childhood.

The levelling off of the obesity epidemic since the year 1999—a review of evidence and perspectives.

Abstract: The purpose was to investigate a possible levelling off in the obesity epidemic, by systematically reviewing literature and web-based sources. Eligible studies and data sources were required to have at least two measures of obesity prevalence since 1999. A literature and Internet search resulted in 52 studies from 25 different countries. The findings supported an overall levelling off of the epidemic in children and adolescents from Australia, Europe, Japan and the USA. In adults, stability was found in the USA, while increases were still observed in some European and Asian countries. Some evidence for heterogeneity in the obesity trends across socioeconomic status (SES) groups was found. The levelling off was less evident in the lower-SES groups. No obvious differences between genders were identified. We discussed potential explanations for a levelling off and the utility of investigating obesity trends to identify the driving forces behind the epidemic. It is important to emphasize that the levelling off is not tantamount to calling off the epidemic. Additionally, it is worthwhile future studies should take into account important mediators such as socioeconomic status and family structure.

This narrative review explains the development of excess weight gain in babies and children. It takes a life course approach which includes genetics, pre-conception, pregnancy, infancy and childhood. The paper focuses on feeding behaviours, physical activity, parental influences and the wider social and environmental context. Risk factors which can cumulatively lead to excess childhood weight gain include: under-nutrition; obesity during pregnancy; the presence of diabetes during pregnancy; low or high birth weight; having obese parents; early weaning; prolonged formula feeding; rapid weight gain in the first year; disinhibited eating patterns and the consistent availability of energy dense food at home; feeding practices which are not responsive to the child’s cues; insufficient sleep among preschool children; sedentary parents; low parental education; living in poor socio-economic circumstances; absence, or perceived absence, of safe play areas; parents who lack time or confidence to authoritatively parent; environments where there is poor access to affordable lower energy dense foods; and parents who do not accept that excess weight is a health problem. Recommendations for health professionals are made.

Sedentary lifestyle patterns in children and adolescents, i.e. playing digital games, using computers and especially watching television, have been associated with obesity. However, not all sedentary behaviour has shown the same relevance to, and relationship with, obesity. Therefore, we conducted a review including published studies found in PubMed and other medical journals, dated between January 1990 and April 2007. The ages of the children and adolescents who were the object of the study ranged between 2 and 18 years. For the purpose of this paper, we selected cross-sectional, longitudinal and intervention studies. Sufficient evidence exists to recommend setting a limit to the time spent watching TV, especially for younger children. However, video games and computers do not represent such a high risk compared to watching TV, when they do not replace physical activity too much. In fact, there is no evidence to suggest that sedentary behaviour displaces physical activity levels. Mechanisms that explain the link between sedentariness and obesity are also discussed. Finally, future studies should take into account important mediators such as socioeconomic status and family structure.

There is a growing recognition of the need for a life course approach to understanding the aetiology of adult disease, and there is now significant evidence that links patterns of infant feeding to differences in health outcomes, both in the short and longer term. Breastfeeding is associated with lower rates of infection in infancy; in high-income populations, it is associated with reductions in blood pressure and total blood cholesterol, and lower risks of obesity and diabetes in adult life. Breastfeeding rates are suboptimal in many countries, and strategies to promote breastfeeding could therefore confer important benefits for health at a population level. However, there are particular challenges in defining nutritional exposures in infancy, including marked social gradients in initiation and duration of breastfeeding. In recent studies of low and middle-income populations of children and young adults, where the influences on infant feeding practice differ, beneficial effects of breastfeeding on blood pressure, BMI and risk of diabetes have not been confirmed, and further information is needed. Little is currently known about the long-term consequences of differences in the timing and nature of the weaning diet. Future progress will depend on new studies that provide detailed prospective data on duration and exclusivity of breastfeeding together with appropriate characterisation of the weaning diet.
to keep in mind that previous stable phases have been followed by further increases in the prevalence of obesity. Therefore, research into the causes, prevention and treatment of obesity should remain a priority.

The home food environment can be conceptualized as overlapping interactive domains composed of built and natural, sociocultural, political and economic, micro-level and macro-level environments. Each type and level of environment uniquely contributes influence through a mosaic of determinants depicting the home food environment as a major setting for shaping child dietary behavior and the development of obesity. Obesity is a multifactorial problem, and the home food environmental aspects described here represent a substantial part of the full environmental context in which a child grows, develops, eats, and behaves. The present review includes selected literature relevant to the home food environment's influence on obesity with the aim of presenting an ecologically informed model for future research and intervention in the home food environment.

Eating behavior currently has a central role in the prevention and treatment of illnesses. Eating patterns during childhood, while important for growth and development, also represent one of the main factors that can prevent diseases in adulthood. Such eating patterns are frequently influenced by family, social and environmental factors. The objective of this review was to approach the many environmental factors involved in the acquisition of eating habits during childhood. The selected articles dating from 1978 to 2007 were found in the Medline and SciELO databases. The following keywords were used in Portuguese and English: children's eating patterns, children's dietary quality and determinants of children's eating patterns. The results of some more relevant researches in this area are presented. Although some factors are innate and thus need a more rigorous control, the determinant role played by the family in forming healthy eating habits is emphasized since attempts to modify eating habits during adulthood usually fail. Additionally, other factors such as school, social network and cultural and socioeconomic conditions are potentially modifiable and influence the process of building the child's eating habits and so that of the adult.

To investigate the association between breast feeding and intergenerational social mobility and the possible mediating role of neurological and stress mechanisms. DESIGN: Secondary analysis of data from the 1958 and the 1970 British Cohort Studies. SETTING: Longitudinal study of individuals born in Britain during 1 week in 1958 and 1970. PARTICIPANTS: 17 419 individuals participated in the 1958 cohort and 16 771 in the 1970 cohort. The effect of breast feeding on intergenerational social mobility from age 10/11 to age 33/34 was analysed after multiple imputations to fill in missing data and propensity score matching on a wide range of confounders measured in childhood (1958 cohort N=16 039-16 154; 1970 cohort N=16 255-16 361). MAIN OUTCOME MEASURES: Own Registrar General's Social Class (RGSC) at 33/34 years adjusted for father's RGSC at 10/11 years, gender and their interaction. RESULTS: Breastfed individuals were more likely to be upwardly mobile (1958 cohort: OR 1.24 95% CI 1.12 to 1.37) and less likely to be downwardly mobile (1958 cohort: OR 0.81 95% CI 0.73 to 0.90; 1970 cohort: OR 0.79 95% CI 0.71 to 0.88). In an ordinal regression model, markers of neurological development (cognitive test scores) and stress (emotional stress scores) accounted for approximately 36% of the relationship between breast feeding and social mobility. CONCLUSIONS: Breast feeding increased the odds of upward social mobility and decreased the odds of downward mobility. Consistent with a causal explanation, the findings were robust to matching on a large number of observable variables and effect sizes were alike for two cohorts with different social distributions of breast feeding. The effect was mediated in part through neurological and stress mechanisms.

Objectives: Obesity is currently a major public health concern; however, there is little data available on the prevalence and impact of obesity within the elderly population. This review examines the prevalence and health effects of obesity among individuals aged ≥50. Methods: PubMed (1996-2008) and PsychInfo (2002-2008) search engines were used to retrieve qualified peer-reviewed articles focusing on obesity or a health condition correlated with obesity using BMI or other weight index as a defining variable; and studies limited to the elderly (age 60+) or pre-elderly (50+). Results: Worldwide, the elderly population is increasingly becoming obese regardless of socio-economic status. Among elderly persons, obesity increases the risks for a variety of morbidity conditions including cancers, diabetes, hypertension, stroke, heart disease, metabolic

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Rosenkranz, RR; Dzewaltowski, DA

Model of the home food environment pertaining to childhood obesity

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Rossi, A; Moreira, EAM; Rauen, MS

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Breast feeding and intergenerational social mobility: what are the mechanisms?

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Obesity: what is an elderly population growing into?

Maturitas; 2009. 63(1):7-12
Previous research has clearly established associations between low socioeconomic status (SES) and poor youth physical health outcomes. This article provides an overview of the main pathways through which low SES environments come to influence youth health. We focus on 2 prevalent chronic health problems in youth today, asthma and obesity. We review and propose a model that encompasses (a) multiple levels of influence, including the neighborhood, family and person level; (b) both social and physical domains in the environment; and finally (c) dynamic relationships between these factors. A synthesis of existing research and our proposed model draw attention to the notion of adverse physical and social exposures in youth's neighborhood environments altering family characteristics and youth psychosocial and behavioral profiles, thereby increasing youth's risk for health problems. We also note the importance of acknowledging reciprocal influences across levels and domains (e.g., between family and child) that create self-perpetuating patterns of influence that further accentuate the impact of these factors on youth health. Finally, we document that factors across levels can interact (e.g., environmental pollution levels with child stress) to create unique, synergistic effects on youth health. Our model stresses the importance of evaluating influences on youth's physical health not in isolation but in the context of the broader social and physical environments in which youth live. Understanding the complex relationships between the factors that link low SES to youth's long-term health trajectories is necessary for the creation and implementation of successful interventions and policies to ultimately reduce health disparities.

Childhood socioeconomic position (SEP) is inversely associated with cardiovascular disease and all-cause mortality. Obesity in adulthood may be a biologic mechanism. Objectives were to systematically review literature published between 1998 and 2008 that examined associations of childhood SEP with adulthood obesity. Five databases (Cochrane Library, MEDLINE, EMBASE, PsycINFO, Web of Science) were searched for studies from any country, in any language. Forty-eight publications based on 30 studies were identified. In age-adjusted analyses, inverse associations were found between childhood SEP and adulthood obesity in 70% (14 of 20) of studies in females and 27% (4 of 15) in males. In studies of females showing inverse associations between childhood SEP and adulthood obesity, typical effect sizes in age-adjusted analyses for the difference in body mass index between the highest and lowest SEP were 1.0 to 2.0 kg/m²; for males, effect sizes were typically 0.2 to 0.5 kg/m². Adjusted for age and adult SEP showed inverse associations in 47% (8 of 17) of studies in females and 14% (2 of 14) of studies in males. When other covariates were additionally adjusted for, inverse associations were found in 4 of 12 studies in females and 2 of 8 studies in males; effect sizes were typically reduced compared with analyses adjusted for age only. In summary, the findings suggest that childhood SEP is inversely related to adulthood obesity in females and not associated in males after adjustment for age. Adulthood SEP and other obesity risk factors may be the mechanisms responsible for the observed associations between childhood SEP and adulthood obesity.

BACKGROUND: Sobal and Stunkard's review (1989) of 34 studies from developed countries published after 1941, found inconsistent relationships between socioeconomic status (SES) and childhood adiposity. Inverse associations (36%), no associations (38%), and positive associations (26%) were found in similar proportions. In view of the trends in pediatric obesity, the relationship between SES and adiposity may have changed.

METHODS AND PROCEDURES: PubMed database was searched to identify potentially relevant publications. Epidemiological studies from western developed countries presenting cross-sectional data on the bivariate association between...
an SES indicator and objectively measured adiposity in childhood (5-18 years), carried out after 1989 were included. SES indicators included parental education, parental occupation, family income, composite SES, and neighborhood SES.

RESULTS: Forty-five studies satisfied the review criteria. SES was inversely associated with adiposity in 19 studies (42%), there was no association in 12 studies (27%), and in 14 studies (31%) there was a mixture of no associations and inverse associations across subgroups. No positive SES-adiposity associations were seen in unadjusted analyses. With parental education as the SES indicator, inverse associations with adiposity were found in 15 of 20 studies (75%). DISCUSSION: Research carried out within the past 15 years finds that associations between SES and adiposity in children are predominately inverse, and positive associations have all but disappeared. Research is needed to understand the mechanisms through which parental social class influences childhood adiposity.

The aim of this review is to explain short life expectancy in Romanies. Romanies represent the second largest minority in Slovakia (about 7%). Most of them exist on the fringes of the majority society. Their general situation worsened after the fall of communism in 1989. In a market oriented society the unemployment of Romanies further increased due to their poor education and lack of skills. Roman' general health is substantially worse than that of the majority population: They have high prevalence of communicable diseases due to poor sanitary and living conditions. Furthermore, epidemiological and metabolic studies revealed in Romanies high prevalence of obesity associated with increased cardiovascular risk. There is no explanation for this seemingly paradoxical phenomenon, in a population living in poor economic conditions. It is possible that in the course of the many generation-long migration from India to Europe, pregnant Romanies and their fetuses suffered excessive nutritional deficiency. This might have induced adaptive metabolic and genetic changes aimed at optimum utilization of scarce food supply. There is a hypothetical possibility that in them "thrifty gene" was formed. Arrival of Romanies to Europe resulted in somewhat better nutrition, along with sharply reduced physical expenditure. The consequence is a metabolic syndrome with type 2 diabetes and increased cardiovascular mortality. Such unique metabolic feature in Romanies will undoubtedly stimulate further research in molecular biology that may ultimately clarify the role of "thrifty genes".

Research carried out within the past 15 years finds that associations between SES and adiposity in children are predominately inverse, and positive associations have all but disappeared. Research is needed to understand the mechanisms through which parental social class influences childhood adiposity.

A systematic review of qualitative studies was undertaken to understand the barriers to physical activity experienced by adolescents who were overweight or obese. From a search of electronic databases and 'grey' literature, published between 1950 and 2009, 13 studies met the inclusion criteria. Bronfenbrenner's model of human development provided an ecological lens for identifying and synthesizing barriers to physical activity. Two reviewers appraised study quality. Miles and Huberman's cross-case analysis was integrated with thematic networking to synthesize the individual, interpersonal and environmental level barriers for boys and girls of different ethnicities and socioeconomic status, across school settings and generalised context. Thirty-five barriers were identified, 13 of which occurred in physical activity situations in the school setting. 18 were not linked to a specific setting, and the remainder were common across both contexts. The fact that these barriers emerged from studies that focused on topics such as victimisation and mental health is particularly poignant and

**Abstract:** To present the prevalence and urban-rural differences of overweight and obesity in 7-9-year-old Swedish schoolchildren, we used anthropometric data from a nationally representative survey performed in 2008. Trained staff weighed and measured 4538 children in grades 1 and 2 in 94 primary schools. Weight classification was performed using the IOTF reference and school areas were classified based on level of urbanization and area-level education. Overweight was found in 17% of the children including 3% obese. For overweight, odds-ratios were 1.33 and 1.61 (significant) in semi-urban and rural areas, relative to urban areas. After adjusting for area-level education, differences by degree of urbanisation were greatly attenuated and non-significant. For obesity urban-rural differences were observed in boys only and remained after adjustment for area-level education. For area-level education, risk estimates were significantly elevated and unaffected by urbanization and gender, odds-ratios 1.75 and 2.21 for overweight and 2.62 and 3.69 for obesity, in medium- and low-education areas compared to high-education areas. This supports earlier reports identifying areas with low socioeconomic status as high-risk areas for overweight and obesity. However, this study also suggests that gender should be considered when targeting children in urban as well as rural communities for health promoting interventions.


**Sjöberg, A I ; Moraeus, L; Yngve, A; et al** Overweight and obesity in a representative sample of schoolchildren - exploring the urban-rural gradient in Sweden. Obesity reviews, 2011, 12 305-314

This study assesses the relation between income inequality and obesity prevalence among 31 OECD countries through a series of bivariate and multivariate linear regressions. The United States and Mexico well lead OECD countries in both obesity prevalence and income inequality. A sensitivity analysis suggests that the inclusion or exclusion of these two extreme cases can fundamentally change the findings. When the two countries are included, the results reveal a positive correlation between income inequality and obesity prevalence. This correlation is more salient among females than among males. Income inequality alone is associated with 16% and 35% of the variations in male and female obesity rates, respectively, across OECD countries in 2010. Higher levels of income inequality in the 2005-2010 period were associated with a more rapid increase in obesity prevalence from 2002 to 2010. These associations, however, virtually disappear when the US and Mexico have been excluded from the analysis. Findings from this study underscore the importance of assessing the impact of extreme cases on the relation between income inequality and health outcomes. The potential pathways from income inequality to the alarmingly high rates of obesity in the cases of the US and Mexico warrant further research.
Abstract: Non-communicable diseases (NCDs) dominate disease burdens globally and poor nutrition increasingly contributes to this global burden. Comprehensive monitoring of food environments, and evaluation of the impact of public and private sector policies on food environments is needed to strengthen accountability systems to reduce NCDs. The International Network for Food and Obesity/NCDs Research, Monitoring and Action Support (INFORMAS) is a global network of public-interest organizations and researchers that aims to monitor, benchmark and support public and private sector actions to create healthy food environments and reduce obesity, NCDs and their related inequalities. The INFORMAS framework includes two 'process' modules, that monitor the policies and actions of the public and private sectors, seven 'impact' modules that monitor the key characteristics of food environments and three 'outcome' modules that monitor dietary quality, risk factors and NCD morbidity and mortality. Monitoring frameworks and indicators have been developed for 10 modules to provide consistency, but allowing for stepwise approaches ('minimal', 'expanded', 'optimal') to data collection and analysis. INFORMAS data will enable benchmarking of food environments between countries, and monitoring of progress over time within countries. Through monitoring and benchmarking, INFORMAS will strengthen the accountability systems needed to help reduce the burden of obesity, NCDs and their related inequalities.

Abstract: Socioeconomic stress associated with financial and psychosocial stress is widespread in society. A comprehensive body of research indicates that low socioeconomic status and social stress is associated with a broad spectrum of health risks. This paper reviews epidemiological evidence demonstrating the association between chronic social stress and development of obesity and symptoms leading to metabolic syndrome. The cumulative effects of socioeconomic stress on health and well being are evident throughout the lifespan, affecting children, adolescents, and adults. While the links between stress and metabolic disease are documented, the mechanisms remain less well understood. Animal models are well established and have provided opportunities to systematically investigate contributing mechanisms that may be targeted to develop and prevention strategies against metabolic disorders arising from exposure to chronic social stress.

BACKGROUND: Psychological factors and socioeconomic status (SES) have a considerable impact on type 2 diabetes incidence and other metabolic disturbances. Also, parental SES was included in the study as risk factor for both, diabetes and adverse childhood experiences. Finally, we assumed that obesity might be a mediator for the association of childhood adversities with diabetes incidence. Therefore, we carried out a second review on obesity, applying a similar search strategy. METHODS: Two systematic reviews were carried out. Longitudinal, population- or community-based studies and international based studies that childhood adversities (like neglect, traumata and deprivation) have considerable impact on type 2 diabetes incidence and other metabolic disturbances. Also, parental SES was included in the search as risk factor for both, diabetes and adverse childhood experiences. Finally, we assumed that obesity might be a mediator for the association of childhood adversities with diabetes incidence. Therefore, we carried out a second review on obesity, applying a similar search strategy. METHODS: Two systematic reviews were carried out. Longitudinal, population- or community-based studies and international based studies were included if they contained data on psychosocial factors in childhood and either diabetes incidence or obesity risk. RESULTS: We included ten studies comprising a total of 200,381 individuals. Eight out of ten studies indicated that low parental status was associated with type 2 diabetes incidence or the development of metabolic abnormalities. Adjustment for adult SES and obesity tended to attenuate the childhood SES-attributable risk but the association remained. For obesity, eleven studies were included with a total sample size of 70,420 participants. Four out of eleven studies observed an independent association of low childhood SES on the risk for overweight and obesity later in life. CONCLUSIONS: Taken together, there is evidence that childhood SES is associated with type 2 diabetes and obesity in later life. The database on the role of psychological factors such as traumata and childhood adversities for the future risk of type 2 diabetes or obesity is too small to draw conclusions. Thus, more population-based longitudinal studies and international standards to assess psychosocial factors are needed to clarify the mechanisms leading to the observed health disparities.

A systematic review was conducted to provide a comprehensive overview on the emerging success of applying behavioral economics tools to promote healthy food choice decisions in school lunchrooms. This paper summarizes the current knowledge on the topic and facilitates meeting the recommendations of the White House Task Force on Obesity, and the
Thulier D, Mercer J, Tiffin, R, Salois, M.

**Can it Affect Food Supplier Decisions? A Systematic Review**

Management Review 17 Special Issue A, 2014

**Variables associated with breastfeeding duration.**


**Inequalities in diet and nutrition.**


**The critical period of infant feeding for the development of early disparities in obesity.**


Thompson AL, Bentley ME.

Childhood obesity is an increasing public health problem, particularly among minority infants and young children. Disparities in overweight prevalence persist and widen with age, highlighting the need to identify factors contributing to early excess weight gain. We review the behavioral, social and macro-environmental factors contributing to the development of obesogenic early feeding practices among African-American infants and young children. We then examine the sociodemographic, household factors, feeding beliefs and infant characteristics associated with age-inappropriate feeding of liquids and solids (inappropriate feeding) among mothers and infants participating the U.S. Infant Care and Risk of Obesity Study, a cohort study of 217 low-income, first-time mothers and infants followed from 3 to 18 months of age. Maternal and infant anthropometry, infant diet, and maternal and household characteristics were collected at home visits at 3, 6, 9, 12 and 18 months of age. Mixed logistic regression was used to estimate the association between maternal and infant characteristics and inappropriate feeding. Rates of age-inappropriate feeding are high; over 75% of infants received solids or juice by 3 months of age. The odds of age-inappropriate feeding were higher among mothers who were single, depressed or believed that their infant is a “greedy” baby. Inappropriate feeding was associated with higher daily energy intake in infants (β = 109.28 calories, p = 0.01) and with increased odds of high infant weight-for-length (WFL; OR = 1.74, 95%CI: 1.01-3.01). Our findings suggest that age-inappropriate complementary feeding influences current energy intakes and infant WFL, factors that may increase long-term obesity risk by shaping infant appetite, food preferences, and metabolism. Given the intractability of pediatric obesity, understanding the role of early feeding in shaping long-term health disparities is critical for developing preventive strategies to stem obesity in early childhood.

**Variables associated with breastfeeding duration.**

OBJECTIVE: To identify the variables associated with breastfeeding duration. DATA SOURCES: The health science reference databases of CINAHL, PubMed, and the Cochrane Database of Systematic Reviews. STUDY SELECTION: Meta-analyses, Cochrane reviews, literature reviews, and quantitative and qualitative studies published in English from 1998 through 2008. DATA EXTRACTION: Data included all variables, both positive and negative, that were found to influence the outcome of breastfeeding duration. DATA SYNTHESIS: Demographic factors that influence breastfeeding duration are race, age, marital status, education, socioeconomics, and Special Supplemental Nutrition Program for Women, Infants, and Children status. Biological variables consisted of insufficient milk supply, infant health problems, maternal obesity, and the physical challenges of breastfeeding, maternal smoking, parity, and method of delivery. Social variables included paid work, family support, and professional support. Maternal intention, interest, and confidence in breastfeeding were psychological factors. CONCLUSION: Human lactation is a complex phenomena and the duration of breastfeeding is influenced by many demographic, physical, social, and psychological variables.
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<th>Author(s)</th>
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<td>La Torre, G; Boccia, A; Romano, F; Saulle, R; Gatto, G; Turchetta, F; Connor Goldfield G, Saunders TJ, AG, Kho LeBlanc MS, Tremblay Hal Rowland, B; Olsson, CA; JW; Toumbourou, J W; LeBlanc AG, Kho MS; Saunders TJ, Larouche R, Colley RC, Goldfield G, Connor Gorber S.</td>
<td>Objective: the objective of the study was to obtain reliable data from recent surveys carried out in Italy on the prevalence of overweight (OW) and obesity (OB) in children. Design: we searched in MEDLINE/Pubmed and Scopus. The keywords included “over-weight”, “obesity”, “children”, “aged 6-11 years”, “Italy”, associated to the boolean operators AND/OR. The limits applied to the research were: English AND/OR Italian language, publication time period January 2000-September 2010, target of 6-11 years; Body Mass Index assessed according to IOTF criteria. StataDirect 2.7.8 was utilized to perform statistical analysis. Results: 25 studies have been select, the percentage of overweight varied 18% and 33.7% and obesity between 5.5% and 21.9%. The highest values were in Southern Italy (OW: 25.6%, CI95% 24.8-26.3; OB: 15.2%, CI95% 13-21.5) vs Central Italy (OW: 22.6%, CI95% 21-24.1; OB: 9.3%, CI95% 7.9-10.7) vs Northern Italy (OW: 21%; CI95% 19.6-22.3; OB: 8.2%, CI95% 6.8-9.7). Conclusion: a relevant prevalence of overweight and obesity was found in Italian children; the excess weight concerns one child out of four. There are significant differences in the prevalence of overweight and obesity in socially undeserving households. We argue that when inequality is of concern, population-based measures must reflect this and approaches that target vulnerable populations which have a shared propensity to adopt unhealthy behaviours are appropriate.</td>
<td>Int J Behav Nutr Phys Act.</td>
<td>2011 Sep</td>
<td>21:8:98.</td>
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Multiple influences

Physiol Behav.

Under-nutrition and obesity are multi-determined. The multiple determinants of either under-nutrition or obesity are linked,

thus forming a system of influences. How a system of linked multiple influences functions is illustrated with specific reference to early nutritional deficiencies. The traditional explanation that child nutritional deficiencies are due to food scarcity or a lack of family economic resources has been increasingly questioned. In the UNICEF extended care model, deficiencies in children’s nutritional intake are due to family economic and food resources and to specific caregiver resources. The role of three caregiver resources, maternal education, intelligence and depression are reviewed. Evidence also is presented on the need to take into account child characteristics, as an additional set of influences on nutritional deficiencies. Using a systems perspective this review documents how the relation to nutrition of family and caregiver resources and child characteristics can be mediated or moderated by alternative linked influences such as cultural characteristics, maternal input into family economic decisions and social support networks. Based on this review a revised extended care model is presented, explicitly integrating child characteristics and specific mediating and moderating links between multiple predictors of child nutritional deficiencies. This is followed by a brief discussion on how a systems perspective can also apply to the study of childhood obesity.

Increasingly, studies are focusing on the role the local food environment plays in residents’ ability to purchase affordable, healthy and nutritious foods. In a food desert, an area devoid of a supermarket, access to healthy food is limited. We conducted a systematic review of studies that focused on food access and food desert research in the United States. The 31 studies identified utilized 9 measures to assess food access. Results from these studies can be summarized primarily into four major statements. Findings from other countries offer insight into ways, in which future research, policy development and program implementation in the US may continue to be explored.

This paper describes the current prevalence and time trends of childhood obesity worldwide, and the association between childhood obesity and socio-economic status (SES). Childhood obesity has become a global public health crisis. The prevalence is highest in western and industrialized countries, but still low in some developing countries. The prevalence also varies by age and gender. The WHO Americas and eastern Mediterranean regions had higher prevalence of overweight and obesity (30-40%) than the European (20-30%), south-east Asian, western Pacific, and African regions (10-20% in the latter three). A total of 43 million children (35 million in developing countries) were estimated to be overweight or obese: 92 million were at risk of overweight in 2010. The global overweight and obesity prevalence has increased dramatically since 1990, for example in preschool-age children, from approximately 4% in 1990 to 7% in 2010. If this trend continues, the prevalence may reach 9% or 60 million people in 2020. The obesity-SES association varies by gender, age, and country. In general, SES groups with greater access to energy-dense diets (low-SES in industrialized countries and high-SES in developing countries) are at increased risk of being obese than their counterparts.

OBJECTIVE: To determine risk factors for childhood overweight that can be identified during the first year of life to facilitate early identification and targeted intervention. DESIGN: Systematic review and meta-analysis. SEARCH STRATEGY: Electronic database search of MEDLINE, EMBASE, PubMed and CAB Abstracts. ELIGIBILITY CRITERIA: Prospective observational studies following up children from birth for at least 2 years. RESULTS: Thirty prospective studies were identified. Significant and strong independent associations with childhood overweight were identified for maternal pre-pregnancy overweight, high infant birth weight and rapid weight gain during the first year of life. Meta-analysis comparing breastfed with non-breastfed infants found a 15% decrease (95% CI 0.74 to 0.99; I(2)=73.3%; n=10) in the odds of childhood overweight. For children of mothers smoking during pregnancy there was a 47% increase (95% CI 1.26 to 1.73; I(2)=47.5%; n=7) in the odds of childhood overweight. There was some evidence associating early introduction of solid foods and childhood overweight. There was conflicting evidence for duration of breastfeeding, socioeconomic status at birth, parity and maternal marital status at birth. No association with childhood overweight was found for maternal age or education at birth, maternal depression or infant ethnicity. There was inconclusive evidence for delivery type, gestational weight gain, maternal postpartum weight loss and ‘fussy’ infant temperament due to the limited number of studies. CONCLUSIONS: Several risk factors for both overweight and obesity in childhood are identifiable during infancy. Future research needs to focus on whether it is clinically feasible for healthcare professionals to identify infants at greatest risk.
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<td>Wilson, SM; Sato, AF</td>
<td>Stress and Pediatric Obesity: What We Know and Where To Go</td>
<td>CHEMOPHYSICAL HEM</td>
<td>2014</td>
<td>15 91 102</td>
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<td>Yeh, MC; Viladrich, A; Bruning, N; Roye, C</td>
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<td>Yeom, HA; Fleury, J; Keller, C</td>
<td>Risk factors for mobility limitation in community-dwelling older adults: A social ecological perspective</td>
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<td>2008</td>
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Childhood obesity is a public health epidemic and is associated with substantial negative physical and psychosocial health consequences. Stress is thought to be one contributor to the development and maintenance of obesity in children and adolescents, yet the linkage between stress and paediatric obesity is a poorly understood phenomenon. This paper further the understanding of stress in the context of paediatric obesity by firstly presenting a focused review of what is known about links between chronic and acute stress and paediatric obesity risk and then synthesizing important areas from the literature. These critical areas of focus include the following: (1) physiological stress reactivity; (2) stress-induced eating; (3) stress and physical activity; (4) parent and family influences; and (5) stress in at-risk populations. This review is geared toward facilitating future research on the stress-obesity connection in youth.

Objective: A systematic literature review was conducted to determine whether sweetened beverage intake increases the risk for obesity, and the extent to which it has contributed to recent increases in energy intake and adiposity in the USA. Design: The search included studies published between 1970 and 2010 that examined secular trends, mechanisms, observational associations and intervention outcomes. Observational and intervention studies were abstracted and systematically evaluated for quality. Setting: Trends in obesity prevalence in the USA and studies from industrialized (developed) countries were included. Subjects: Studies were included for all ages, genders, ethnic and socio-economic groups for which data were available. Results: Obesity rates and sweetened beverage intake have increased in tandem in the USA. Studies consistently show that higher intake of sweetened beverages is associated with higher energy intake. Energy in liquid form is not well compensated for by reductions in the intake of other sources of energy. Well-designed observational studies consistently show a significant positive relationship between sweetened beverage intake and adiposity. More importantly, several well-conducted randomized controlled trials have shown statistically significant changes in adiposity as a result of corresponding changes in sweetened beverage intake. Conclusions: All lines of evidence consistently support the conclusion that the consumption of sweetened beverages has contributed to the obesity epidemic. It is estimated that sweetened beverages account for at least one-fifth of the weight gained between 1977 and 2007 in the US population. Actions that are successful in reducing sweetened beverage consumption are likely to have a measurable impact on obesity.

Obesity has reached epidemic proportions in the United States. Hispanic American women in particular have higher rates of obesity than their non-Hispanic White counterparts. In this article, the authors review the existing literature on acculturation as it relates to obesity and health behaviors among U.S. Hispanic women. In addition, a conceptual framework is proposed to examine factors contributing to obesity through "selective acculturation." This concept challenges traditionally held unilateral assumptions that underscore Hispanic women's unhealthy behavioral patterns by explaining a process whereby Hispanic women both maintain some older health-related behaviors and acquire new ones once they settle in a new culture.

Although a variety of risk factors for mobility limitation in older adults have been examined, a collective review of relevant literature has not been reported. The purposes of this review are to report the intrapersonal, interpersonal, environmental, and organizational risk factors related to mobility limitation using a social ecological perspective and to discuss the direction of future clinical practice consistent with current literature on mobility limitation of community-dwelling older adults. Intrapersonal risk factors related to mobility limitation include advanced age, female gender, low socioeconomic status, comorbidity, lack of motivation (i.e., dependent personality, decreased self-efficacy), lifestyle factors (i.e., sedentary lifestyle, smoking, obesity), and physiological factors (i.e., vitamin D deficiency, inflammation, poor nutritional status). Interpersonal risk factors related to mobility limitation include weak social networks and limited social activities. Geriatric clients may also experience a decline in mobility when they encounter environmental challenges such as an inconvenient home environment and lack of availability of services in their community, as well as lack of organizational resources stemming from social policy. Potential intervention strategies focused on modifiable risk factors may include lifestyle modifications, social networking programs, and enhancing awareness of environmental and organizational resources in the community for older adults at risk for mobility limitation.
We performed a systematic review describing obesity/intelligent quotient (IQ) association, particularly childhood IQ in relation to adulthood obesity. After screening 883 citations from five electronic databases, we included 26 studies, most of medium quality. The weighted mean difference (WMD) of the full IQ (FIQ)/obesity association in the pre-school children was -15.1 (P<0.05). Compared with controls, the WMD of FIQ and performance IQ of obese children were -2.8 and -10.0, respectively (P<0.05), and the WMD of verbal IQ was -7.01 (P>0.05). With increasing obesity, the FIQ in pre-school children declined, with a significant difference for severely obese children and FIQ. In pubertal children, a slightly different effect of FIQ and obesity emerged. Two studies reported an inverse FIQ/obesity association in adults, but it was non-significant after adjusting for educational attainment. Four papers found that childhood FIQ was inversely associated with adult body mass index, but after adjusting for education, became null. Overall there was an inverse FIQ/obesity association, except in pre-school children. However, after adjusting for educational attainment, FIQ/obesity association was not significantly different. A lower FIQ in childhood was associated with obesity in later adulthood perhaps with educational level mediating the persistence of obesity in later life.

Birth weight and subsequent risk of obesity: a systematic review and meta-analysis. This report describes the association between birth weight (BW) and obesity. Screening of 478 citations from five electronic databases resulted in the inclusion of 33 studies, most of medium quality. The meta-analysis included 20 of these published studies. The 13 remaining articles did not provide sufficient dichotomous data and were systematically reviewed, revealing results consistent with the meta-analysis. Our results revealed that high BW (>4000 g) was associated with increased risk of obesity (odds ratio [OR], 2.07; 95% confidence interval [CI], 1.91-2.24) compared with subjects with BW < 4000 g. Low BW (<2500 g) was associated with decreased risk of obesity (OR, 0.61; 95% CI, 0.46-0.80) compared with subjects with BW > =2500 g. However, when two studies exhibited selection bias were removed, the results indicated no significant association between low BW and obesity (OR, 0.77; 95% CI, 0.58-1.04). Sensitivity analyses showed that differences in the study design, sample size and quality grade of the study had an effect on the low BW/obesity association, which low BW was not associated with the risk of obesity. However when two meta-analyses were performed, studies with medium quality and large sample sizes were included. The pooled results were similar when normal birth weight (2500-4000 g) was used as the reference category. Subgroup analyses based on different growth and developmental stages (pre-school children, school children and adolescents) also revealed that high BW was associated with increased risk of obesity from childhood to early adulthood. No significant evidence of publication bias was present. These results suggest that high BW is associated with increased risk of obesity and may serve as a mediator between prenatal influences and later disease risk.

Socioeconomically disadvantaged children are at higher risk of consuming poor diets, in particular less fruits and vegetables and more non-core foods and sweetened beverages. Currently the drivers of socioeconomically related differences in children's dietary intake are not well understood. This systematic review explored whether dietary predictors vary for children of different socioeconomic circumstances. Seven databases and reference lists of included material were searched for studies investigating predictors of 9-13-year-old children's diet in relation to socioeconomic position. Individual- and population-based cross-sectional, cohort and epidemiological studies published in English and conducted in developed countries were included. Twenty-eight studies were included in this review; most were conducted in Europe (n = 12) or North America (n = 10). The most frequently used indicators of socioeconomic position were parent education and occupation. Predictors of children's dietary intake varied among children of different socioeconomic circumstances. Socioeconomic position was consistently associated with children's nutrition knowledge, parent modelling, home food availability and accessibility. Indeterminate associations with socioeconomic position were observed for parent feeding practices and food environment near school. Differences in the determinants of eating between socioeconomic groups provide a better understanding of the drivers of socioeconomic disparities in dietary intake, and how to develop targeted intervention strategies.

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Annex 2  Tracking including studies of the links between early deprivation and later obesity, early obesity and later disease, and their links to socio-economic status etc.

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<th>Authors</th>
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<th>Abstract</th>
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<tr>
<td>Craigie AM, Lake AA, Kelly SA, Adamson AJ, Mathers JC.</td>
<td>Tracking of obesity-related behaviours from childhood to adulthood: A systematic review.</td>
<td>Maturitas. Nov;70(3):2 66-84.</td>
<td>Obesity in childhood carries a wide range of physical, psychological and social disbenefits and also increases the risk of adult obesity with its well-recognised, enhanced risk of several common complex diseases as well as adverse socioeconomic and psychosocial sequelae. Understanding the tracking of the two key modifiable behaviours, food consumption and physical activity, between childhood and adulthood may illuminate the childhood determinants of adult obesity and contribute to the development of effective interventions. We performed a systematic review of the available literature on tracking of both physical activity and of dietary intake between childhood and adulthood by searching MEDLINE, EMBASE, CINAHL, PSYCInfo, Google and Google Scholar. For inclusion, studies had to report baseline measurements when the children were less than, or equal to, 18 years and to report follow-up for at least 5 years to any age over 18 years. After removal of duplicates, 9625 search hits were screened by title and/or abstract and 79 potentially relevant papers were identified and full papers obtained. In total 39 papers were included in this analysis. Of these, 11 papers (from 5 studies) reported data on tracking of diet from childhood to adulthood and 28 papers (from 16 studies) reported data on tracking of physical activity or inactivity. Despite the diversity of study design and measurement methodology, we found evidence of tracking of both physical activity and of diet between childhood and adulthood with estimates of strength of tracking of a similar order for both behaviours. Because of the inherent methodological difficulties in quantifying habitual behaviour, it is likely that the reported estimates of strength of tracking underestimate the true degree of tracking. The evidence of tracking reported here may give greater impetus to the development of interventions aimed to prevent the persistence of obesity from childhood into adulthood and its attendant adverse socioeconomic, psychosocial and health sequelae.</td>
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<td>Backholer K, Mannan HR, Magliano DJ, Walls HL, Stevenson C, Beauchamp A, Shaw JE, Peeters A.</td>
<td>Projected socioeconomic disparities in the prevalence of obesity among Australian adults.</td>
<td>Aust N Z J Public Health. 2012 Dec;36(6):5 57-63.</td>
<td>To project prevalence of normal weight, overweight and obesity by educational attainment, assuming a continuation of the observed individual weight change in the 5-year follow-up of the national population survey, the Australian Diabetes, Obesity and Lifestyle study (AusDiab; 2000-2005). METHODS: Age-specific transition probabilities between BMI categories, estimated using logistic regression, were entered into education-level-specific, incidence-based, multi-state life tables. Assuming a continuation of the weight change observed in AusDiab, these life tables estimate the prevalence of normal weight, overweight and obesity for Australian adults with low (secondary), medium (diploma) and high (degree) levels of education between 2005 and 2025. RESULTS: The prevalence of obesity among individuals with secondary level educational attainment is estimated to increase from 23% in 2000 to 44% in 2025. Among individuals with a degree qualification or higher, it will increase from 14% to 30%. If all current educational inequalities in weight change could be eliminated, the projected difference in the prevalence of obesity by 2025 between the highest and lowest educated categories would only be reduced by half (to a 6 percentage point difference from 14 percentage points). CONCLUSION: We predict that almost half of Australian adults with low educational status will be obese by 2025. Current trends in obesity have the potential to drive an increase in the absolute difference in obesity prevalence between educational categories in future years. Implications: Unless obesity prevention and management strategies focus specifically on narrowing social inequalities in obesity, inequalities in health are likely to widen.</td>
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| Danese A, Tan M. | Childhood maltreatment and obesity: systematic review and meta-analysis. | Mol Psychiatry. May;19(5):5 44-54. | Obesity is a prevalent global-health problem associated with substantial morbidity, impairment and economic burden. Because most readily available forms of treatment are ineffective in the long term, it is essential to advance knowledge of obesity prevention by identifying potentially modifiable risk factors. Findings from experimental studies in non-human primates suggest that adverse childhood experiences may influence obesity risk. However, observations from human studies showed heterogeneous results. To address these inconsistencies, we performed Medline, PsycInfo and Embase searches till 1 August 2012 for articles examining the association between childhood maltreatment and obesity. We then conducted a meta-analysis of the identified studies and explored the effects of various possible sources of bias. A meta-analysis of 41 studies (190 285...
This article investigates to what extent the worldwide increase in body mass index (BMI) has been affected by economic globalization and inequality. We used time-series and longitudinal cross-national analysis of 127 countries from 1980 to 2008. Data on mean adult BMI were obtained from the Global Burden of Metabolic Risk Factors of Chronic Diseases Collaborating Group. Globalization was measured using the Swiss Economic Institute (KOF) index of economic globalization. Economic inequality between countries was measured with the mean difference in gross domestic product per capita purchasing power parity in international dollars. Economic inequality within countries was measured using the Gini index from the Standardized World Income Inequality Database. Other covariates including poverty, population size, urban population, openness to trade and foreign direct investment were taken from the World Development Indicators (WDI) database. Time-series regression analyses showed that the global increase in BMI is positively associated with both the index of economic globalization and inequality between countries, after adjustment for covariates. Longitudinal panel data analyses showed that the association between economic globalization and BMI is robust after controlling for all covariates and using different estimators. The association between economic inequality within countries and BMI, however, was significant only among high-income nations. More research is needed to study the pathways between economic globalization and BMI. These findings, however, contribute to explaining how contemporary globalization can be reformed to promote better health and control the global obesity epidemic.

Adverse socioeconomic conditions in childhood can have lasting effects on health, but evidence is lacking from prospective studies concerning the effects of early poverty on abdominal obesity in adulthood. Cross-sectional studies in adults from middle and high-income countries show that current socioeconomic status is inversely related to obesity in women, but the pattern in men is not consistent. A systematic review was undertaken to assess the influence of early socioeconomic status on waist circumference, hip circumference, and waist-hip ratio in adulthood. Thirteen relevant articles were located (five cross-sectional and eight cohort), including only one from a middle-income country and the remainder from high-income settings. In all the studies, childhood poverty was associated with higher levels of abdominal obesity in women. In men, the associations were weaker, and no clear pattern emerged.

Chronic non-communicable diseases (NCDs), including cardiovascular diseases, cancers, chronic respiratory diseases, diabetes, etc., are the major causes of mortality in the world, notably in low- and middle-income countries. A growing body of evidence suggests that NCDs have a complex etiology resulting from the interaction of genetic factors, gender, age, ethnicity, and the environmental factors. It is well-documented that chronic diseases in adulthood originate in early life. In recent years, much attention has been focused on primordial and primary prevention of NCD risk factors. There are many biological and epidemiological studies on beneficial effects of breastfeeding during infancy on chronic diseases in adulthood, particularly on hypertension, obesity, diabetes, hypercholesterolemia, and cardiovascular diseases. This review article aims to summarize the current literature on the long-term effects of breastfeeding prevention of NCDs and their risk factors. The current literature is controversial about these effects; however, a growing body of evidence suggests that breastfeeding has protective roles against obesity, hypertension, dyslipidemia, and type II diabetes mellitus during adulthood. In addition to its short-term benefits, encouraging breastfeeding can have long-term beneficial health effects at individual and population levels.

This paper considers the body of observational evidence examining the association of being breast-fed to cardiovascular risk factors and outcomes in later life, and whether any potentially advantageous findings are causal. Early cardiovascular
Cook DG, Hypponen, E., L. Cooper, R., Pouliou, T. Li, Power, C.  
Osmond C, Eriksson JG, AK, Kaye SJ, QA, Rudnicka Orfei L, Chou 
Cook DG.  

Adolescent obesity has increased dramatically in several countries in recent decades; however, the contribution of physical activity level to adolescent adiposity requires clarification. This article investigates the effect of physical activity on subsequent

Owen CG, Whincup PH, Orfei L, Chou QA, Rudnicka AR, Watherin AK, Kaye SJ, Eriksson JG, Osmond C, Cook DG.  

OBJECTIVE: Although obesity beginning early in life is becoming more common, its implications for coronary heart disease (CHD) risk in later life remain uncertain. We examined the relationship of body mass index (BMI) before 30 years of age to CHD risk in later life. DESIGN: Systematic review of published studies relating BMI between age 2 and 30 years to later CHD risk. Studies were identified using Medline (1950 onwards), Embase (1980 onwards) and Web of Science (1970 onwards) databases (to November 2007). MEASUREMENTS: Relative risks (RR) of CHD associated with a 1 standard deviation (s.d.) higher BMI (most based on a narrow age range at measurement) were extracted by two authors independently, and combined using random-effect models. RESULTS: A total of 15 studies provided 17 estimates (731 337 participants, 23 894 CHD events) of the association of early BMI to later CHD outcome. BMI in early childhood (2-6 years, 3 estimates) showed a weak inverse association with CHD risk (RR 0.94, 95% CI 0.82-1.07). BMI in later childhood (7 to <18 years, 7 estimates) and BMI in early adult life (18-30 years, 7 estimates) were both positively related to later CHD risk (RR 1.09, 95% CI 1.00-1.20; RR 1.19, 95% CI 1.11-1.29 respectively). However, there was considerable statistical heterogeneity between study estimates. Results were unaffected by adjustment for social class and/or cigarette smoking, blood pressure and/or total cholesterol, in studies with available data. Gender and year of birth (1900-1976) had little effect on the association. CONCLUSIONS: BMI is positively related to CHD risk in adulthood; the associations in young adults are consistent with those observed in middle age. Long-term control of BMI from childhood may be important to reduce the risk of CHD.  

Power, C. Poulou, T. Li, L. Cooper, R. Hyponen, E.  

Parental and offspring adiposity associations: insights from the 1958 British birth cohort.  


Background/aims: Parent-offspring adiposity associations are well-established: offspring of obese parents have elevated risks of overweight/obesity. The aim of studies based on the 1958 British birth cohort has been to gain insights into explanations of these associations, such as whether parent-offspring BMI associations are due to offspring lifestyles or depend on socio-economic conditions. Methods: All major studies on intergenerational adiposity associations in the three generations of the 1958 birth cohort were reviewed. In addition, BMI data for parents (G1) and the cohort (G2) were analysed stratified by social class. Results: BMI of G1 and G2 were correlated both when offspring were children and in mid-adulthood: a 1 kg/m2 higher parental BMI was associated with an average 0.24-0.35 kg/m2 higher offspring (mothers/fathers vs sons/daughters) BMI at 45 years. Associations were little affected by adjustment for lifestyle and socio-economic factors, but varied by social class: average BMI gain in offspring relative to parents was greater in lower classes, e.g. for males vs fathers by 3.6 and 2.5 kg/m2 in classes IV&V and I&II, respectively. Parent-offspring BMI associations were stronger for recent (G2 and G3) than older (G1 and G2) generations. Conclusions: Parent-offspring associations in BMI were not explained by offspring lifestyles, but varied over successive generations and by social class, suggesting that intergenerational transmission of adiposity at a population level is modifiable rather than immutable.
Levels of adiposity in adolescence. The methodological aspects of the studies included in this article, particularly in terms of measurement accuracy for both exposure (physical activity) and outcome (adiposity) variables, are also evaluated. Systematic searches of the literature were undertaken using online databases, including PubMed/MEDLINE, examination of citations and contacting of authors. The online databases were searched from their earliest records until 2007. Only longitudinal studies with 50 or more adolescents were included. Two independent reviewers assessed the quality of the studies using the Downs and Black checklist. Thirteen observational, five experimental and six quasi-experimental studies (without a control group) were identified. Almost all studies were carried out in high-income settings and showed protective effects of physical activity for both prevention and treatment of adolescent obesity. However, experimental studies undertaken with obese adolescents at baseline usually combined physical activity with dietary changes, making it difficult to assess the effect of physical activity itself on the treatment of obesity. Physical activity estimated from questionnaires and body mass index (BMI) were the most frequently used measures. Despite the feasibility of using these approaches in epidemiological studies, significant limitations are evident. Questionnaires are subjective and adolescents may not report physical activity level accurately. Furthermore, BMI is not an accurate measure of fatness for adolescents, as it is also associated with lean mass, hence bias may arise from its longitudinal association with physical activity level. Despite the majority of studies reviewed showing protective effects of physical activity on adiposity, particularly in individuals who are obese at baseline, the current literature on this issue is sparse and several methodological drawbacks are evident. The main limitations relate to a lack of validity in the measurements of both physical activity and body composition. Further studies are needed in order to generate evidence-based recommendations for the quantity and quality of adolescent physical activity required to prevent or treat adolescent obesity.

To investigate the association between breast feeding and intergenerational social mobility and the possible mediating role of neurological and stress mechanisms. Objectives were to systematically review literature published of breast feeding. The effect was mediated in part through neurological and stress mechanisms.

Breastfeeding was associated with higher social mobility in adulthood compared with breastfed children. The effect was mediated in part through neurological and stress mechanisms.

Breastfeeding increased the odds of upward social mobility and decreased the odds of downward mobility. Consistent with a causal explanation, the findings were robust to matching on a large number of observable variables and effect sizes were alike for two cohorts with different social distributions of breast feeding. The effect was mediated in part through neurological and stress mechanisms. Childhood socioeconomic position (SEP) is inversely associated with cardiovascular disease and all-cause mortality. Obesity in adulthood may be a biologic mechanism. Objectives were to systematically review literature published between 1998 and 2008 that examined associations of childhood SEP with adulthood obesity. Five databases (Cochrane Library, MEDLINE, EMBASE, PsycINFO, Web of Science) were searched for studies from any country, in any language. Forty-eight publications based on 30 studies were identified. In age-adjusted analyses, inverse associations were found between childhood SEP and adulthood obesity in 70% (14 of 20) of studies in females and 27% (4 of 15) in males. In studies of females showing inverse associations between childhood SEP and adulthood obesity, typical effect sizes in age-adjusted analyses for the difference in body mass index between the highest and lowest SEP were 1.0-2.0 kg/m²; for males, effect sizes were typically 0.2-0.5 kg/m². Analyses adjusted for age and adult SEP showed inverse associations in 47% (8 of 17) of studies in females and 14% (2 of 14) of studies in males. When other covariates were additionally adjusted for, inverse associations were found in 4 of 12 studies in females and 2 of 8
studies in males; effect sizes were typically reduced compared with analyses adjusted for age only. In summary, the findings suggest that childhood SEP is inversely related to adulthood obesity in females and not associated in males after adjustment for age. Adulthood SEP and other obesity risk factors may be the mechanisms responsible for the observed associations between childhood SEP and adulthood obesity.

**BACKGROUND:** Psychological factors and socioeconomic status (SES) have a notable impact on health disparities, including type 2 diabetes risk. However, the link between childhood psychosocial factors, such as childhood adversities or parental SES, and metabolic disturbances is less well established. In addition, the lifetime perspective including adult socioeconomic factors remains of further interest. We carried out a systematic review with the main question if there is evidence in population- or community-based studies that childhood adversities (like neglect, trauma and deprivation) have considerable impact on type 2 diabetes incidence and other metabolic disturbances. Also, parental SES was included in the search as risk factor for both, diabetes and adverse childhood experiences. Finally, we assumed that obesity might be a mediator for the association of childhood adversities with diabetes incidence. Therefore, we carried out a second review on obesity, applying a similar search strategy. METHODS: Two systematic reviews were carried out. Longitudinal, population- or community-based studies were included if they contained data on psychosocial factors in childhood and either diabetes incidence or obesity risk. RESULTS: We included ten studies comprising a total of 200,381 individuals. Eight out of ten studies indicated that low parental status was associated with type 2 diabetes incidence or the development of metabolic abnormalities. Adjustment for adult SES and obesity tended to attenuate the childhood SES-attributable risk but the association remained. For obesity, eleven studies were included with a total sample size of 70,420 participants. Four out of eleven studies observed an independent association of low childhood SES on the risk for overweight and obesity later in life. CONCLUSIONS: Taken together, there is evidence that childhood SES is associated with type 2 diabetes and obesity in later life. The database on the role of psychological factors such as traumata and childhood adversities for the future risk of type 2 diabetes or obesity is too small to draw conclusions. Thus, more population-based longitudinal studies and international standards to assess psychosocial factors are needed to clarify the mechanisms leading to the observed health disparities.

We performed a systematic review describing obesity/intelligent quotient (IQ) association, particularly childhood IQ in relation to adulthood obesity. After screening 883 citations from five electronic databases, we included 26 studies, most of medium quality. The weighted mean difference (WMD) of the full IQ (FIQ)/obesity association in the pre-school children was -15.1 (P>0.05). Compared with controls, the WMD of FIQ and performance IQ of obese children were -2.8 and -10.0, respectively (P<0.05), and the WMD of verbal IQ was -7.01 (P>0.05). With increasing obesity, the FIQ in pre-school children declined, with a significant difference for severely obese children and FIQ. In pubertal children, a slightly different effect of FIQ and obesity emerged. Two studies reported an inverse FIQ/obesity association in adults, but it was non-significant after adjusting for educational attainment. Four papers found that childhood FIQ was inversely associated with adult body mass index, but after adjusting for education, became null. Overall there was an inverse FIQ/obesity association, except in pre-school children. However, after adjusting for educational attainment, FIQ/obesity association was not significantly different. A lower FIQ in childhood was associated with obesity in later adulthood perhaps with educational level mediating the persistence of obesity in later life.

This report describes the association between birth weight (BW) and obesity. Screening of 478 citations from five electronic databases resulted in the inclusion of 33 studies, most of medium quality. The meta-analysis included 20 of these published studies. The 13 remaining articles did not provide sufficient dichotomous data and were systematically reviewed, revealing results consistent with the meta-analysis. Our results revealed that high BW (>4000 g) was associated with increased risk of obesity (odds ratio [OR], 2.07; 95% confidence interval [CI], 1.91-2.24) compared with subjects with BW < 4000 g. Low BW (<2500 g) was associated with decreased risk of obesity (OR, 0.61; 95% CI, 0.46-0.80) compared with subjects with BW >= 2500 g. However, when two studies exhibited selection bias were removed, the results indicated no significant association between low BW and obesity (OR, 0.77; 95% CI, 0.58-1.04). Sensitivity analyses showed that differences in the study design, sample size....

**Impact of early psychosocial factors (childhood socioeconomic factors and adversities) on future risk of type 2 diabetes, metabolic disturbances and obesity: a systematic review.**

**Intelligence in relation to obesity: a systematic review and meta-analysis.**

**Birth weight and subsequent risk of obesity: a systematic review and meta-analysis.**

**Low BW and obesity (OR, 0.77; 95% CI, 0.58-1.04). Sensitivity analyses showed that differences in the study design, sample size...**
and quality grade of the study had an effect on the low BW/obesity association, which low BW was not associated with the risk of obesity in cohort studies, studies with large sample sizes and studies with high quality grades. Pooled results were similar when normal birth weight (2500-4000 g) was used as the reference category. Subgroup analyses based on different growth and developmental stages (pre-school children, school children and adolescents) also revealed that high BW was associated with increased risk of obesity from childhood to early adulthood. No significant evidence of publication bias was present. These results suggest that high BW is associated with increased risk of obesity and may serve as a mediator between prenatal influences and later disease risk.
Annex 3  Costs and related economic issues, including costs to the economy, employers, health services, and also prices, fiscal impacts and fiscal behaviour.

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Abstract

Adolescence is a critical period in the human lifecycle, a time of rapid physical and socioemotional growth and a time when individuals establish lifestyle habits and health behaviors that often endure into and have lasting effects in adulthood. Adolescent health promotion programs play a critical role in helping youth establish healthy lifestyles. In this article, we present a socio-ecological model as a framework for identifying effective policy and program areas that have a positive impact on adolescent health behaviors. Our discussion focuses on 4 key areas: reproductive health; obesity prevention; mental health and substance use, including smoking; and injury and violence prevention. We proceed with an overview of the current status of state-led adolescent health promotion policies and programs from a newly created policy database and then examine the evidence on the cost of preventable adolescent health problems and the cost-effectiveness of health promotion programs and policies. We conclude by discussing the threat posed to adolescent health promotion services and state-led policy initiatives by proposed and implemented federal and state-level budget cuts and examine the possible health and economic repercussions of reducing or eliminating these programs.

OBJECTIVE: To search for, review and synthesise studies of the effectiveness and cost-effectiveness of weight management schemes for the under fives. DATA SOURCES: MEDLINE [Ovid], MEDLINE In-Process [Ovid], EMBASE [Ovid], CAB [Ovid], Health Management Information Consortium [Ovid], The Cochrane Database of Systematic Reviews, Cochrane Register of Controlled Trials, Science Citation Index Expanded [Web of Science], Conference Proceedings Citation Index [The Web of Science], Database of Abstract Reviews [CRD; Centre for Reviews and Dissemination], HTA [CRD], PsycINFO [Ebsco], NHS CRD. These databases were searched from 1990 to February 2009. Supplementary internet searches were additionally conducted. REVIEW METHODS: Relevant clinical effectiveness studies were identified in two stages. Titles and abstracts returned by the search strategy were examined independently by three researchers and screened for possible inclusion. Disagreements were resolved by discussion. Full texts of the identified studies were obtained. Three researchers examined these independently for inclusion or exclusion, and disagreements were again resolved by discussion. RESULTS: One of the randomised controlled trials (RCTs) was from the UK. It measured the effects of a physical activity intervention for children in nurseries combined with home-based health education for their parents; this was compared to usual care. The main outcome measure was body mass index (BMI); secondary measures were weight and physical activity. At the 12-month follow-up, no statistically significant differences were found between the groups on any measure. However, a trend, favouring the intervention, was found for BMI and weight. The other two RCTs were from the USA. The larger trial investigated the effects of a combined preschool and home intervention in African American and Latino communities. Nutrition education and physical activity programmes were aimed at under fives in preschool. The home component consisted of related health education and homework for the parents, who received a small financial reward on completion. The 1- and 2-year results for the African American sites showed a significantly slower rate of increase in BMI than for results at baseline, for the intervention group than for the control group. However, in the Latino communities no such differences were found. The second US trial was a much smaller home-based parental education programme in Native American communities in the USA and Canada. The intervention consisted of a parental skills course for parents to improve their children's diet and physical activity. This was compared with a course providing
skills to improve child behaviour. Follow-up was at 16 weeks and showed no significant differences between groups in BMI. CONCLUSIONS: No controlled trials addressing the issue of treating obesity or evidence of cost-effectiveness studies in the under fives’ population were found. From the three prevention studies, apart from the larger US trial, the interventions showed no statistically significant differences in BMI and weight between the intervention and control groups (although there was some evidence of positive trends for BMI and weight). It should also be noted that these conclusions are based on only three dissimilar studies, thereby making the drawing of firm conclusions difficult. Research is urgently needed in further well-designed UK-based RCTs of weight management schemes aimed at the prevention of obesity, that combine with cost-effectiveness studies targeted at preschool children with long-term follow-up.


The prosperity of a country, commonly measured in terms of its annual per capita Gross Domestic Product (GDP), has different relationships with population levels of body weight and happiness, as well as environmental impacts such as carbon emissions. The aim of this study was to examine these relationships and to try to find a level of GDP, which provides for sustainable economic activity, optimal happiness and healthy levels of mean body mass index (BMI). Spline regression analyses were conducted using national indices from 175 countries: GDP, adult BMI, mean happiness scores, and carbon footprint per capita for the year 2007. Results showed that GDP was positively related to BMI and happiness up to ~$US3000 and ~$5000 per capita respectively, with no significant relationships beyond these levels. GDP was also positively related to CO2 emissions with a recognised sustainable carbon footprint of less than 5 tonnes per capita occurring at a GDP of <$US15,000. These findings show that a GDP between $US5 and $15,000 is associated with greater population happiness and environmental stability. A mean BMI of 21-23 kg/m², which minimises the prevalence of underweight and overweight in the population then helps to define an ideal position in relation to growth, which few countries appear to have obtained. Within a group of wealthy countries (GDP > $US30,000), those with lower income inequalities and more regulated (less liberal) market systems had lower mean BMIs.


BACKGROUND: Comprehensive, multi-level approaches are required to address obesity. One important target for intervention is the economic domain. The purpose of this study was to synthesize existing evidence regarding the impact of economic policies targeting obesity and its causal behaviours (diet, physical activity), and to make specific recommendations for the Canadian context. METHODS: Arksey and O’Malley’s (2005) methodological framework for conducting scoping reviews was adopted for this study and this consisted of two phases: 1) a structured literature search and review, and 2) consultation with experts in the research field through a Delphi survey and an in-person expert panel meeting in April 2010. RESULTS: Two key findings from the scoping review included 1) consistent evidence that weight outcomes are responsive to food and beverage prices. The debate on the use of food taxes and subsidies to address obesity should now shift to how best to address practical issues in designing such policies; and 2) very few studies have examined the impact of economic instruments to promote physical activity and clear policy recommendations cannot be made at this time. Delphi survey findings emphasised the relatively modest impact any specific economic instrument would have on obesity independently. Based on empirical evidence and expert opinion, three recommendations were supported. First, to create and implement an effective health filter to review new and current agricultural policies to reduce the possibility that such policies have a deleterious impact on population rates of obesity. Second, to implement a caloric sweetened beverage tax. Third, to examine how to implement fruit and vegetable subsidies targeted at children and low income households. CONCLUSIONS: In terms of economic interventions, shifting from empirical evidence to policy recommendation remains challenging. Overall, the evidence is not sufficiently strong to provide clear policy direction. Additionally,


BACKGROUND: UK public health policy strongly advocates dietary change for the improvement of population health and emphasises the importance of individual empowerment to improve health. A new and evolving area in the promotion of dietary behaviour change is 'e-learning', the use of interactive electronic media to facilitate teaching and learning on a range of issues including health. The high level of accessibility, combined with emerging advances in computer processing power, data transmission and data storage, makes interactive e-learning a potentially powerful and cost-effective medium for improving dietary behaviour.

OBJECTIVE: This review aims to assess the cost-effectiveness of adaptive e-learning interventions for dietary behaviour change, and also to explore potential psychological mechanisms of action and components of effective interventions.

DATA SOURCES: Electronic bibliographic databases (Cumulative Index to Nursing and Allied Health Literature, The Cochrane Library, Dissertation Abstracts, EMBASE, Education Resources Information Center, Global Health, Health Economic Evaluations Database, Health Management Information Consortium, MEDLINE, PsychINFO and Web of Science) were searched for the period January 1990 to November 2009. Reference lists of included studies and previous reviews were also screened; authors were contacted and trial registers were searched.

REVIEW METHODS: Studies were included if they were randomised controlled trials, involving participants aged ≥ 13 years, which evaluated the effectiveness of interactive software programs for improving dietary behaviour. Primary outcomes were measures of dietary behaviours, including estimated intakes or changes in intake of energy, nutrients, dietary fibre, foods or food groups. Secondary outcome measures were clinical outcomes such as anthropometry or blood biochemistry. Psychological mediators of dietary behaviour change were also investigated. Two review authors independently screened results and extracted data from included studies, with any discrepancies settled by a third author. Where studies reported the same outcome, the results were pooled using a random-effects model, with weighted mean differences (WMDs), and 95% confidence intervals (CIs) were calculated. Cost-effectiveness was assessed in two ways: through a systematic literature review and by building a de novo decision model to assess the cost-effectiveness of a 'generic' e-learning device compared with dietary advice delivered by a health-care professional.

RESULTS: A total of 36,379 titles were initially identified by the electronic searches, of which 43 studies were eligible for inclusion in the review. All e-learning interventions were delivered in high-income countries. The most commonly used behavioural change techniques reported to have been used were goal setting; feedback on performance; information on consequences of behaviour in general; barrier identification/problem solving; prompting self-monitoring of behaviour; and instruction on how to perform the behaviour. There was substantial heterogeneity in the estimates of effect. E-learning interventions were associated with a WMD of +0.24 (95% CI 0.04 to 0.44) servings of fruit and vegetables per day; -0.78 g (95% CI -2.5 g to 0.95 g) total fat consumed per day; -0.24 g (95% CI -1.44 g to 0.96 g) saturated fat intake per day; -1.4% (95% CI -2.5% to -0.3%) of total energy consumed from fat per day; +1.45 g (95% CI -0.02 g to 2.92 g) dietary fibre per day; +4 kcal (95% CI -85 kcal to 93 kcal) daily energy intake; -0.1 kg/m2 (95% CI -0.7 kg/m2 to 0.4 kg/m2) change in body mass index. The base-case results from the E-Learning Economic Evaluation Model suggested that the incremental cost-effectiveness ratio was approximately £102,112 per quality-adjusted life-year (QALY). Expected value of perfect information (EVPI) analysis showed that although the individual-level EVPI was arguably negligible, the population-level value was between £37M and £170M at a willingness to pay of £20,000-30,000 per additional QALY.

LIMITATIONS: The limitations of this review include potential reporting bias,
incomplete retrieval of completed research studies and data extraction errors. CONCLUSION: The current clinical and economic evidence base suggests that e-learning devices designed to promote dietary behaviour change will not produce clinically significant changes in dietary behaviour and are at least as expensive as other individual behaviour change interventions. FUTURE WORK RECOMMENDATIONS: Despite the relatively high EVPI results from the cost-effectiveness modelling, further clinical trials of individual e-learning interventions should not be undertaken until theoretically informed work that addresses the question of which characteristics of the target population, target behaviour, content and delivery of the intervention are likely to lead to positive results, is completed.

The Affordable Care Act encourages workplace wellness programs, chiefly by promoting programs that reward employees for changing health-related behavior or improving measurable health outcomes. Recognizing the risk that unhealthy employees might be punished rather than helped by such programs, the act also forbids health-based discrimination. We reviewed results of randomized controlled trials and identified challenges for workplace wellness programs to function as the act intends. For example, research results raise doubts that employees with health risk factors, such as obesity and tobacco use, spend more on medical care than others. Such groups may not be especially promising targets for financial incentives meant to save costs through health improvement. Although there may be other valid reasons, beyond lowering costs, to institute workplace wellness programs, we found little evidence that such programs can easily save costs through health improvement without being discriminatory. Our evidence suggests that savings to employers may come from cost shifting, with the most vulnerable employees-those from lower socioeconomic strata with the most health risks-probably bearing greater costs that in effect subsidize their healthier colleagues.

This review aims to provide an update on economic costs of obesity in Europe with a focus on costs in specific subgroups. Two studies (both from Germany) took a societal perspective, with total (direct and indirect) costs of obesity accounting for 0.47-0.61% of gross domestic product. Excess per-capita direct costs ranged from Euro 117 to Euro 1873, depending on cost categories and comparison group (normal weight, non-obese). One study estimated lower lifetime health care costs given obesity. Rega...
costs of severe obesity), and groups with co-existing abdominal obesity, diabetes (especially type 1), elevated HbA1c (among patients with type 2 diabetes), and physical co-morbidities given BMI >27 (compared to a "BMI >30 only"-group). In conclusion, while substantial obesity costs were found in most studies, subgroup analyses and lifetime perspectives call for a differentiated approach to the costs of obesity. Findings such as the higher health care costs in severely obese groups with higher socio-economic status (despite fewer co-
morbidities), and lower lifetime long-term care costs in obese groups (due to reduced life expectancy), may generate hypotheses both on under- vs. overuse of services, and target groups for interventions.

CONTEXT: Financial incentives, including taxes and subsidies, can be used to encourage behavior change. They are common in transport policy for tackling externalities associated with use of motor vehicles, and in public health for influencing alcohol consumption and smoking behaviors. Financial incentives also offer policymakers a compromise between "nudging," which may be insufficient for changing habitual behavior, and regulations that restrict individual choice. EVIDENCE ACQUISITION: The literature review identified studies published between January 1997 and January 2012 of financial incentives relating to any mode of travel in which the impact on active travel, physical activity, or obesity levels was reported. It encompassed macroenvironmental schemes, such as gasoline taxes, and microenvironmental schemes, such as employer-
subsidized bicycles. Five relevant reviews and 20 primary studies (of which nine were not included in the reviews) were identified. EVIDENCE SYNTHESIS: The results show that more-robust evidence is required if policymakers are to maximize the health impact of fiscal policy relating to transport schemes of this kind. CONCLUSIONS: Drawing on a literature review and insights from the SLOTH (sleep, leisure, occupation, transportation, and home-based activities) time-budget model, this paper argues that financial incentives may have a larger role in promoting walking and cycling than is acknowledged generally.


Nine studies met the criteria for inclusion in this systematic review of randomized controlled trials of treatments for obesity and overweight involving the use of financial incentives, with reported follow-up of at least 1 year. All included trials were of behavioural obesity treatments. Justification of sample size and blinding procedure were not mentioned in any study. Attrition was well described in three studies and no study was analysed on an intention to treat basis. Participants were mostly women recruited through media advertisements. Mean age ranged from 35.7 to 52.8 years, and mean body mass index from 29.3 to 31.8 kg m\(^{-2}\). Results from meta-analysis showed no significant effect of use of financial incentives on weight loss or maintenance at 12 months and 18 months. Further sub-analysis by mode of delivery and amount of incentives although also non-statistically significant were suggestive of very weak trends in favour of use of amounts greater than 1.2% personal disposable income, rewards for behaviour change rather than for weight, rewards based on group performance rather than for individual performance and rewards delivered by non-psychologists rather than delivered by psychologists.

BACKGROUND: By improving two social determinants of health (poverty and unemployment) in low- and middle-income families on or at risk of welfare, in-work tax credit for families (IWTC) interventions could impact health status and outcomes in adults. OBJECTIVES: To assess the effects of IWTCs on health outcomes in working-age adults (18 to 64 years). SEARCH METHODS: We searched 16 electronic academic databases, including the Cochrane Public Health Group Specialised Register, Cochrane Database of Systematic Reviews (The Cochrane Library 2012, Issue 7), MEDLINE and EMBASE, as well as six grey literature databases between July and September 2012 for records published between January 1980 and July 2012. We also searched key organisational websites, handsearched reference lists of included records and relevant journals, and contacted academic experts. SELECTION CRITERIA: We included randomised and quasi-randomised controlled trials and cohort, controlled before-and-after (CBA) and interrupted time series (ITS) studies of IWTCs in working-age adults. Included primary outcomes were: self rated general health; mental health/psychological distress; mental illness; overweight/obesity; alcohol use and tobacco use. DATA COLLECTION AND ANALYSIS: Two review authors independently extracted data and assessed the risk of bias in included studies. We contacted study authors to obtain missing information. MAIN RESULTS: Five studies (one CBA and four ITS) comprising a total of 5,677,383 participants (all women) fulfilled the inclusion criteria and were synthesised narratively. The in-work tax credit intervention assessed in all included studies is the permanent Earned Income Tax Credit in the United States, established in 1975. This intervention distributed nearly USD 62 billion to over 27 million individuals in 2011, and its administration costs were less than one per cent of its total costs. All included studies carried a high risk of bias (especially from confounding and insufficient control for underlying time trends). Due to the small number of (observational) studies and their high risk of bias, we judged this body of evidence to have very low overall quality. One study found that IWTC had no detectable effect on self rated general health and mental health/psychological distress five years after its implementation (i.e. a considerable change in the generosity of the permanent IWTC) and on overweight/obesity eight years after implementation. One study found no effect of IWTC on tobacco use five years after implementation, one a moderate reduction in tobacco use one year after implementation (odds ratio 0.95, 95% confidence interval (CI) 0.94 to 0.96), and one differential effects, with no effect in African-Americans and a large reduction in European-Americans two years after implementation (risk difference -11.1%, 95% CI -20.9% to -1.3%). No evidence was available for the effect of IWTC on mental illness and alcohol use. No adverse effects of IWTC were identified. One study also found no detectable effect of IWTC on the number of bad physical health days and of risky biomarkers for inflammation, cardiovascular disease and metabolic conditions eight years after implementation. One study
found that IWTC had a large, positive effect on income from wages or salaries one year after implementation. Two studies found no effect on employment two and five years after implementation, whereas two found a moderate increase five and eight years after implementation and one a large increase in employment due to IWTC one year after implementation. No differences in outcomes between groups with different educational status were found for self-rated health and mental health/psychological distress. In one study European-American women with lower levels of education were more likely to reduce tobacco use, while tobacco use did not change among African-American women with lower levels of education. However, no differences in tobacco use by educational status were observed in a second study. Two studies found that the intervention may have reduced inequity with respect to employment, where women with less education were more likely to move into employment (although one did not establish whether this difference was statistically significant), while two studies found no such difference and no studies found differences by ethnic group on employment rates. AUTHORS’ CONCLUSIONS: In summary, the small and methodologically limited existing body of evidence with a high risk of bias provides no evidence for an effect of in-work tax credit for families interventions on health status (except for mixed evidence for tobacco smoking) in adults. Taxes and subsidies are increasingly being considered as potential policy instruments to incentivize consumers to improve their food and beverage consumption patterns and related health outcomes. This study provided a systematic review of recent U.S. studies on the price elasticity of demand for sugar-sweetened beverages (SSBs), fast food, and fruits and vegetables, as well as the direct associations of prices/taxes with body weight outcomes. Based on the recent literature, the price elasticity of demand for SSBs, fast food, fruits and vegetables was estimated to be -1.21, -0.52, -0.49 and -0.48, respectively. The studies that linked soda taxes to weight outcomes showed minimal impacts on weight; however, they were based on existing state-level sales taxes that were relatively low. Higher fast-food prices were associated with lower weight outcomes particularly among adolescents, suggesting that raising prices would potentially impact weight outcomes. Lower fruit and vegetable prices were generally found to be associated with lower body weight outcomes among both low-income children and adults, suggesting that subsidies that would reduce the cost of fruits and vegetables for lower-socioeconomic populations may be effective in reducing obesity. Pricing instruments should continue to be considered and evaluated as potential policy instruments to address public health risks.

Context: Pricing policies have been posited as potential policy instruments to address the increasing prevalence of obesity. This article examines whether altering the cost of unhealthy, energy-dense foods, compared with healthy, less-dense foods through the use of fiscal pricing (tax or subsidy) policy instruments would, in fact, change food consumption patterns and overall diet enough to significantly reduce individuals’ weight outcomes. Methods: This article examined empirical evidence regarding the food and restaurant price sensitivity of weight outcomes based on a literature search to identify peer-reviewed English-language articles published between 1990 and 2008. Studies were identified from the Medline, PubMed, Econlit, and PAIS databases. The fifteen search combinations used the terms obesity, body mass index, and BMI each in combination with the terms price, prices, tax, taxation, and subsidy. Findings: The studies reviewed showed that when statistically significant associations were found between food and restaurant prices (taxes) and weight outcomes, the effects were generally small in magnitude, although in some cases they were larger for low-socioeconomic status (SES) populations and for those at risk for overweight or obesity. Conclusions: The limited existing evidence suggests that small taxes or subsidies are not likely to produce significant changes in BMI or obesity prevalence but that nontrivial pricing interventions may have some measurable effects on Americans’ weight outcomes, particularly for children and adolescents, low-SES populations, and

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Health Technol Assess 2014;18(35)

Conclusions: Weight reduction for men is best achieved and maintained with the combination of a reducing diet, physical activity advice or a physical activity programme, and behaviour change techniques. Tailoring interventions and settings for men may enhance effectiveness, though further research is needed to better understand the influence of context and content. Future studies should include cost-effectiveness analyses in the UK setting.

Robroek SJ, Reeuwijk KG, Hillier FC, Bambra CL, van Rijn RM, Burdorf A. The contribution of overweight, obesity, and lack of physical activity to exit from paid employment: a meta-analysis.


OBJECTIVES: The objective of this review was to analyze systematically the association between overweight, obesity, and lack of physical activity (PA) and exit from paid employment through disability pension, unemployment, and early retirement. We also aimed to identify the influence of study population and study design on the magnitude of this association. METHODS: We searched PubMed and Embase for English language, longitudinal, quantitative studies that described the relationship between overweight, obesity, or lack of PA and exit from work. A short checklist was used to assess the internal and external validity of the studies. We first estimated the pooled effects using a random effects model and then analyzed the influence of study and population characteristics on associations by stratified meta-analyses. RESULTS: In total, 28 out of 1097 publications met the inclusion criteria. Obese (relative risk (RR)=1.53) and, to a lesser extent, overweight (RR=1.16) individuals had an increased likelihood of exit from paid employment through disability pension, but were not at statistically significant increased risk for unemployment or early retirement. Of 17 associations between a lack of PA and disability pension, 8 were statistically significant; this was also the case for 2 of 3 for unemployment. No associations were statistically significant for early retirement. CONCLUSIONS: Obesity is a risk factor for exit from paid employment through disability pension. There are also indications that a lack of PA is related to an increased risk of disability pension and unemployment. To protect workers against premature exit from paid employment, long-term interventions to prevent overweight and obesity and promote PA in the working population should be considered for implementation.

Thow AM, Jan S, Leeder S, Swinburn B. The effect of fiscal policy on diet, obesity and chronic disease: a systematic review.


OBJECTIVE: To assess the effect of food taxes and subsidies on diet, body weight and health through a systematic review of the literature. METHODS: We searched the English-language published and grey literature for empirical and modelling studies on the effects of monetary subsidies or taxes levied on specific food products on consumption habits, body weight and chronic conditions. Empirical studies were dealing with an actual tax, while modelling studies predicted outcomes based on a hypothetical tax or subsidy. FINDINGS: Twenty-four studies met the inclusion criteria: 13 were from the peer-reviewed literature and 11 were published on line. There were 8 empirical and 16 modelling studies. Nine studies assessed the impact of taxes on food consumption only, 5 on consumption and body weight, 4 on consumption and disease and 6 on body weight only. In general, taxes and subsidies influenced consumption in the desired direction, with larger taxes being associated with more significant changes in consumption, body weight and disease incidence. However, studies that focused on a single target food or nutrient may have overestimated the impact of taxes by failing to take into account shifts in consumption to other foods. The quality of the evidence was generally low. Almost all studies were conducted in high-income countries. CONCLUSION: Food taxes and subsidies have the potential to contribute to healthy consumption patterns at the population level. However, current
This study reviews the recent literature on the relationship between obesity and indirect (non-medical) costs. This systematic review summarizes the current evidence on the financial return of worksite health promotion programmes aimed at improving nutrition and/or increasing physical activity. Data on study characteristics and results were extracted from 18 studies published up to 1 January 2011. Two reviewers independently assessed the risk of bias of included studies. Three metrics were (re-)calculated per study: the net benefits, benefit cost ratio (BCR) and return on investment (ROI). Metrics were averaged, and a post hoc subgroup analysis was performed to compare financial return estimates between study designs. Four randomized controlled trials (RCTs), 13 non-randomized studies (NRSs) and one modelling study were included. Average financial return estimates in terms of absenteeism benefits (NRS: ROI 325%, BCR 1.95; RCT: ROI 49%, BCR 0.51), medical benefits (NRS: ROI 95%, BCR 1.95; RCT: ROI 112%, BCR 0.12) or both (NRS: ROI 387%, BCR 4.87; RCT: ROI -92%, BCR 0.08) were positive in NRSs, but negative in RCTs. Worksite health promotion programmes aimed at improving nutrition and/or increasing physical activity generate financial savings in terms of reduced absenteeism costs, medical costs or both according to NRSs, whereas they do not according to RCTs. Since these programmes are associated with additional types of benefit, conclusions about their overall profitability cannot be made. This review aims to provide an update on economic costs of obesity in Europe with a focus on costs in subgroups defined by relevant third variables such as sex, age, socio-economic status, and morbidity factors. A structured search using MeSH-vocabulary and Title/Abstract-searches was conducted in PubMed for 2007-2011.
focus on subgroup-specific costs. All cost categories except intangible costs were considered. N = 19 primary cost of illness studies on adults from Europe which had included at least one cost category as an outcome were identified. Nine studies reported costs in specific subgroups. Two studies (both from Germany) took a societal perspective, with total (direct and indirect) costs of obesity accounting for 0.47-0.61% of gross domestic product. Excess per-capita direct costs ranged from €117 to €1873, depending on cost categories and comparison group (normal weight, non-obese). One study estimated lower lifetime health care costs given obesity. Regarding subgroups, higher costs of obesity were generally found in men, groups with higher socio-economic status (regarding costs of severe obesity), and groups with co-existing abdominal obesity, diabetes (especially type 1), elevated HbA1c (among patients with type 2 diabetes), and physical co-morbidities given BMI ≥ 27 (compared to a "BMI ≥ 30 only"-group). In conclusion, while substantial obesity costs were found in most studies, subgroup analyses and lifetime perspectives call for a differentiated approach to the costs of obesity. Findings such as the higher health care costs in severely obese groups with higher socio-economic status (despite fewer co-morbidities), and lower lifetime long-term care costs in obese groups (due to reduced life expectancy), may generate hypotheses both on under- vs. overuse of services, and target groups for interventions.
Annex 4  Community interventions including those conducted in kindergartens, health centres, schools, workplaces, and also broader health promotion interventions in populations and subgroups.

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<td>Allender, S; Gleeson, E; Crammond, B; Sacks, G; Lawrence, M; Peeters, A; Loff, B; Swinburn, B</td>
<td>Policy change to create supportive environments for physical activity and healthy eating: which options are the most realistic for local government?</td>
<td>HEALTH PROMOTION INTERATION AL 2012 27 261 274</td>
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<td>Baker PR, Francis DP</td>
<td>Community wide interventions for adolescents: A Systematic Review.</td>
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Abstract

PURPOSE: The purpose of this systematic review was to evaluate recent research regarding the use of computer-based nutrition education interventions targeting adolescent overweight and obesity. METHODS: Online databases were systematically searched using key words, and bibliographies of related articles were manually searched. Inclusion/exclusion criteria were applied and included studies evaluated for their ability to achieve their objectives and for quality using the Nutrition Evidence Library appraisal guidelines for research design and implementation. RESULTS: Of the 15 studies included, 10 were randomized controlled trials. Two studies targeted weight loss, 2 targeted weight maintenance, and 11 targeted dietary improvement with or without physical activity. At least half of in-school (60%) and non-school interventions (80%) exhibited significantly positive effects on nutrition- or obesity-related variables. Small changes in diet, physical activity, knowledge, and self-efficacy were shown; however, few results were sustained long term. CONCLUSIONS: Recommendations included application of health behavior theory and computer tailoring for feedback messages. Future research should include thorough description of intervention content (messages, theory, multimedia, etc.), application of rigorous methodology, as well as consideration of covariates such as parental involvement and gender. With further research and evidentiary support, this approach to obesity-related nutrition education has the potential to be successful.

The objective is to identify and test regulatory options for creating supportive environments for physical activity and healthy eating among local governments in Victoria, Australia. A literature review identified nine potential areas for policy intervention at local government level, including the walking environment and food policy. Discussion documents were drafted which summarized the public health evidence and legal framework for change in each area. Levels of support for particular interventions were identified through semi-structured interviews conducted with key informants from local government. We conducted 11 key informant interviews and found support for policy intervention to create environments supportive of physical activity but little support for policy changes to promote healthy eating. Participants reported lack of relevance and competing priorities as reasons for not supporting particular interventions. Promoting healthy eating environments was not considered a priority for local government above food safety. There is a real opportunity for action to prevent obesity at local government level (e.g. mandate the promotion of healthy eating environments). For local government to have a role in the promotion of healthy food environments, regulatory change and suitable funding are required.

Adolescence is a critical period in the human lifecycle, a time of rapid physical and socioemotional growth and a time when individuals establish lifestyle habits and health behaviors that often endure into and have lasting effects in adulthood. Adolescent health promotion programs play a critical role in helping youth establish healthy lifestyles. In this article, we present a socio-ecological model as a framework for identifying effective policy and program areas that have a positive impact on adolescent health behaviors. Our discussion focuses on 4 key areas: reproductive health; obesity prevention; mental health and substance use, including smoking; and injury and violence prevention. We proceed with an overview of the current status of state-led adolescent health promotion policies and programs from a newly created policy database and then examine the evidence on the cost of preventable adolescent health problems and the cost-effectiveness of health promotion programs and policies. We conclude by discussing the threat posed to adolescent health promotion services and state-led policy initiatives by proposed and implemented federal and state-level budget cuts and examine the possible health and economic repercussions of reducing or eliminating these programs.

BACKGROUND: Multi-strategic community wide interventions for physical activity are increasingly popular but their ability to achieve population level improvements is unknown. OBJECTIVES: To evaluate the effects of community wide, multi-strategic interventions upon population levels of physical activity. SEARCH STRATEGY: We searched the Cochrane Public.
OBJECTIVES: The purpose of this review was to describe the characteristics of late-life obesity, including prevalence, pathophysiology, and influences on morbidity and mortality. A second objective was to systematically review the empiric...
systematic review of the pros and cons of weight reduction in later life.

Bambra, Clare L; Hillier, Frances C; Moore, Helen J; et al

Tackling inequalities in obesity: a protocol for a systematic review of the effectiveness of public health interventions at reducing socioeconomic inequalities in obesity among adults.

Beauchamp A, Backholer K, Magliano D, Peeters A

The effect of obesity prevention interventions according to socioeconomic position: a systematic review.

Obesity prevention is a major public health priority. It is important that all groups benefit from measures to prevent obesity, but we know little about the differential effectiveness of such interventions within particular population subgroups. This review aimed to identify interventions for obesity prevention that evaluated a change in adiposity according to socioeconomic position (SEP) and to determine the effectiveness of these interventions across different socioeconomic groups. A systematic search of published and grey literature was conducted. Studies that described an obesity prevention intervention and reported anthropometric outcomes according to a measure of SEP were included. Evidence was synthesized using narrative analysis. A total of 14 studies were analysed, representing a range of study designs and settings. All studies were from developed countries, with eight conducted among children. Three studies were shown to have no effect on anthropometric outcomes and were not further analysed. Interventions shown to be ineffective in lower SEP participants were primarily based on information provision directed at individual behaviour change. Studies that were shown to be effective in lower SEP participants primarily included community-based strategies or policies aimed at structural changes to the environment. Interventions targeting individual-level behaviour change may be less successful in lower SEP populations. It is essential that
The role of social cognitive theory in farm-to-school-related activities: implications for child nutrition.

BACKGROUND: Farm-to-school (FTS) programs are gaining attention for many reasons, one of which is the recognition that they could help stem the increase in childhood overweight and obesity. Most FTS programs that have been evaluated have increased students’ selection or intake of fruits and vegetables following the incorporation of FTS components. However, the wide range of activities that are typically part of FTS programs make it difficult to pinpoint which components have the greatest potential to improve students’ health behaviors. Within the field of nutrition education, theory-based interventions that target the key underlying factors influencing health behavior offer the most promise. METHODS: We review existing research on dietary health impacts and implications of 3 key FTS-related activities and explore the component activities of FTS in terms of their potential to address the key constructs of social cognitive theory (SCT)—which is a current best practice in the field of nutrition—suggested that FTS programs incorporating a diverse set of activities appear to be most promising. RESULTS: We find that components of FTS programs incorporate many of the key theoretical constructs in SCT, and show that FTS programs have great potential to facilitate movement toward desired dietary changes. However, it is unlikely that a set of activities in any one current FTS program addresses multiple constructs of the theory in a systematic manner. CONCLUSION: More intentional inclusion of diverse activities would likely be beneficial. Future research can test these assertions.

OBJECTIVE: This study systematically reviewed community-based childhood obesity prevention programs in the United States and high-income countries. METHODS: We searched Medline, Embase, PsychInfo, CINAHL, clinicaltrials.gov, and the Cochrane Library for relevant English-language studies. Studies were eligible if the intervention was primarily implemented in the community setting; had at least 1 year of follow-up after baseline; and compared results from an intervention to a comparison group. Two independent reviewers conducted title scans and abstract reviews and reviewed the full articles to assess eligibility. Each article received a double review for data abstraction. The second reviewer confirmed the first reviewer’s data abstraction for completeness and accuracy. RESULTS: Nine community-based studies were included; 5 randomized controlled trials and 4 non-randomized controlled trials. One study was conducted only in the community setting, 3 were conducted in the community and school setting, and 5 were conducted in the community setting in combination with at least 1 other setting such as the home. Desirable changes in BMI or BMI z-score were found in 4 of the 9 studies. Two studies reported significant improvements in behavioral outcomes (1 in physical activity and 1 in vegetable intake). CONCLUSIONS: The strength of evidence is moderate that a combined diet and physical activity intervention conducted in the community setting, a school component is more effective at preventing obesity or overweight. More research and consistent methods are needed to understand the comparative effectiveness of childhood obesity prevention programs in the community setting.

Systematic review of community-based childhood obesity prevention studies.

Systematic review of the effectiveness of weight management schemes for the under fives.

Overweight and obesity in pre-school children are an increasing problem, with poor diet and exercise habits laying the foundation for serious health risks in later life. Yet most research into childhood obesity has focused on school-age children. Two previous systematic reviews of pre-school children have included uncontrolled designs and self-report outcomes potentially biasing the results in favour of the interventions. We have conducted a systematic review of the effectiveness and cost-effectiveness of weight management schemes for the under fives restricting the inclusion criteria to controlled trials with objective measures. We found four effectiveness randomized controlled trials of prevention. No treatment or cost-effectiveness studies were found. Only one study in a Latino community showed a statistically significant advantage from the intervention in a slower rate of increase in body mass index. However, trends in decrease in body mass index and weight loss favoured the intervention groups in other studies. From the studies characteristics we hypothesize that important features to include in future interventions may be; cultural sensitivity, sustained moderate to vigorous exercise, active engagement of the parents in the programme and as role models of healthy living and active engagement of the children in nutrition education. Further randomized controlled trials are needed in this population.

OBJECTIVE: To search for, review and synthesise studies of the effectiveness and cost-effectiveness of weight management schemes for the under fives. DATA SOURCES: MEDLINE [Ovid], MEDLINE In-Process [Ovid], EMBASE [Ovid], CAB [Ovid], Health Management Information Consortium [Ovid], The Cochrane Database of Systematic Reviews, Cochrane...
Sharma M., Branscum P., A. PJ, Verma Whittaker Bourke M., Taylor R., Welch K., Lloyd J. cost-effectiveness of weight management schemes for the under fives: a short report. Dec;13(61):1-75, iii. Register of Controlled Trials, Science Citation Index Expanded [Web of Science], Conference Proceedings Citation Index [The Web of Science], Database of Abstract Reviews [CRD; Centre for Reviews and Dissemination], HTA [CRD], PsycINFO [Ebsco], NHS CRD. These databases were searched from 1990 to February 2009. Supplementary internet searches were additionally conducted. REVIEW METHODS: Relevant clinical effectiveness studies were identified in two stages. Titles and abstracts returned by the search strategy were examined independently by three researchers and screened for possible inclusion. Disagreements were resolved by discussion. Full texts of the identified studies were obtained. Three researchers examined these independently for inclusion or exclusion, and disagreements were again resolved by discussion. RESULTS: One of the randomised controlled trials (RCTs) was from the UK. It measured the effects of a physical activity intervention for children in nurseries combined with home-based health education for their parents; this was compared to usual care. The main outcome measure was body mass index (BMI); secondary measures were weight and physical activity. At the 12-month follow-up, no statistically significant differences were found between the groups on any measure. However, a trend, favouring the intervention, was found for BMI and weight. The other two RCTs were from the USA. The larger trial investigated the effects of a combined preschool and home intervention in African American and Latino communities. Nutrition education and physical activity programmes were aimed at under fives in preschool. The home component consisted of related health education and homework for the parents, who received a small financial reward on completion. The 1- and 2-year results for the African American sites showed a significantly slower rate of increase in BMI than for results at baseline, for the intervention group than for the control group. However, in the Latino communities no such differences were found. The second US trial was a much smaller home-based parental education programme in Native American communities in the USA and Canada. The intervention consisted of a parental skills course for parents to improve their children's diet and physical activity. This was compared with a course providing skills to improve child behaviour. Follow-up was at 16 weeks and showed no significant differences between groups in BMI. CONCLUSIONS: No controlled trials addressing the issue of treating overweight and obesity in the under fives' population were found. From the three prevention studies, apart from the larger US trial, the interventions showed no statistically significant differences in BMI and weight between the intervention and control groups (although there was some evidence of positive trends for BMI and weight). It should also be noted that these conclusions are based on only three dissimilar studies, thereby making the drawing of firm conclusions difficult. Research is urgently needed in further well-designed UK-based RCTs of weight management schemes aimed at the prevention of obesity, that combine with cost-effectiveness studies targeted at preschool children with long-term follow-up. Childhood obesity is now a global epidemic and the incidence continues to increase. Dietary interventions and nutritional education are possible options to manage childhood obesity. However, restrictive diets can result in negative outcomes, and therefore it may be more appropriate to encourage children to consume more fruit and vegetables and thereby develop a healthier positive attitude towards food. METHOD: A systematic review of literature of interventions to increase fruit and/or vegetable consumption in overweight or obese children and adolescents was conducted, applying a free-text strategy with a set of search terms. RESULTS: A total of five studies describing seven interventions published in international peer-reviewed journals and meeting the review's eligibility criteria were identified. All five studies examined family-focused interventions to increase daily fruit and vegetable consumption measured either by child self-report or parent report. Only one intervention reported a lasting statistically significant increased consumption of fruit and vegetables. CONCLUSIONS: This review highlights that in order to tackle obesity narrow interventions focusing on single aspects of behaviour are unlikely to achieve long-term change. Successful public health interventions tackling childhood obesity will need to take a holistic approach and target behaviour change in multiple aspects of children's lifestyles and their surroundings, including nutritional education, parental support and physical activity.


targeted both physical activity and dietary behaviors. Among those that focused on only one dimension, physical activity was targeted more than diet. The duration of the interventions greatly varied, but many were short-term or brief. Many interventions were also based on some behavioral theory, with social cognitive theory as the most widely used. Most of the interventions focused on short-term changes, and rarely did any perform a follow-up evaluation. A major limitation among after school interventions was an inadequate use of process evaluations. Overall, interventions resulted in modest changes in behaviors and behavioral antecedents, and results were mixed and generally unfavorable with regards to indicators of obesity. Recommendations for enhancing the effectiveness of after school based childhood obesity interventions are presented.

CONTEXT: Evidence suggests chronic physical activity (PA) participation may be both protective against the onset of and beneficial for reducing depressive symptoms. OBJECTIVE: The aim of this article is to assess the impact of PA interventions on depression in children and adolescents using meta-analysis. DATA SOURCES: Published English language studies were located from manual and computerized searches of the following databases: PsyInfo, The Cochrane Database of Systematic Reviews and The Cochrane Central Register of Controlled Trials, Trials Register of Promoting Health Interventions (TRoPHI; EPPI Centre), Web of Science and MEDLINE. STUDY SELECTION: Studies meeting inclusion criteria (1) reported on interventions to promote or increase PA; (2) included children aged 5-11 years and/or adolescents aged 12-19 years; (3) reported on results using a quantitative measure of depression; (4) included a non-pharmacological control or comparison group; and (5) were published in peer-reviewed journals written in English, up to and including May 2011 (when the search was conducted). DATA EXTRACTION: Studies were coded for methodological, participant and study characteristics. Comprehensive Meta-Analysis version-2 software was used to compute effect sizes, with subgroup analyses to identify moderating characteristics. Study quality was assessed using the Delphi technique. RESULTS: Nine studies were included (n=381); most were school-based randomized controlled trials, randomized by individual. Studies used a variety of measurement tools to assess depressive symptoms. The summary treatment effect was small but significant (Hedges' g=-0.26, standard error=0.09, 95% confidence intervals=-0.43, -0.08, p<0.004). Subgroup analyses showed that methodological (e.g. studies with both education and PA intervention; those with a higher quality score; and less than 3 months in duration) and participant characteristics (e.g. single-gender studies; those targeting overweight or obese groups) contributed most to the reduction in depression. CONCLUSIONS: There was a small significant overall effect for PA on depression. More outcome-focused, high-quality trials are required to effectively inform the implementation of programmes to reduce depressive symptoms in children and adolescents.

To determine the effectiveness of school-based interventions that focus on changing dietary intake and physical activity levels to prevent childhood obesity, MEDLINE and EMBASE were searched (January 2006 to September 2007) for controlled trials of school-based lifestyle interventions, minimum duration of 12 weeks, reporting weight outcome. Thirty-eight studies were included; 15 new studies and 23 studies included within the National Institute for Health and Clinical Excellence obesity guidance. One of three diet studies, five of 15 physical activity studies and nine of 20 combined diet and physical activity studies demonstrated significant and positive differences between intervention and control for body mass index. There is insufficient evidence to assess the effectiveness of dietary interventions or diet vs. physical activity interventions. School-based physical activity interventions may help children maintain a healthy weight but the results are inconsistent and short-term. Physical activity interventions may be more successful in younger children and in girls. Studies were heterogeneous, making it difficult to generalize about what interventions are effective. The findings are inconsistent, but overall suggest that combined diet and physical activity school-based interventions may help prevent children becoming overweight in the long term. Physical activity interventions, particularly in girls in primary schools, may help to prevent these children from becoming overweight in the short term.
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<td>Brown, I. Gould, J.</td>
<td>Qualitative studies of obesity: a review of methodology. (Special Issue: Obesity and health.)</td>
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<td>Cauwenberghe, E. van</td>
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**BACKGROUND:** There is a developing interest in qualitative research to understand the perspectives and experiences of people living with obesity. However, obesity is a stigmatised condition associated with negative stereotypes. Social contexts emphasizing large body size as a problem, including research interviews, may amplify obesity stigma. This study reviews the methodology employed by qualitative studies in which study participants were obese and data collection involved face-to-face interviews. METHODS: Database searches identified qualitative studies meeting inclusion criteria from 1995 to 2012. Following screening and appraisal data were systematically extracted and analyzed from 31 studies. RESULTS: The studies included 1206 participants with a mean age of 44 years and mean BMI of 37 kg/m2. Women (78.8%) outnumbered men (21.2%) by four to one. Socio-economic background was not consistently reported. The studies employed similar, typically pragmatic, qualitative methodologies, providing rich textual data on the experience of obesity derived from face-to-face interviews. The majority considered quality issues in data collection, analyses and generalizability of findings. However, the studies were weak as regards researcher reflexivity in relation to interviewer characteristics and obesity stigma. CONCLUSIONS: The impact of obesity stigma has not been attended to in the qualitative research. Clear information about study participants is essential, but studies involving face-to-face interviews should also report on interviewer characteristics including body size.

**Objective:** To review research on consumer use and understanding of nutrition labels, as well as the impact of labelling on dietary habits. Design: A systematic review was conducted by searching electronic databases. Relevant articles were screened by two reviewers and included if they met inclusion criteria, including eight methodological criteria. A total of 120 articles were included in the review, including cross-sectional surveys (n 96), experimental designs (n 17), 'natural experiments' (n 7) and longitudinal population-based surveys (n 2). Setting: Articles covered seven jurisdictions: USA (n 88), Europe (n 12), Canada (n 9), Australia and New Zealand (n 4), Norway (n 2), Thailand (n 1) and Trinidad (n 1). Subjects: Participants were from a wide range of age groups, socio-economic strata and geographical regions. Results: Nutrition labels on pre-packaged foods are among the most prominent sources of nutrition information. Nutrition labels are perceived as a highly credible source of information and many consumers use nutrition labels to guide their selection of food products. Evidence also shows a consistent link between the use of nutrition labels and healthier diets. However, the use of labels varies considerably across subgroups, with lower use among children, adolescents and older adults who are obese. Research also highlights challenges in terms of consumer understanding and appropriate use of labelling information. Conclusions: Nutrition labels on pre-packaged foods are a cost-effective population-level intervention with unparalleled reach. However, to capitalize on their potential, governments will need to explore new formats and different types of information content to ensure that nutrition information is accessible and understandable.

Lack of physical activity has contributed to the nation's childhood obesity crisis, but the impact of physical activity on self-efficacy as a mediator of behavior change has not been examined. This systematic review (SR) describes the published evidence related to the impact of physical activity intervention programs on self-efficacy among youths. From January 2000 to June 2011, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standards were used to identify publications from PubMed, PsychInfo, Web of Knowledge, and the Cochrane Database of Systematic Reviews. The Cochrane Population, Intervention, Control, Outcome, Study Design (PICOS) approach guided this SR articles selection and evaluation process. Of the 102 publications screened, 10 original studies matched the SR inclusion criteria. The types of physical activity interventions and self-efficacy assessments for these 10 studies were diverse. Of the 10 included articles, 6 articles identified an improvement in post-self-efficacy assessments compared to baseline and 4 showed no effect. In conclusion, physical activity intervention programs may improve self-efficacy in youths. A standardized approach to classify and measure self-efficacy is required. Further research is needed to quantify the association of self-efficacy ratings after completing physical activity interventions with objective health improvements, such as weight loss. The objective of the present review was to summarise the existing European published and 'grey' literature on the effectiveness of school-based interventions to promote a healthy diet in children (6-12 years old) and adolescents (13-18 years old). Eight
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Electronic databases, websites, and contents of key journals were systematically searched, reference lists were screened, and authors and experts in the field were contacted for studies evaluating school-based interventions promoting a healthy diet and aiming at primary prevention of obesity. The studies were included if they were published between 1 January 1990 and 31 December 2007 and reported effects on dietary behaviour or on anthropometrics. Finally, forty-two studies met the inclusion criteria: twenty-nine in children and thirteen in adolescents. In children, strong evidence of effect was found for multicomponent interventions on fruit and vegetable intakes. Limited evidence of effect was found for educational interventions on behaviour, and for environmental interventions on fruit and vegetable intakes. Interventions that specifically targeted children from lower socio-economic status groups showed limited evidence of effect on behaviour. In adolescents, moderate evidence of effect was found for educational interventions on behaviour and limited evidence of effect for multicomponent programmes on behaviour. In children and adolescents, effects on anthropometrics were often not measured, and therefore evidence was lacking or delivered inconclusive evidence. To conclude, evidence was found for the effectiveness of especially multicomponent interventions promoting a healthy diet in school-aged children in European Union countries on self-reported dietary behaviour. Evidence for effectiveness on anthropometrical obesity-related measures is lacking.

In 2011, the earliest segment of the baby boom generation turned 65 years of age. This event marks the beginning of a new phase of growth of the older adult population in the United States and is in line with what is referred to worldwide as "population aging." By 2030, older adults will comprise 20% of the U.S. population. With the impending increase in the older adult population, the United States is unprepared to handle the accompanying social and economic impact of growing rates of age-related diseases such as diabetes, hypertension, and cardiovascular disease. These diseases have nutritional determinants and, as such, they signify the need for effective preventive nutrition initiatives to address population aging in the United States. Comparatively, the European Union (EU) is projected to reach an older adult population of 24% by 2030. In this special article we evaluate nutrition initiatives for older adults in the United States and also examine nutrition initiatives in the European Union in search of an ideal model. However, we found the available data for EU initiatives targeted at population aging were limited. We conclude by offering the proposal of a physician-based model that establishes the primary care physician as the initiator of nutrition screening, education, referrals, and follow-up for the older adult population in the United States as a long-term goal. Apropos of the immediate future, we consider barriers that underscore the establishment of a physician-based model and suggest objectives that are attainable. Although the data are limited for the European Union, this model may serve to guide management of chronic diseases with a nutritional component in economies similar to the United States worldwide.

**BACKGROUND:** Social media applications are promising adjuncts to online weight management interventions through facilitating education, engagement, and peer support. However, the precise impact of social media on weight management is unclear. **OBJECTIVE:** The objective of this study was to systematically describe the use and impact of social media in online weight management interventions. **METHODS:** PubMed, PsycINFO, EMBASE, Web of Science, and Scopus were searched for English-language studies published through March 25, 2013. Additional studies were identified by searching bibliographies of electronically retrieved articles. Randomized controlled trials of online weight management interventions that included a social media component for individuals of all ages were selected. Studies were evaluated using 2 systematic scales to assess risk of bias and study quality. **RESULTS:** Of 517 citations identified, 20 studies met eligibility criteria. All study participants were adults. Because the included studies varied greatly in study design and reported outcomes, meta-analysis of interventions was not attempted. Although message boards and chat rooms were the most common social media component included, their effect on weight outcomes was not reported in most studies. Only one study measured the isolated effect of social media. It found greater engagement of participants, but no difference in weight-related outcomes. In all, 65% of studies were of high quality; 15% of studies were at low risk of bias. **CONCLUSIONS:** Despite the widespread use of social media, few studies have quantified the effect of social media in online weight management interventions; thus, its impact is still unknown. Although social media may play a role in retaining and engaging participants, studies that are designed to measure its effect are needed to understand whether and how social media may meaningfully improve weight management.
Chiqui JF, Pickel M, Story M(2).

Influence of school competitive food and beverage policies on obesity, consumption, and availability: a systematic review.


**IMPORTANCE:** The US Department of Agriculture recently issued an interim final rule governing the sale of foods and beverages sold outside of the school meal programs ("competitive foods and beverages" [CF&Bs]). **OBJECTIVE:** To examine the potential influence that the federal rule may have based on peer-reviewed published studies examining the relationship between state laws and/or school district policies and student body mass index (BMI) and weight outcomes, consumption, and availability of CF&Bs. **EVIDENCE REVIEW:** Keyword searches of peer-reviewed literature published between January 2005 and March 2013 were conducted using multiple databases. Titles and abstracts for 1160 nonduplicate articles were reviewed, with a full review conducted on 64 of those articles to determine their relevancy. Qualitative studies, studies of self-reported policies, or studies examining broad policies without a specific CF&B element were excluded. **FINDINGS:** Twenty-four studies were selected for inclusion. Studies focused on state laws (n=14), district policies (n=8), or both (n=2), with the majority of studies (n=18) examining foods and beverages (as opposed to food-only or beverage-only policies). Sixteen studies examined prepolicy/postpolicy changes, and 8 studies examined postpolicy changes. Study designs were cross-sectional (n=20), longitudinal (n=3), or a combination (n=1). Outcomes examined included change in BMI, weight, probability of overweight or obesity (n=4), consumption (n=10), and availability (n=13); 3 studies examined more than 1 outcome. The majority of studies primarily reported results in the expected direction (n=15), with the remaining studies (n=9) reporting primarily mixed or nonsignificant results. **CONCLUSIONS AND RELEVANCE:** In most cases, CF&B policies are associated with changes in consumption and/or availability in the expected direction; however, caution should be exercised, given that nearly all were cross-sectional. The influence of such policies on overall student consumption and BMI and weight outcomes was mixed. The findings hold promise for the likely influence of federal CF&B regulations on changes in student in-school consumption and in-school competitive food availability. Further research is needed to truly understand the association between these policies and overall consumption and weight outcomes.

Ciampa PJ, Kumar D, Barkin SL, Sanders LM, Yin HS, Perrin EM, Rothman RL.

Interventions aimed at decreasing obesity in children younger than 2 years: a systematic review.


**OBJECTIVE:** To assess the evidence for interventions designed to prevent or reduce overweight and obesity in children younger than 2 years. **DATA SOURCES:** MEDLINE, the Cochrane Central Register of Controlled Trials, CINAHL, Web of Science, and references from relevant articles. **STUDY SELECTION:** Included were published studies that evaluated an intervention designed to prevent or reduce overweight or obesity in children younger than 2 years. **DATA EXTRACTION:** Extracted from eligible studies were measured outcomes, including changes in child weight status, dietary intake, and physical activity and parental attitudes and knowledge about nutrition. Studies were assessed for scientific quality using standard criteria, with an assigned quality score ranging from 0.00 to 2.00 (0.00-0.99 is poor, 1.00-1.49 is fair, and 1.50-2.00 is good). **DATA SYNTHESIS:** We retrieved 1557 citations; 38 articles were reviewed, and 12 articles representing 10 studies met study inclusion criteria. Eight studies used educational interventions to promote dietary behaviors, and 2 studies used a combination of nutrition education and physical activity. Study settings included home (n = 2), clinic (n = 3), classroom (n = 4), or a combination (n = 1). Intervention durations were generally less than 6 months and had modest success in affecting measures, such as dietary intake and parental attitudes and knowledge about nutrition. No intervention improved child weight status. Studies were of poor or fair quality (median quality score, 0.86; range, 0.28-1.43). **CONCLUSIONS:** Few published studies attempted to intervene among children younger than 2 years to prevent or reduce obesity. Limited evidence suggests that interventions may improve dietary intake and parental attitudes and knowledge about nutrition for children in this age group. For clinically important and sustainable effect, future research should focus on designing rigorous interventions that target young children and their families.

Cimo A, Stergiopoulou E, Cheng C, Bonato S, Dewa CS.

Effective lifestyle interventions to improve type II diabetes self-management for young children.


**BACKGROUND:** The prevalence of type II diabetes among individuals suffering from schizophrenia or schizoaffective disorders is more than double that of the general population. By 2005, North American professional medical associations of Psychiatry, Diabetes, and Endocrinology responded by recommending continuous metabolic monitoring for this population to control complications from obesity and diabetes. However, these recommendations do not identify the types of effective treatment for people with schizophrenia who have type II diabetes. To fill this gap, this systematic evidence review identifies effective lifestyle interventions that enhance quality care in individuals who are suffering from type II diabetes and
BACKGROUND: The World Health Organization (WHO) estimates that 1.9 million deaths worldwide are attributable to physical inactivity and at least 2.6 million deaths are a result of being overweight or obese. In addition, WHO estimates that physical inactivity causes 10% to 16% of cases each of breast cancer, colon, and rectal cancers as well as type 2 diabetes, and 22% of coronary heart disease and the burden of these and other chronic diseases has rapidly increased in recent decades.

OBJECTIVES: The purpose of this systematic review was to summarize the evidence of the effectiveness of school-based interventions in promoting physical activity and fitness in children and adolescents. SEARCH METHODS: The search strategy included searching several databases to October 2011. In addition, reference lists of included articles and background papers were reviewed for potentially relevant studies, as well as references from relevant Cochrane reviews. Primary authors of included studies were contacted as needed for additional information. SELECTION CRITERIA: To be included, the intervention had to be relevant to public health practice (focused on health promotion activities), not conducted by physicians, implemented, facilitated, or promoted by staff in local public health units, implemented in a school setting and aimed at increasing physical activity, included all school-attending children, and be implemented for a minimum of 12 weeks. In addition, the review was limited to randomized controlled trials and those that reported on outcomes for children and adolescents aged 6 to 18. School-based interventions promoting both physical activity and healthy eating in Europe: a systematic review within the HOPE project.

De Bourdeaudhuij I, Van Cauwenbergehe E, Spittaels H, et al

Cleland V, Granados A, Crawford D, Winzenberg T, Ball K.

Effectiveness of interventions to promote physical activity among socioeconomically disadvantaged women: a systematic review and meta-analysis.


Dobbins M, Husson H, DeCorby K, LaRocca RL.

School-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6 to 18.

adolescents (aged 6 to 18 years). Primary outcomes included: rates of moderate to vigorous physical activity during the school day, time engaged in moderate to vigorous physical activity during the school day, and time spent watching television. Secondary outcomes related to physical health status measures including: systolic and diastolic blood pressure, blood cholesterol, body mass index (BMI), maximal oxygen uptake (VO2max), and pulse rate.

DATA COLLECTION AND ANALYSIS: Standardized tools were used by two independent reviewers to assess each study for relevance and for data extraction. In addition, each study was assessed for risk of bias as specified in the Cochrane Handbook for Systematic Reviews of Interventions. Where discrepancies existed, discussion occurred until consensus was reached. The results were summarized narratively due to wide variations in the populations, interventions evaluated, and outcomes measured.

MAIN RESULTS: In the original review, 13,841 records were identified and screened, 302 studies were assessed for eligibility, and 26 studies were included in the review. There was some evidence that school-based physical activity interventions had a positive impact on four of the nine outcome measures. Specifically positive effects were observed for duration of physical activity, television viewing, VO2 max, and blood cholesterol. Generally, school-based interventions had little effect on physical activity rates, systolic and diastolic blood pressure, BMI, and pulse rate. At a minimum, a combination of printed educational materials and changes to the school curriculum that promote physical activity resulted in positive effects. In this update, given the addition of three new inclusion criteria (randomized design, all school-attending children invited to participate, minimum 12-week intervention) 12 of the original 26 studies were excluded. In addition, studies published between July 2007 and October 2011 evaluating the effectiveness of school-based physical interventions were identified and if relevant included. In total an additional 2378 titles were screened of which 285 unique studies were deemed potentially relevant. Of those 30 met all relevance criteria and have been included in this update. This update includes 44 studies and represents complete data for 36,593 study participants. Duration of interventions ranged from 12 weeks to six years. Generally, the majority of studies included in this update, despite being randomized controlled trials, are, at a minimum, at moderate risk of bias. The results therefore must be interpreted with caution. Few changes in outcomes were observed in this update with the exception of blood cholesterol and physical activity rates. For example blood cholesterol was no longer positively impacted upon by school-based physical activity interventions. However, there was some evidence to suggest that school-based physical activity interventions led to an improvement in the proportion of children who engaged in moderate to vigorous physical activity during school hours (odds ratio (OR) 2.74, 95% confidence interval (CI), 2.01 to 3.75). Improvements in physical activity rates were not observed in the original review. Children and adolescents exposed to the intervention also spent more time engaged in moderate to vigorous physical activity (with results across studies ranging from five to 45 min more), spent less time watching television (results range from five to 60 min less per day), and had improved VO2max (results across studies ranged from 1.6 to 3.7 mL/kg per min). However, the overall conclusions of this update do not differ significantly from those reported in the original review.

AUTHORS’ CONCLUSIONS: The evidence suggests the ongoing implementation of school-based physical activity interventions at this time, given the positive effects on behavior and one physical health status measure. However, given these studies are at a minimum of moderate risk of bias, and the magnitude of effect is generally small, these results should be interpreted cautiously. Additional research on the long-term impact of these interventions is needed.

BACKGROUND: There is increasing evidence for the association between physical activity, cardiovascular fitness, fatness, and cognitive function during childhood and adolescence. Evidence also suggests that these variables are linked to academic achievement. Classroom-based physical activity provides a viable approach to improve fitness, body mass index (BMI), cognitive function, and ultimately academic achievement. METHODS: Studies examining the relation between physical activity, fitness, fatness, cognitive function, and academic achievement are described. The results of a large-scale, longitudinal, cluster randomized trial to examine the impact of classroom based physical activity on body mass index and academic achievement will be presented. RESULTS: Overall, the data support the link between physical activity, cognitive function, and academic achievement. The role of physical activity in the classroom was also supported by the Physical Activity Across the Curriculum (PAAC) project. Physically active academic lessons of moderate intensity improved overall performance on a
standardized test of academic achievement by 6% compared to a decrease of 1% for controls (p<0.02). Body mass index increased less from baseline to 3 years in students with greater than 75 minutes of PAAC lessons per week (1.8 BMI) compared to students with less than 75 minutes of PAAC per week (2.4 BMI), p=0.00. CONCLUSIONS: Future research examining the effects of physically active academic instruction is warranted. The impact of physically active academic lessons of greater intensity may provide larger benefits for body mass index and academic achievement.

PURPOSE OF REVIEW: Obesity is well recognized as a major public health crisis throughout the USA. In recent years, governmental bodies at the federal, state and local levels have enacted policies intended to prevent the transition to obesity. Researchers have had the opportunity to study these policies and evaluate their impact on prevention of obesity. RECENT FINDINGS: Most public policies have been directed principally, but not exclusively, to the prevention of obesity in school-age children. Interventions have been directed to encouraging breast-feeding, to changing school lunches, limiting access to sugar-sweetened beverages, encouraging physical activity, changing the composition of competitive foods and affecting food advertising directed at children as well as collecting BMI information. Efforts more directed at adults include encouraging workplace wellness programs and improving the nutrition label on packaged foods with front-of-package labels and caloric information on restaurant menus. SUMMARY: For the most part, evaluations of the interventions reveal weak or modest benefits. The actual picture might be less positive due to the poor quality of research and publication bias. Push back by industry and others will require higher quality experimental and real world studies. All interventions fail to accommodate the multifactorial aspects of obesity.

BACKGROUND: Multiple risk factor interventions using counselling and educational methods assumed to be efficacious and cost-effective in reducing coronary heart disease (CHD) mortality and morbidity and that they should be expanded. Trials examining risk factor changes have cast doubt on the effectiveness of these interventions. OBJECTIVES: To assess the effects of multiple risk factor interventions for reducing total mortality, fatal and non-fatal events from CHD and cardiovascular risk factors among adults assumed to be without prior clinical evidence CHD. SEARCH STRATEGY: We updated the original search by searching CENTRAL (2006, Issue 2), MEDLINE (2000 to June 2006) and EMBASE (1998 to June 2006), and checking bibliographies. SELECTION CRITERIA: Randomised controlled trials of more than six months duration using counselling or education to modify more than one cardiovascular risk factor in adults from general populations, occupational groups or specific risk factors (i.e. diabetes, hypertension, hyperlipidaemia, obesity). DATA COLLECTION AND ANALYSIS: Two authors extracted data independently. We expressed categorical variables as odds ratios (OR) with 95% confidence intervals (CI). Where studies published subsequent follow-up data on mortality and event rates, we updated these data. MAIN RESULTS: We found 55 trials (163,471 participants) with a median duration of 12 months follow up. Fourteen trials (139,256 participants) with reported clinical event endpoints, the pooled ORs for total and CHD mortality were 1.00 (95% CI 0.96 to 1.05) and 0.99 (95% CI 0.92 to 1.07), respectively. Total mortality and combined fatal and non-fatal cardiovascular events showed benefits from intervention when confined to trials involving people with hypertension (16 trials) and diabetes (5 trials): OR 0.78 (95% CI 0.68 to 0.89) and OR 0.71 (95% CI 0.61 to 0.83), respectively. Net changes (weighted mean differences) in systolic and diastolic blood pressure (53 trials) and blood cholesterol (50 trials) were -2.71 mmHg (95% CI -3.49 to -1.93), -2.13 mmHg (95% CI -2.67 to -1.58) and -0.24 mmol/l (95% CI -0.32 to -0.16), respectively. The OR for reduction in smoking prevalence (20 trials) was 0.87 (95% CI 0.75 to 1.00). Marked heterogeneity (I(2) > 85%) for all risk factor analyses was not explained by co-morbidities, allocation concealment, use of antihypertensive or cholesterol-lowering drugs, or by age of trial. AUTHORS’ CONCLUSIONS: Interventions using counselling and education aimed at behaviour change do not reduce total or CHD mortality or clinical events in general populations but may be effective in reducing mortality in high-risk hypertensive and diabetic populations. Risk factor declines were modest but owing to marked unexplained heterogeneity between trials, the pooled estimates are of dubious validity. Evidence suggests that health promotion interventions have limited use in general populations.

This article explores an innovative strategy for battling the obesity epidemic. The strategy involves demonstrating to policy...
between low-income and minority children's physical activity and academic-related outcomes: a review of the literature. 

Everson-Rose, S; Hock, E; Johnson, M; Jones, R; Woods, HB; Goyder, E; Payne, N; Chilcott, J; Fedewa MV, Gist NH, Evans EM, Dishman RK.


Foltz JL, May AL, Belay B, Nihiser AJ, Dooyema CA, Blanck RK.


 makers and education leaders the value of promoting physical activity in school as a way of enhancing academic-related outcomes to narrow the current achievement gap. A literature review was conducted to ascertain the feasibility of this strategy. Seven studies that examined the relationship between physical activity or fitness and academic-related outcomes were reviewed. Although more research is needed in this area, the majority of the articles reviewed found that regardless of socioeconomic status or ethnicity, a positive relationship exists between physical activity and academic-related outcomes. These findings suggest that integrating more physical activity into the school day may be an effective strategy to reduce both health disparities and the achievement gap.

Objective. Low socioeconomic status (SES) is a risk factor for type 2 diabetes and changes in diet and physical activity can prevent diabetes. We assessed the effectiveness and acceptability of community-based dietary and physical activity interventions among low-SES groups in the UK. Method. We searched relevant databases and web resources from 1990 to November 2009 to identify relevant published and grey literature using an iterative approach, focusing on UK studies. Results. Thirty-five relevant papers (nine quantitative, 23 qualitative and three mixed methods studies) were data extracted, quality assessed and synthesised using narrative synthesis and thematic analysis. The relationship between interventions and barriers and facilitators was also examined. Dietary/nutritional, food retail, physical activity and multi-component interventions demonstrated mixed effectiveness. Qualitative studies indicated a range of barriers and facilitators, which spanned pragmatic, social and psychological issues. The more effective interventions used a range of techniques to address some surface-level psychological and pragmatic concerns, however many deeper-level social, psychological and pragmatic concerns were not addressed. Conclusion. Evidence on the effectiveness of community-based dietary and physical activity interventions is inconclusive. A range of barriers and facilitators exist, some of which were addressed by interventions but some of which require consideration in future research.

BACKGROUND AND OBJECTIVES: The prevalence of obesity and diabetes is increasing among children, adolescents, and adults. Although estimates of the efficacy of exercise training on fasting insulin and insulin resistance have been provided, for adults similar estimates have not been provided for youth. This systematic review and meta-analysis provides a quantitative estimate of the effectiveness of exercise training on fasting insulin and insulin resistance in children and adolescents.

METHODS: Potential sources were limited to peer-reviewed articles published before June 25, 2013, and gathered from the PubMed, SPORTDiscus, Physical Education Index, and Web of Science online databases. Analysis was limited to randomized controlled trials by using combinations of the terms adolescent, child, pediatric, youth, exercise training, physical activity, diabetes, insulin, randomized trial, and randomized controlled trial. The authors assessed 546 sources, of which 4.4% (24 studies) were eligible for inclusion. Thirty-two effects were used to estimate the effect of exercise training on fasting insulin, with 15 effects measuring the effect on insulin resistance. Estimated effects were independently calculated by multiple authors, and conflicts were resolved before calculating the overall effect. RESULTS: Based on the cumulative results from these studies, a small to moderate effect was found for exercise training on fasting insulin and improving insulin resistance in youth (Hedges’ d effect size = 0.48 [95% confidence interval: 0.22-0.74], P < .001 and 0.31 [95% confidence interval: 0.06-0.56], P < .05, respectively). CONCLUSIONS: These results support the use of exercise training in the prevention and treatment of type 2 diabetes.
BACKGROUND: The World Health Organization and the World Economic Forum have recommended further research to strengthen current knowledge of workplace health programmes, particularly on effectiveness and using simple instruments. A pedometer is one such simple instrument that can be incorporated in workplace interventions. OBJECTIVES: To assess the effectiveness of pedometer interventions in the workplace for increasing physical activity and improving subsequent health outcomes. SEARCH METHODS: Electronic searches of the Cochrane Central Register of Controlled Trials (671 potential papers), MEDLINE (1001), Embase (965), CINAHL (1262), OSH UPDATE databases (75) and Web of Science (1154) from the earliest record to between 30th January and 6th February 2012 yielded 3248 unique records. Reference lists of articles yielded an additional 34 papers. Contact with individuals and organisations did not produce any further records. SELECTION CRITERIA: We included individual and cluster-randomised controlled trials of workplace health promotion interventions with a pedometer component in employed adults. The primary outcome was physical activity and was part of the eligibility criteria. We considered subsequent health outcomes, including adverse effects, as secondary outcomes. DATA COLLECTION AND ANALYSIS: Two review authors undertook the screening of titles and abstracts and the full-text papers independently. Two review authors (RFP and MC) independently completed data extraction and risk of bias assessment. We contacted authors to obtain additional data and clarification. MAIN RESULTS: We found four relevant studies providing data for 1809 employees, 60% of whom were allocated to the intervention group. All studies assessed outcomes immediately after the intervention had finished and the intervention duration varied between three to six months. All studies had usual treatment control conditions; however one study’s usual treatment was an alternative physical activity programme while the other three had minimally active controls. In general, there was high risk of bias mainly due to lack of blinding, self reported outcome measurement, incomplete outcome data due to attrition, and most of the studies had not published protocols, which increases the likelihood of selective reporting. Three studies compared the pedometer programme to a minimally active control group, but the results for physical activity could not be combined because each study used a different measure of activity. One study observed an increase in physical activity under a pedometer programme, but the other two did not find a significant difference. For secondary outcomes we found improvements in body mass index, waist circumference, fasting plasma glucose, the quality of life mental component and worksite injury associated with the pedometer programmes, but these results were based on limited data from one or two small studies. There were no differences between the pedometer programme and the control group for blood pressure, a number of biochemical outcomes and the quality of life physical component. Sedentary behaviour and disease risk scores were not measured by any of the included studies. One study compared a pedometer programme and an alternative physical activity programme, but baseline imbalances made it difficult to distinguish the true improvements associated with either programme. Overall, there was insufficient evidence to assess the effectiveness of pedometer interventions in the workplace. There is a need for more high quality randomised controlled trials to assess the effectiveness of pedometer interventions in the workplace for increasing physical activity and improving subsequent health outcomes. To improve the quality of the evidence available, future studies should be registered in an online trials register, publish a protocol, allocate time and financial support to reducing attrition, and try to blind personnel (especially those who undertake measurement). To better identify the effects of pedometer interventions, future studies should report a core set of outcomes (total physical activity in METs, total time sitting in hours and minutes, objectively measured cardiovascular disease and type II diabetes risk factors, quality of life and injury), assess outcomes in the long term and undertake subgroup analyses based upon demographic subgroups (e.g. age, gender, educational status). Future studies should also compare different types of active intervention to test specific intervention components (eligibility, duration, step goal, step diary, settings), and settings (occupation,
Abstract: In 2006, the prevalence of overweight and obesity among children and adolescents aged three to 17 years is 15%, 6.3% (800,000) of these are obese. Obese children and adolescents have an increased body fat ratio. The reasons for overweight are - among others - sociocultural factors, and a low social status as determined by income and educational level of the parents. The consequences of adiposity during childhood are a higher risk of metabolic and cardiovascular diseases and increased mortality in adulthood. Possible approaches to primary prevention in children and adolescents are measures taken in schools and kindergarten, as well as education and involvement of parents. Furthermore, preventive measures geared towards changing environmental and living conditions are of particular importance. What is the effectiveness and efficiency of different measures and programs (geared towards changing behaviour and environmental and living conditions) for primary prevention of adiposity in children and adolescents, with particular consideration of social aspects? The systematic literature search yielded 1,649 abstracts. Following a two-part selection process with predefined criteria 31 publications were included in the assessment. The majority of interventions evaluated in primary studies take place in schools. As the measures are mostly multi-disciplinary and the interventions are often not described in detail, no criteria of success for the various interventions can be extrapolated from the reviews assessed. An economic model calculation for Australia, which compares the efficiency of different interventions (although on the basis of low evidence) comes to the conclusion that the intervention with the greatest impact on society is the reduction of TV-ads geared towards children for foods and drinks rich in fat and sugar. There is a significant correlation between adiposity and socioeconomic deprivation. The lack of interventions (especially preventive measures geared towards changing environmental and living conditions) and studies focusing on this population group is noticeable. There are only a few primary studies of high quality on adiposity prevention in children and adolescents. Especially studies which compare different measures are lacking. This holds also true for the economic analysis, which seems logical insofar, as the basis for economic analyses are usually primary studies (preferably randomized controlled trials (RCT)) due to their evidence level. Studies on interventions geared towards changing environmental and living conditions and towards specific population groups (i.e. the socially disadvantaged) are hardly available. There are hardly any primary studies of high quality on adiposity prevention in children and adolescents, especially studies which compare different measures are lacking. Interventions geared towards specific population groups (particularly for the socioeconomically disadvantaged) are specifically underrepresented. Establishing such studies is an essential requirement of adiposity prevention. Recommended are a combination of measures geared towards changing environmental and living conditions and towards specific population groups. Furthermore, it is recommended to systematically register future programs (preferably online) in order to be able to draft criteria of success.

Authors' conclusions: There was limited and low quality data providing insufficient evidence to assess the effectiveness of pedometer interventions in the workplace for increasing physical activity and improving subsequent health outcomes. The majority of interventions evaluated in primary studies take place in schools. As the measures are mostly multi-disciplinary and the interventions are often not described in detail, no criteria of success for the various interventions can be extrapolated from the reviews assessed. An economic model calculation for Australia, which compares the efficiency of different interventions (although on the basis of low evidence) comes to the conclusion that the intervention with the greatest impact on society is the reduction of TV-ads geared towards children for foods and drinks rich in fat and sugar. There is a significant correlation between adiposity and socioeconomic deprivation. The lack of interventions (especially preventive measures geared towards changing environmental and living conditions) and studies focusing on this population group is noticeable. There are only a few primary studies of high quality on adiposity prevention in children and adolescents. Especially studies which compare different measures are lacking. This holds also true for the economic analysis, which seems logical insofar, as the basis for economic analyses are usually primary studies (preferably randomized controlled trials (RCT)) due to their evidence level. Studies on interventions geared towards changing environmental and living conditions and towards specific population groups (i.e. the socially disadvantaged) are hardly available. There are hardly any primary studies of high quality on adiposity prevention in children and adolescents, especially studies which compare different measures are lacking. Interventions geared towards specific population groups (particularly for the socioeconomically disadvantaged) are specifically underrepresented. Establishing such studies is an essential requirement of adiposity prevention. Recommended are a combination of measures geared towards changing environmental and living conditions and towards specific population groups. Furthermore, it is recommended to systematically register future programs (preferably online) in order to be able to draft criteria of success.
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<td>Hanratty, B; Milton, B; Ashton, M; Whitehead, M</td>
<td>'McDonalds and KFC, its never going to happen': the challenges of working with food outlets to tackle the obesogenic environment</td>
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Methods: From May 2009 through September 2010, we used PubMed, web-based searches, and listservs to identify small-store interventions that met the following criteria: 1) a focus on small food stores, 2) a completed impact evaluation, and 3) English-written documentation (peer-reviewed articles or other trial documents). We initially identified 28 trials; 16 met inclusion criteria and were used for analysis. We conducted interviews with project staff to obtain additional information. Reviewers extracted and reported data in a table format to ensure comparability between data. Results: Reviewed trials were implemented in rural and urban settings in 6 countries and primarily targeted low-income racial/ethnic minority populations. Common intervention strategies included increasing the availability of healthier foods (particularly produce), point-of-purchase promotions (shelf labels, posters), and community engagement. Less common strategies included business training and nutrition education. We found significant effects for increased availability of healthy foods, improved sales of healthy foods, and improved consumer knowledge and dietary behaviors. Conclusion: Trial impact appeared to be linked to the increased provision of both healthy foods (supply) and health communications designed to increase consumption (demand).

Background: Childhood obesity disproportionately affects low-socioeconomic and diverse communities. After a national children's health care quality organization announced a request for programs addressing the prevention and treatment of childhood obesity, 80 programs were received. The objective of this study was to identify a best practice for addressing childhood obesity in low-socioeconomic and diverse communities. Methods: A secondary analysis of the 80 programs was conducted in spring 2007 using a framework developed after a mini literature review using PubMed and Google, a review of the recommendations from the 1998 national childhood obesity expert committee, and 5 semistructured interviews with childhood obesity key informants. Results: The key informants unanimously recommended that obesity reduction programs in low-socioeconomic and diverse communities should combine 4 themes: lifestyle changes, family-centeredness, prevention, and early community involvement. These 4 themes were combined in 50% of the 80 programs. Conclusions: An evidence-based best practice for reducing childhood obesity in low-socioeconomic and diverse communities could not be identified utilizing the 4 themes recommended by the key informants. Preliminary data suggest that an academic program may offer promise for addressing childhood obesity in low-socioeconomic and diverse communities and improved data collection. While the components of effective pediatric exercise interventions have been identified in structured research settings, recent reviews have highlighted the need for translating these interventions into accessible programs. In this paper we evaluate a behavioral intervention-based exercise program designed to serve community children and teens at risk for adult obesity. Measures of weight, strength, cardiovascular fitness, and exercise intensity improved significantly over the course of this program, and qualitative assessments indicated that attitudes towards exercise also improved. Our experiences suggest that structured, protocol-driven exercise interventions can be successfully translated into effective programs accessible to children of different ages and socioeconomic levels.

Food outlets may make an important contribution to an obesogenic environment. This study investigated barriers and facilitators to public health work with food outlets in disadvantaged areas. Methods: In-depth qualitative interviews with 36 directors, managers and public health service delivery staff in a coterminous primary care trust and local authority in northwest England. Data were analysed using the constant comparative method. Results: Three interventions were developed to engage with businesses; awards for premises that welcomed breastfeeding mothers or offered healthy menu options and local authority planning powers. Sensitivity to the potential conflict between activities that generate profit and those that promote health, led to compromises, such as awards for cafes that offer only one healthy option on an otherwise unhealthy menu. An absence of existing relationships with businesses and limited time were powerful disincentives to action, leading to greater engagement with public rather than private sector organizations. Hiring staff with commercial experience and incentives for businesses were identified as useful strategies, but seldom used. Conclusions: Encouraging food outlets to contribute to tackling the obesogenic environment is a major challenge for local public health teams that requires supportive national policies. Commitment to engage with the local public health service should be part of any national voluntary agreements with industry.
| Harris KC, Kuramoto LK, Schulzer M, Retallack JE. | Effect of school-based physical activity interventions on body mass index in children: a meta-analysis. | CMAJ, 2009 Mar 31;180(7):719-26. | BACKGROUND: The prevalence of childhood obesity is increasing at an alarming rate. Many local governments have enacted policies to increase physical activity in schools as a way to combat childhood obesity. We conducted a systematic review and meta-analysis to determine the effect of school-based physical activity interventions on body mass index (BMI) in children. METHODS: We searched MEDLINE, EMBASE, CINAHL and the Cochrane Central Register of Controlled Trials up to September 2008. We also hand-searched relevant journals and article reference lists. We included randomized controlled trials and controlled clinical trials that had objective data for BMI from before and after the intervention, that involved school-based physical activity interventions and that lasted for a minimum of 6 months. RESULTS: Of 398 potentially relevant articles that we identified, 18 studies involving 18,141 children met the inclusion criteria. The participants were primarily elementary school children. The study duration ranged from 6 months to 3 years. In 15 of these 18 studies, there was some type of co-intervention. Meta-analysis showed that BMI did not improve with physical activity interventions (weighted mean difference -0.05 kg/m(2), 95% confidence interval -0.19 to 0.10). We found no consistent changes in other measures of body composition. INTERPRETATION: School-based physical activity interventions did not improve BMI, although they had other beneficial health effects. Current population-based policies that mandate increased physical activity in schools are unlikely to have a significant effect on the increasing prevalence of childhood obesity. Schools are inviting settings for the promotion of healthy behaviours in children, and a number of interventions have been trialled to improve diet or increase physical activity levels with the ultimate aim of reducing the prevalence of obesity. However, these have seen mixed results and there is suggestion that consideration needs to be given to a broader definition of the school environment in order to encourage sustainable behaviour changes. This review considers evidence for associations between the physical school environment and diet, physical activity and adiposity. School environment covers the neighbourhood around the school as well as the school grounds, buildings and facilities. Reviewed evidence is used to construct a conceptual framework for understanding associations between the physical school environment and adiposity and related behaviours. The framework highlights how school environments may be modified to promote behaviour changes, and how they may limit or enhance the success of other school-based interventions. Consideration is also given to where future work may best be directed. |
| Harrison F, Jones AP. | A framework for understanding school based physical environmental influences on childhood obesity. | Health Place. 2012 May;18(3):639-48. | Effective interventions to prevent obesity in children have never been more necessary. There have been over 30 published reviews and meta-analyses on such interventions (randomized and controlled trials) since 2008. In summary, interventions which involve the whole community (community-based) in complex interventions (promoting healthy eating, reduction in sedentary behaviours and increase in physical activity) that target environments and upstream determinants appear to be more effective. In this article the strengths and weaknesses of community-based complex interventions which aim to prevent obesity in children will be discussed and a selection of recent and ongoing interventions that are shaping the evidence-base in this field will be highlighted (beyond those reported in other papers in this supplement: KOPS, CHILT, TigerKids, IDEFICS and TrinkFit). This paper reviews the challenges and opportunities associated with designing and evaluating community-based complex interventions and initiatives. These include a) design issues (strengths and weaknesses of different types of evidence), b) measurement of (effectiveness) outcomes, c) development of interventions (pilot work, planning frameworks and underpinning theories), d) partnership working and community engagement and e) health inequalities. |
| Hillier, F; Pedley, C; Summerbell, C | Evidence-based for primary prevention of obesity in children and adolescents | Bundesgesundheitsbl-Itb-Gesundheitsfors. chung-Gesundheitsschu tz 2011 54 259-264 | | |
| Ho M, Garnett SP, Baur L, Burrows T, Stewart L, Neve L, Collins C. | Effectiveness of lifestyle interventions in child obesity: systematic review with meta-analysis. | Pediatrics. 2012 Dec;130(6):e164-71. | BACKGROUND AND OBJECTIVES: The effects of lifestyle interventions on cardio-metabolic outcomes in overweight children have not been reviewed systematically. The objective of the study was to examine the impact of lifestyle interventions incorporating a dietary component on both weight change and cardio-metabolic risks in overweight/obese children. METHODS: English-language articles from 1975 to 2010, available from 7 databases, were used as data sources. Two independent reviewers assessed articles against the following eligibility criteria: randomized controlled trial, participants overweight/obese and ≤18 years, comparing lifestyle interventions to no treatment/wait-list control, usual care, or written education materials. Study quality was critically appraised by 2 reviewers using established criteria; Review Manager 5.1 was used for meta-analyses. RESULTS: Of 38 eligible studies, 33 had complete data for meta-analysis on weight change; 15 |
reported serum lipids, fasting insulin, or blood pressure. Lifestyle interventions produced significant weight loss compared with no-treatment control conditions: BMI (-1.25 kg/m²), 95% confidence interval [CI] -2.18 to -0.32) and BMI z score (-0.10, 95% CI -0.18 to -0.02). Studies comparing lifestyle interventions to usual care also resulted in significant immediate (-1.30 kg/m²), 95% CI -1.58 to -1.03) and posttreatment effects (-0.92 kg/m²), 95% CI -1.31 to -0.54) on BMI up to 1 year from baseline. Lifestyle interventions led to significant improvements in low-density lipoprotein cholesterol (-0.30 mmol/L, 95% CI -0.45 to -0.15), triglycerides (-0.15 mmol/L, 95% CI -0.24 to -0.07), fasting insulin (-55.1 pmol/L, 95% CI -71.2 to -39.1) and blood pressure up to 1 year from baseline. No differences were found for high-density lipoprotein cholesterol.

CONCLUSIONS: Lifestyle interventions can lead to improvements in weight and cardio-metabolic outcomes. Further research is needed to determine the optimal length, intensity, and long-term effectiveness of lifestyle interventions. It is the position of the Academy of Nutrition and Dietetics that prevention and treatment of pediatric overweight and obesity require systems-level approaches that include the skills of registered dietitians, as well as consistent and integrated messages and environmental support across all sectors of society to achieve sustained dietary and physical-activity behavior change. This position paper provides guidance and recommendations for levels of intervention targeting overweight and obesity prevention and treatment from preschool age through adolescence. Methods included a review of the literature from 2009 to April 2012, including the Academy's 2009 evidence analysis school-based reviews. Multicomponent interventions show the greatest impact for primary prevention; thus, early childhood and school-based interventions should integrate behavioral and environmental approaches that focus on dietary intake and physical activity using a systems-level approach targeting the multilevel structure of the socioecological model as well as interactions and relationships between levels. Secondary prevention and tertiary prevention/treatment should emphasize sustained family-based, developmentally appropriate approaches that include nutrition education, dietary counseling, parenting skills, behavioral strategies, and physical-activity promotion. For obese youth with concomitant serious comorbidities, structured dietary approaches and pharmacologic agents should be considered for severely obese adolescents. Policy and environmental interventions are recommended as feasible and sustainable ways to support healthful lifestyles for children and families. The Academy supports commitment of resources for interventions, policies, and research that promote healthful eating and physical-activity behaviors to ensure that all youth have the opportunity to achieve and maintain a weight that is optimal for health.

The Affordable Care Act encourages workplace wellness programs, chiefly by promoting programs that reward employees for changing health-related behavior or improving measurable health outcomes. Recognizing the risk that unhealthy employees might be punished rather than helped by such programs, the act also forbids health-based discrimination. We reviewed results of randomized controlled trials and identified challenges for workplace wellness programs to function as the act intends. For example, research results raise doubts that employees with health risk factors, such as obesity and tobacco use, spend more on medical care than others. Such groups may not be especially promising targets for financial incentives meant to save costs through health improvement. Although there may be other valid reasons, beyond lowering costs, to institute workplace wellness programs, we found little evidence that such programs can easily save costs through health improvement without being discriminatory. Our evidence suggests that savings to employers may come from cost shifting, with the most vulnerable employees—the those from lower socioeconomic strata with the most health risks—probably bearing greater costs that in effect subsidize their healthier colleagues.

Schools are an attractive and popular setting for implementing interventions for children. There is a growing body of empirical research exploring the efficacy of school-based obesity prevention programs. While there have been several reviews on the topic, findings remain mixed. To examine the quality of evidence and compare the findings from existing systematic reviews and meta-analyses of school-based programs in the prevention and control of childhood obesity. This paper systematically appraises the methodology and conclusions of literature reviews examining the effectiveness of school-based obesity interventions published in English in peer-reviewed journals between January 1990 and October 2010. Eight reviews were
interventions for controlling and preventing obesity.


Knowlden AP, Sharma M. Systematic review of family and home-based interventions targeting paediatric overweight and obesity.


Krishnaswami J, Martinson M. Community-engaged interventions on diet, activity, and weight outcomes in U.S.

examined, three meta-analyses and five systematic reviews. All of the reviews recognized that studies were heterogeneous in design, participants, intervention and outcomes. Intervention components in the school setting associated with a significant reduction of weight in children included long-term interventions with combined diet and physical activity and a family component. Several reviews also found gender differences in response to interventions. Of the eight reviews, five were deemed of high quality and yet limited evidence was found on which to base recommendations. As no single intervention will fit all schools and populations, further high-quality research needs to focus on identifying specific program characteristics predictive of success.

BACKGROUND: Various organizations published five sets of expert recommendations recently: 2007 Healthcare Organizations' Four Stage Model; 2006 Canadian Clinical Practice Guidelines; 2008 The Endocrine Society Recommendations; 2009 Seven Step Model; and 2010 US Preventive Task Force Recommendations. METHODS: We compared the recommendations' approaches and conclusions pertaining to four treatments (self-help groups, outpatient cognitive-behavior therapy [CBT], immersion CBT, and surgery). RESULTS: All of the expert committees supported using intensive dietary, physical activity, and cognitive-behavioral counseling; two of the five groups discouraged reliance on educational interventions alone, and two of the groups explicitly promoted a stepped-care approach. CONCLUSIONS: Greatest benefits may accrue by encouraging healthcare providers and parents to view medical management and education as foundations to change, but to pursue increasingly intensive viable options until overweight and obese children make clinically significant progress toward improved health and happiness.

The family and home environment is a highly influential psychosocial antecedent of paediatric obesity. The purpose of this investigation was to systematically analyze family and home-based randomized control trials aimed at treating overweight and obesity in children ages 2-7 years. In gathering materials for this review, a search of Cumulative Index to Nursing and Allied Health, MEDLINE, Education Resources Information Center, Psychology and Behavioural Sciences Collection and CENTRAL databases was conducted for the time frame of January 2001 to August 2011. The data extraction spanned three phases resulting in a total of nine interventions that met the specified inclusion criteria. Among the identified studies, eight produced significant outcomes. The majority of the programmes incorporated educational sessions targeting parents as the primary modality for intervention delivery. Less than one-quarter of the interventions included home visitations; however, all of the interventions included home-based activities to reinforce behaviour modification. Only three of the interventions applied social and behavioural theory, and only two interventions employed process evaluation. Additional research is needed to gauge the efficacy of the home and family milieu for treating paediatric obesity.

The aim of this narrative review is critically to evaluate educational strategies promoting physical activity that are used in the preschool setting in the context of obesity prevention programmes. Literature search was conducted between April and August 2010 in English and German databases (PubMed, PsychINFO, PSYNDEx, ERIC, FIS Bildung). Outcomes considered were time and intensity of physical activity, motor skills or measures of body composition. A total of 19 studies were included. Ten studies added physical activity lessons into their curriculum, one study provided more time for free play, eight studies focused on the social and play environment. Studies reporting positive outcomes implemented physical activity sessions that lasted at least 30 min d(-1). Several studies showed that children are most active in the first 10-15 min. The existence or installation of playground markings or fixed play equipment had no effect, whereas the presence or addition of portable play equipment was positively correlated with moderate-to-vigorous physical activity. Teacher training may be a key element for successful interventions. To overcome time constraints, a suggested solution is to integrate physical activity into daily routines and other areas of the preschool curriculum.

CONTEXT: Community engagement literature suggests that capacity-building approaches and community partnership in health intervention design, delivery, and analysis improve outcomes. School communities influence childhood diet and activity patterns affecting lifelong obesity risk. This systematic review's purpose is to assess whether incorporating community engagement principles in school-based interventions influences weight-related outcomes.

Obesity-prevention interventions (published January 2000-2011) in diverse U.S. schools, meeting a minimum threshold of community engagement and targeting weight-, diet- or activity-related outcomes were identified in MEDLINE, PsycINFO, and CINAHL (December 2010-March 2011). Two reviewers scored community engagement performance on 24 metrics of capacity building and partner involvement along four research stages. Outcome performance was calculated as percentage of targeted primary and/or secondary outcomes achieved. EVIDENCE SYNTHESIS: Sixteen studies were included, targeting anthropometric (n = 12); dietary (n = 13); and activity (n = 10) outcomes in schoolchildren (mean age=10.7 years). Studies averaged 46% of targeted outcomes (95% CI = 0.33, 0.60) and met 60% of community engagement metrics. Positive correlations existed between community engagement performance and all-outcome performance (r = 0.66, 95% CI = 0.25, 0.87) and secondary-outcome performance (r = 0.67, 95% CI = 0.22, 0.89), but not primary-outcome performance (r = 0.26, 95% CI = -0.27, 0.67). Number of outcomes met was not correlated with number of outcomes targeted, number of partners, or study size. Specific qualitative and quantitative trends suggested that capacity-building efforts, engagement in needs assessments and results dissemination, and durable partnerships positively influence outcomes. CONCLUSIONS: Results suggest that meaningful partnership of diverse school communities within obesity prevention interventions can improve health outcomes. Given the widespread use of out-of-home child care and an all-time high prevalence of obesity among US preschool-aged children, it is imperative to consider the opportunities that child-care facilities may provide to reduce childhood obesity. This review examines the scientific literature on state regulations, practices and policies, and interventions for promoting healthy eating and physical activity, and for preventing obesity in preschool-aged children attending child care. Research published between January 2000 and July 2010 was identified by searching PubMed and MEDLINE databases, and by examining the bibliographies of relevant studies. Although the review focused on US child-care settings, interventions implemented in international settings were also included. In total, 42 studies were identified for inclusion in this review: four reviews of state regulations; 18 studies of child-care practices and policies that may influence eating or physical activity behaviors, two studies of parental perceptions and practices relevant to obesity prevention, and 18 evaluated interventions. Findings from this review reveal that most states lack strong regulations for child-care settings related to healthy eating and physical activity. Recent assessments of child-care settings suggest opportunities for improving the nutritional quality of food provided to children, the time children are engaged in physical activity, and caregivers' promotion of children's health behaviors and use of health education resources. A limited number of interventions have been designed to address these concerns, and only two interventions have successfully demonstrated an effect on child weight status. Recommendations are provided for future research addressing opportunities to prevent obesity in child-care settings.

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Evidence suggests that lifestyle interventions can benefit cognitive function and school achievement in children of normal weight. Similar beneficial effects may be seen in overweight or obese children and adolescents. Objectives: Evidence synthesis: Seven lifestyle interventions were rated more effective and four less effective in groups with high SES; differential effects were demonstrated (n=9). School-based studies (n=7) showed mixed results. Two of six community studies provided evidence for better effectiveness in lower-SES groups; none were more effective in higher-SES groups. One high-intensity community-based study provided best evidence for higher effectiveness in low-SES groups. Conclusions: Although for the majority of interventions aimed at obesity prevention, the promotion of physical activity, or a healthy diet, no differential effectiveness could be demonstrated, interventions may widen as well as reduce socioeconomic inequalities in these outcomes. Equity-specific subgroup analyses contribute to needed knowledge about what may work to reduce socioeconomic inequalities in obesity and underlying health behaviors.

Background: The prevalence of overweight and obesity in childhood and adolescence is high. Excessive body fat at a young age is likely to persist into adulthood and is associated with physical and psychosocial co-morbidities, as well as lower cognitive, school and later life achievement. Lifestyle changes, including reduced caloric intake, decreased sedentary behavior and increased physical activity, are recommended for prevention and treatment of child and adolescent obesity. Evidence suggests that lifestyle interventions can benefit cognitive function and school achievement in children of normal weight. Similar beneficial effects may be seen in overweight or obese children and adolescents. Objectives: To assess whether lifestyle interventions (in the areas of diet, physical activity, sedentary behavior and behavioral therapy) improve school achievement, cognitive function and future success in overweight or obese children and adolescents compared with standard care, waiting list control, no treatment or attention control. Search methods: We searched the following databases in May 2013: CENTRAL, MEDLINE, EMBASE, CINAHL Plus, PsycINFO, ERIC, IBSS, Cochrane Database of Systematic Reviews, DARE, ISI Conference Proceedings Citation Index, SPORTDiscus, Database on Obesity and Sedentary Behaviour Studies, Database of Promoting Health Effectiveness Reviews (DoPHER) and Database of Health Promotion Research. In addition, we searched the Network Digital Library of Theses and Dissertations (NDLTD), three trials registries and reference lists. We also...

Contacted researchers in the field. Selection criteria: We included (cluster) randomised and controlled clinical trials of lifestyle interventions for weight management in overweight or obese children three to 18 years of age. Studies in children with medical conditions known to affect weight status, school achievement and cognitive function were excluded. Data collection and analysis: Two review authors independently selected studies, extracted data, assessed quality and risk of bias and cross-checked extracts to resolve discrepancies when required. Authors were contacted to obtain further study details and were asked to provide data on the overweight and obese study population when they were not reported separately. Main results: Of 529 screened full-text articles, we included in the review six studies (14 articles) of 674 overweight and obese children and adolescents, comprising four studies with multicomponent lifestyle interventions and two studies with physical activity only interventions. We conducted a meta-analysis when possible and a sensitivity analysis to consider the impact of clustered-randomised controlled trials and/or studies at 'high risk' of attrition bias on the intervention effect. We prioritised reporting of the sensitivity analysis when risk of bias and differences in intervention type and duration were suspected to have influenced the findings substantially. Analysis of a single study indicated that school-based healthy lifestyle education combined with nutrition interventions can produce small improvements in overall school achievement (mean difference (MD) 1.78 points on a scale of zero to 100, 95% confidence interval (CI) 0.8 to 2.76; P < 0.001; N = 321; moderate-quality evidence). Single component physical activity interventions produced small improvements in mathematics achievement (MD 3.00 points on a scale of zero to 200, 95% CI 0.78 to 5.22; P value = 0.008; one RCT; N = 96; high-quality evidence), executive function (MD 3.00, scale mean 100, standard deviation (SD) 15, 95% CI 0.09 to 5.91; P value = 0.04; one RCT; N = 116) and working memory (MD 3.00, scale mean 100, SD 15, 95% CI 0.51 to 5.49; P value = 0.02; one RCT; N = 116). No evidence suggested an effect of any lifestyle intervention on reading, vocabulary and language achievements, attention, inhibitory control and simultaneous processing. Pooling of data in meta-analyses was restricted by variations in study design. Heterogeneity was present within some meta-analyses and may have been explained by differences in types of interventions. Risk of bias was low for most assessed items; however in half of the studies, risk of bias was detected for attrition, participant selection and blinding. No study provided evidence of the effect of lifestyle interventions on future success. Whether changes in academic and cognitive abilities were connected to changes in body weight status was unclear because of conflicting findings and variations in study design. Authors’ conclusions: Despite the large number of childhood obesity treatment trials, evidence regarding their impact on school achievement and cognitive abilities is lacking. Existing studies have a range of methodological issues affecting the quality of evidence. Multicomponent interventions targeting physical activity and healthy diet could benefit general school achievement, whereas a physical activity intervention delivered for childhood weight management could benefit mathematics achievement, executive function and working memory. Although the effects are small, a very large number of children and adolescents could benefit from these interventions. Therefore health policy makers may wish to consider these potential additional benefits when promoting physical activity and healthy eating in schools. Future obesity treatment trials are needed to examine overweight or obese children and adolescents and to report academic and cognitive as well as physical outcomes.

OBJECTIVES: School nutrition policies offer a promising avenue by which to promote healthy eating and reduce the risk of chronic disease. This article reviews policy components that could support healthy eating, examines their evidence base and suggests directions for future research. METHOD: Information was drawn from research and other literature written in English between 1994 and 2008. Guided by recommendations from the World Health Organization, evidence pertaining to five potential components of policies was identified and reviewed: foods available, the food environment, health education, health services and counselling, and family and community outreach. RESULTS: A limited number of evaluations have examined the impact of school nutrition standards and have shown a positive impact on food availability and student nutrient intake. Results have shown that behaviourally focused nutrition education, especially when combined with food services and other initiatives, may affect students’ eating habits positively but may not decrease obesity levels. Evidence pertaining to other potential policy subcomponents, such as limiting food marketing in schools, coordinating all food services and providing nutrition-related

Health services, is limited or lacking. CONCLUSION: Conceptually, comprehensive school nutrition policies comprising all five policy components offer an integrated and holistic approach to school nutrition. They could provide an umbrella to guide all school actions pertaining to nutrition and serve as a framework for accountability. Does conceptualization match reality?

Further research is needed to determine how policy components affect implementation and outcomes. Background: In recent years, jurisdictional action has largely addressed childhood obesity through universal interventions, with the expectation to benefit all children. Although, given that childhood obesity disproportionately impacts society’s most vulnerable children, it is worth examining which socio-demographic groups benefit, or do not benefit, from universal childhood obesity interventions; ultimately revealing the impact on health inequities. Objective: The purpose of this systematic review is to assess the differential impacts of universal childhood obesity interventions on various socio-demographic groups. Methods: Four electronic databases were systematically searched (MEDLINE, EMBASE, PsycINFO and CINAHL) for articles on universal obesity interventions, targeting children (0-18 years), that stratified outcomes (e.g. body mass index, physical activity level, diet) by socio-demographic groups (e.g. socioeconomic status, race/ethnicity, gender). To be included, the articles also had to explicitly focus on health equity. Only peer-reviewed publications, published between 2005 and 2012, were considered. No study design restrictions were imposed. The search retrieved a total of 4715 abstracts and titles, of which 7 met the inclusion criteria (to date). Preliminary Results: The seven studies included stratified by at least one socio-demographic variable. By and large, the studies demonstrated mixed results; however, an initial trend shows that universal childhood obesity interventions may be less effective for children most in need, thus potentially exacerbating inequities in obesity rates.

The objective of this study was to analyse interventions for the prevention of overweight and obesity in children under 5 years of age. We carried out a systematic review focusing exclusively on randomized controlled trials (RCTs). Data sources include Medline, Cochrane Library, EMBASE, CINHAL, PsycINFO and Web of Science. Data were extracted from seventeen articles describing seven RCTs identified through electronic search, screening of references in systematic reviews, own files and contact with authors. RCTs were assessed with the Jadad scale. Four trials were carried out in preschool settings, one with an exclusive educational component, two with an exclusive physical activity component and one with both. Two trials were family-based, with education and counselling for parents and children. The remaining trial was carried out in maternity hospitals, with a training intervention on breastfeeding. None of the interventions had an effect in preventing overweight and obesity. The failure to show an effect may be due to the choice of outcomes, the quality of the RCTs, the suboptimal implementation of the interventions, the lack of focus on social and environmental determinants. More rigorous research is needed on interventions and on social and environmental factors that could impact on lifestyle.

Obesity prevention efforts for school-aged children and adolescents are increasing in number. However, little has been done to address the problem in the preschool age. To address this age group, an evidence-based preschool programme on physical activity (PA) and nutrition is developed within the ToyBox project. Environmental influencing factors such as policies and competitive health promotion activities could inhibit or induce a successful health promotion programme. This paper describes an overview of existing policies, legislation and/or regulations and health promotion activities in the preschool setting. Method: data were gathered on policies and activities aiming to improve healthy eating and PA of young children (age group 4-6 years) in Belgium-Flanders, Bulgaria, Germany, Greece, Poland and Spain. A limited number of influencing policies, regulations and/or legislation exists; agenda setting of health promotion and policy evaluations in all relevant policy areas was lacking. Also, health promotion activities in preschool the setting did not exist in all six European countries and high-quality preschool-based health interventions existed in three of the six ToyBox countries.

OBJECTIVE: To review child and adolescent weight-related health intervention characteristics, with a particular focus on levels of parental participation, and examine differences in intervention effectiveness. METHODS: Multiple social science, health, and medical databases were searched, and experimental randomized controlled studies of child and adolescent weight-
related health interventions, reported in January 2004 through December 2010, were collected. Intervention characteristics were reviewed, and pre- and post-measurement data, including body mass index, were extracted for analyses. Differences in effect sizes of experimental and control groups were used to evaluate effectiveness of interventions. RESULTS: Reports of 42 interventions were included. Intervention activities consisted of nutrition education, physical activity education, physical activity sessions, behavior education, behavior therapy, or a combination of these activities. Significant differences existed among levels of parent participation, p<0.05. In addition, intervention duration positively predicted intervention effectiveness, p=0.006, and the linear combination of parent participation and intervention duration significantly predicted intervention effectiveness, p=0.001. CONCLUSIONS: This study suggests that weight-related health interventions that require parent participation more effectively reduce body mass indexes of child and adolescent participants. In addition, longer interventions that include parent participation appear to have greater success. Suggestions for future research and related interventions are provided.

This review uses the 1990 U.S. Institute of Medicine (IOM) gestational weight gain recommendations to examine the question, what is a healthy pregnancy weight gain? The relationship of gestational weight gain to infant size at birth; pregnancy, labor, and delivery complications; neonatal, infant, and child outcomes; and maternal weight and health outcomes in U.S. and European populations are discussed. Pregnancy weight gains within the IOM recommendations are associated with better outcomes. The possible exception is very obese women, who may benefit from weight gains less than the 7 kg (15 pounds) recommended. Only about 33% to 40% of U.S. women gain within IOM recommendations. Excessive gestational weight gain is more prevalent than inadequate gain. Women's gestational weight gains tend to follow the recommendations of health care providers. Current interventions demonstrate efficacy in influencing gestational weight gain in low-income women with normal and overweight body mass index in the United States and obese women in Scandinavia.

In France, as in many countries, tackling social inequalities in health is a public health priority. However, primary prevention may sometimes contribute to increase such inequalities. This article aims to illustrate this point, considering the cases of smoking and obesity. The implicit hypotheses of prevention regarding its targets are discussed, as well as its stigmatization effects. On the one hand, prevention can increase the social differentiation of risky behaviors, as it is more effective among wealthier and more educated people. On the other hand, prevention policies intending to increase either the financial or the symbolic cost of risky behaviors may also increase social inequalities. Primary prevention needs more reflexivity regarding its potential unintended and deleterious side effects.

BACKGROUND: There are high levels of concern about childhood obesity, with obese children being at higher risk of poorer health both in the short and longer terms. Children's attitudes to, and beliefs about, their bodies have also raised concern. Children themselves have a stake in this debate; their perspectives on this issue can inform the ways in which interventions aim to work. This systematic review of qualitative and quantitative research aimed to explore the views of UK children about the meanings of obesity and body size, shape and weight: a systematic review. Children themselves have a stake in this debate; their perspectives on this issue can inform the ways in which interventions aim to work. This systematic review of qualitative and quantitative research aimed to explore the views of UK children about the meanings of obesity and body size, shape and weight: a systematic review.

METHODS: We conducted sensitive searches of electronic databases and specialist websites, and contacted experts. We included studies published from the start of 1997 which reported the perspectives of UK children aged 4-11 about obesity or body size, shape or weight, and which described key aspects of their methods. Included studies were coded and quality-assessed by two reviewers independently. Findings were synthesised in two analyses: i) an interpretive synthesis of findings from open-ended questions; and ii) an aggregative synthesis of findings from closed questions. We juxtaposed the findings from the two analyses. The effect of excluding the lowest quality studies was explored. We also consulted young people to explore the credibility of a subset of findings. RESULTS: We included 28 studies. Instead of a focus on health, children emphasised the social impact of body size, describing experiences and awareness of abuse and isolation for children with a greater weight. Body size was seen as under the individual's control and children attributed negative characteristics to overweight people. Children actively assessed their own size; many wished their bodies were different and some were anxious about their shape. Reviewers judged that children's engagement and participation in discussion had only rarely been supported in the included studies, and few
In 2008, the European Commission conducted an impact assessment to assess the potential impact of this agricultural reforms. In 2007, European Ministers of Agriculture were asked to back new proposals for school fruit and vegetable programmes as part of agricultural reforms. In 2008, the European Commission conducted an impact assessment to assess the potential impact of this study findings had depth or breadth. CONCLUSIONS: Initiatives need to consider the social aspects of obesity, in particular unhelpful beliefs, attitudes and discriminatory behaviours around body size. Researchers and policy-makers should involve children actively and seek their views on appropriate forms of support around this issue. Lifestyle interventions are regarded as the therapy of choice in children with obesity. The efficiency of lifestyle intervention for childhood obesity has been proven by several randomized controlled trials and meta-analyses. Even a stable weight in a growing child with obesity is associated with an improvement in cardiovascular risk factors and comorbidities of obesity. In particular, children aged 5-12 years and children with overweight rather than obesity benefit from lifestyle interventions. However, in clinical practice, the degree of weight loss with lifestyle intervention is only moderate, and the success rate 2 years after onset of an intervention is low (<10% with a decrease in BMI SD score of <0.25). Nevertheless, the difficulty of a child with overweight or obesity to reduce their weight might be attributable to not only a lack of motivation but also genetic background and/or adaptive changes in basal metabolic rate, hunger and satiety hormones that occur with weight loss. We must accept that lifestyle interventions are successful only in a subgroup of children with obesity. Regardless, the techniques used and the education of therapists need to be improved. If lifestyle interventions do not result in weight loss in a child with obesity, drug treatment to reduce cardiovascular risk factors should be initiated but is currently seldom performed.

AIM: To examine the evidence for incentives and barriers to lifestyle interventions for people with severe mental illness.

BACKGROUND: People with severe mental illnesses, particularly those with schizophrenia, have poorer physical health than the general population with increased mortality and morbidity rates. Social and lifestyle factors are reported to contribute to this health inequality, though antipsychotic therapy poses additional risk to long-term physical health. Many behavioural lifestyle interventions including smoking cessation, exercise programmes and weight-management programmes have been delivered to this population with promising results. Surprisingly little attention has been given to factors that may facilitate or prevent engagement with these interventions in this population. DATA SOURCES: Eight electronic databases were searched [1985-March 2009] along with the Cochrane Library and Google Scholar. Electronic 'hand' searches of key journals and explosion of references were undertaken. REVIEW METHODS: A narrative synthesis of qualitative, quantitative and mixed-methods studies was undertaken. RESULTS: No studies were identified that specifically explored the incentives and barriers to participation in lifestyle intervention for this population. Existing literature report some possible incentives and barriers including: illness symptoms, treatment effects, lack of support and negative staff attitudes as possible barriers; and symptom reduction, peer and staff support, knowledge, personal attributes and participation of staff as possible incentives.

CONCLUSIONS: Healthcare professionals, in particular nurses, should consider issues that may hinder or encourage individuals in this clinical group to participate in lifestyle interventions if the full benefits are to be achieved. Further research is needed to explore possible incentives and barriers from the service users' own perspective. Conclusions: Weight reduction for men is best achieved and maintained with the combination of a reducing diet, physical activity advice or a physical activity programme, and behaviour change techniques. Tailoring interventions and settings for men may enhance effectiveness, though further research is needed to better understand the influence of context and content. Future studies should include cost-effectiveness analyses in the UK setting.
Background: Prevention of childhood obesity is an international public health priority given the significant impact of obesity on acute and chronic diseases, general health, development, and well-being. The international evidence base for strategies that governments, communities, and families can implement to prevent obesity and promote health has been accumulating, but remains unclear. Objectives: This review aims primarily to update the previous Cochrane review of childhood obesity prevention research and determine the effectiveness of evaluated interventions intended to prevent obesity in children, assessed by change in body mass index (BMI). Secondary aims were to examine the characteristics of the programs and strategies to answer the question, "What works for whom, why, and for what cost?" Search Methods: The searches were rerun in CENTRAL, Medline, EMBASE, PsychINFO, and CINAHL in March 2010 and relevant Web sites were searched. Non-English-language papers were included and experts were contacted. Selection Criteria: The review includes data from childhood obesity prevention studies that used a controlled study design (with or without randomization). Studies were included if they evaluated interventions, policies, or programs in place for 12 weeks or more. If studies were randomized at a cluster level, six clusters were required. Data Collection and Analysis: Two review authors independently extracted data and assessed the risk of bias of included studies. Data were extracted on intervention implementation, cost, equity, and outcomes. Outcome measures were grouped according to whether they measured adiposity, physical activity-related behaviors, or diet-related behaviors. Adverse outcomes were recorded. A meta-analysis was conducted using available BMI or standardized BMI (zBMI) score data with subgroup analysis by age group (zero to five years, six to 12 years, and 13 to 18 years, corresponding to stages of developmental and childhood settings). Main Results: This review includes 55 studies (an additional 36 studies found for this update). The majority of the studies targeted children six to 12 years of age. The meta-analysis included 37 studies of 27,946 children and demonstrated that programs were effective at reducing adiposity, although not all individual interventions were effective, and there was a high level of observed heterogeneity (I² = 82 percent). Overall, children in the intervention group had a standardized mean difference in adiposity (measured as BMI or zBMI) of -0.15 kg per m² (95% confidence interval [CI], -0.21 to -0.09). Intervention effects by age subgroups were -0.26 kg per m² (95% CI, -0.53 to 0.00; zero to five years), -0.15 kg per m² (95% CI, -0.23 to -0.08; six to 12 years), and -0.09 kg per m² (95% CI, -0.20 to 0.03; 13 to 18 years). Heterogeneity was apparent in all three age groups and could not be explained by randomization status or the type, duration, or setting of the intervention. Only eight studies reported on adverse effects, and no evidence of adverse outcomes, such as unhealthy dieting practices, increased prevalence of underweight, or body image sensitivities, was found. Interventions did not appear to increase health inequalities, although this was examined in fewer studies. Authors' Conclusions: The authors found strong evidence to support beneficial effects of childhood obesity prevention programs on BMI, particularly for programs targeted to children six to 12 years of age. However, given the unexplained heterogeneity and the likelihood of small study bias, these findings must be interpreted cautiously. A broad range of program components were used in these studies, and although it is not possible to distinguish which of these components contributed most to the beneficial effects observed, our synthesis indicates the following to be promising policies and strategies: School curriculum that includes healthy eating, physical activity, and nutrition education; School-based policies to reduce both physical activity and healthy eating infrastructure; and community interventions that involve families and schools.
Screen-media use among young children is highly prevalent, disproportionately high among children from lower-income families and racial/ethnic minorities, and may have adverse effects on obesity risk. Few systematic reviews have examined early intervention strategies to limit TV or total screen time; none have examined strategies to discourage parents from putting TVs in their children's bedrooms or remove TVs if they are already there. In order to identify strategies to reduce TV viewing or total screen time among children <12 years of age, we conducted a systematic review of seven electronic databases to June 2011, using the terms "intervention" and "television," "media," or "screen time." Peer-reviewed intervention studies that reported frequencies of TV viewing or screen-media use in children under age 12 were eligible for inclusion. We identified 144 studies; 47 met our inclusion criteria. Twenty-nine achieved significant reductions in TV viewing or screen-media use. Studies utilizing electronic TV monitoring devices, contingent feedback systems, and clinic-based counseling were most effective. While studies have reduced screen-media use in children, there are several research gaps, including a relative paucity of studies targeting young children (n = 13) or minorities (n = 14), limited long-term (>6 month) follow-up data (n = 5), and few (n = 4) targeting removing TVs from children's bedrooms. Attention to these issues may help increase the effectiveness of existing strategies for screen time reduction and extend them to different populations.

The purpose of this article was to review school-based interventions designed to prevent childhood and adolescent obesity that focused on modifying dietary behavior and were published between 2000 and May 2009. A total of 25 interventions met the criteria. The grade range of these interventions was from K to 12; 13 studies exclusively targeted elementary school, 2 targeted both elementary and middle school, 9 exclusively targeted middle school, and 1 targeted high school. The majority of the interventions focused on both dietary and physical activity behaviors, whereas 8 interventions focused exclusively on dietary behaviors. Approximately one-half of the interventions were based on a behavioral theory. In terms of duration, 13 were longer than 6 mo, 4 were less than 1 mo, and 8 had a duration between 1 and 6 mo. The majority of the interventions were implemented by teachers. In terms of activities, almost all interventions had a curricular component except 2 that distributed physical activity, and positive body image. Increased sessions for physical activity and the development of fundamental movement skills throughout the school, week, Improvements in the nutritional quality of the food supply in schools, and cultural practices that support children eating healthier foods and being active throughout each day. Support for teachers and other staff to implement health promotion strategies and activities (e.g., professional development, capacity-building activities) Parent support and home activities that encourage children to be more active, eat more nutritious foods, and spend less time in screen-based activities. However, study and evaluation designs need to be strengthened, and reporting should be extended to capture process and implementation factors, outcomes in relation to measures of equity, long-term outcomes, potential harms, and costs. Childhood obesity prevention research must now move toward identifying how effective intervention components can be embedded within health, education, and care systems, and achieve long-term sustainable impacts.

**OBJECTIVE:** To assess the effectiveness of educational interventions including behavioral modification, nutrition and physical activity to prevent or treat childhood obesity through a systematic review and meta-analysis of randomized trials.

**METHOD:** A search of databases (PubMed, EMBASE and Cochrane CENTRAL) and references of published studies (from inception until May 2012) was conducted. Eligible studies were randomized trials enrolling children 6 to 12 years old and assessing the impact of educational interventions during 6 months or longer on waist circumference, body mass index (BMI), blood pressure and lipid profile to prevent or treat childhood obesity. Calculations were performed using a random effects method and pooled-effect estimates were obtained using the final values. **RESULTS:** Of 22,852 articles retrieved, 26 trials (23,617 participants) were included. There were no differences in outcomes assessed in prevention studies. However, in treatment studies, educational interventions were associated with a significant reduction in waist circumference [-3.21 cm (95%CI -6.34, -0.07)], BMI [-0.86 kg/m² (95%CI -1.59, -0.14)] and diastolic blood pressure [-3.68 mmHg (95%CI -5.48, -1.88)]. **CONCLUSIONS:** Educational interventions are effective in treatment, but not prevention, of childhood obesity and its consequences.
free fruit or vegetables. Besides curricular instructions, parental and family involvement was also utilized by several interventions. Environmental and policy changes were used in 7 interventions. For evaluation, the 2 most popular designs were experimental design with random assignment at group level and quasi experimental design, both of which were used by 9 interventions each. In terms of impact on adiposity indices, only 14 interventions measured it and only 6 of those were able to demonstrate significant changes. Recommendations for enhancing the effectiveness of school based dietary education interventions for childhood obesity prevention are presented.

OBJECTIVE: The aim of this study was to evaluate the effectiveness of school-based nutrition education interventions in reducing or preventing overweight and obesity among children and adolescents. METHODS: We conducted a systematic search of 14 databases until May 2010 and cross-reference check in 8 systematic reviews (SRs) for studies published that described randomized controlled trials conducted in schools to reduce or prevent overweight in children and adolescents. An additional search was carried out using PubMed for papers published through May 2012, and no further papers were identified. Body mass index (BMI) was the primary outcome. The title and abstract review and the quality assessment were performed independently by two researchers. The software EPPI-Reviewer3 was used to store, manage and analyze all data. This SR is registered at ClinicalTrials.gov (NCT00985972). RESULTS: From the 4888 references initially retrieved, only 8 met the eligibility criteria for a random-effects meta-analysis. The total population consisted of 8722 children and adolescents. Across the studies, there was an average treatment effect of -0.33 kg/m(2) (-0.55, -0.11 95% CI) on BMI, with 84% of this effect explained by the highest quality studies. CONCLUSION: This systematic review provides evidence that school-based nutrition education interventions are effective in reducing the BMI of children and adolescents.

Family-based approaches to pediatric obesity treatment are considered the 'gold-standard,' and are recommended for facilitating behavior change to improve child weight status and health. If family-based approaches are to be truly rooted in the family, clinicians and researchers must consider family process and function in designing effective interventions. To bring a better understanding of family complexities to family-based treatment, two relevant reviews were conducted and are presented: (1) a review of prominent and established theories of the family that may provide a more comprehensive and in-depth approach for addressing pediatric obesity; and (2) a systematic review of the literature to identify the use of prominent family theories in pediatric obesity research, which found little use of theories in intervention studies. Overlapping concepts across theories include: families are a system, with interdependence of units; the idea that families are goal-directed and seek balance; and the physical and social environment imposes demands on families. Family-focused theories provide valuable insight into the complexities of families. Increased use of these theories in both research and practice may identify key leverage points in family process and function to prevent the development of or more effectively treat obesity. The field of family studies provides an innovative approach to the difficult problem of pediatric obesity, building on the long-established approach of family-based treatment.


Stehr MD. Preventing weight during the formative pre-school years. Childhood obesity experts suggest that prevention of overweight in the pre-school years should focus on parents, because parental beliefs, attitudes, perceptions and behaviours appear to contribute to children’s development of excessive weight gain. While evidence suggests that parental variables may be instrumental in the development of obesity, there has been no systematic evaluation of whether intervening to change such variables will positively influence the development of excess adiposity during the pre-school years. This paper is a conceptual and methodological review of the literature on the parental variables targeted in interventions designed to modify risk factors for obesity by promoting healthy eating and/or physical activity and/or reducing sedentary behaviours in families of children aged 2-6 years. There were significant methodological limitations of existing studies and the scientific study of this area is in its infancy. However, the results suggest that the modification of parental variables known to be associated with obesity-promoting behaviours in pre-school children may show promise as an obesity prevention strategy; further research is needed.

BACKGROUND: Evidence shows that 3-5-year-old children undergo important physical and behavioral changes that include being affected by the amount of food they are served, with larger portions of food served resulting in greater dietary intake. This may be a key finding as researchers continue to identify effective treatments for the growing number of preschool children who are overweight or obese. Knowledge of the effects of varying portion sizes on young children’s dietary intake is important; however, because parents of young children control the manner in which children are fed, educating parents regarding the estimation of portion sizes is an approach worth exploring as a way to affect the trajectory of their young child’s weight gain. AIMS: The purposes of this systematic review were to determine (1) findings regarding the effect of varying portion sizes with young children and (2) the evidence regarding the effects of educating adults to estimate portion sizes. Evidence from this review may guide clinical practice and future research efforts. METHODS: A comprehensive literature search was conducted with multiple databases using MeSH Headings and keywords. This search strategy was supplemented by ancestry searches of all relevant articles. Two independent, trained pediatric practitioners determined quality of the studies using established criteria. RESULTS: Nine studies met the inclusion criteria as portion-manipulation interventions or portion-education/training interventions and were appraised. Evidence showed the positive effect of portion sizes on the energy intake of children. In addition, the ability of adults to accurately estimate portion size improved following education/training. CONCLUSIONS: Although many studies have focused on a variety of portion-related interventions, the influence of portion education with parents of young children has not been well researched. More research is needed to understand the effect of parent-focused, portion-education interventions that encourage appropriate energy intake and healthy weight attainment in young children.

This review examines the role of exercise and physical activity for preventing weight gain in older people. A structured search
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<th>Authors</th>
<th>Title</th>
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<tr>
<td>Stevens, CJ</td>
<td>Evidence-based recommendations for the development of obesity prevention programs targeted at preschool children.</td>
<td>Journal for Specialists in Pediatric Nursing</td>
<td>2010 15 233 243</td>
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<td>Summerbell CD, Moore HJ, Vögele C, et al</td>
<td>The ToyBox intervention was developed using an evidence-based approach, using the findings of four reviews. These reviews included three critical and narrative reviews of educational strategies and psychological approaches explaining young children's acquisition and formation of energy-balance related behaviours, and the management of these behaviours, and also a systematic review of behavioural models underpinning school-based interventions in preschool and school settings for the prevention of obesity in children aged 4-6 years. This paper summarises and translates the findings from these reviews into practical evidence based recommendations for researchers and policy-makers to consider when developing and implementing interventions for the prevention of overweight and obesity in young (aged 4-6 years) children. The recommendations focus on two behaviours, physical activity and sedentary behaviour, and healthy eating, and include general recommendations, intervention approaches, interventions content, and simple messages. The review also briefly examines the role that the commercial sector plays in hindering or facilitating attempts to create healthy food environments for children. This paper also recognises that childhood obesity is not an issue for the education sector alone; it needs to be tackled at a multi sectoral level, recognizing the particularly important role of local governments, nongovernment organizations and the media.</td>
<td>Obes Rev.</td>
<td>Mar;13 Suppl 1:129-32.</td>
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<td>Sun C, Pezic A, Tikellis G, Ponsonby AL, Wake M, Carlin JB, Cleland V, Dwyer T.</td>
<td>Effects of school-based interventions for direct delivery of physical activity on fitness and cardiometabolic markers in children using MeSH-vocabulary and Title/Abstract-searches was conducted in PubMed for January 2000 to June 2011, identifying weight gain and exercise or physical activity as study topics, and aged adults as target group. In study selection, all types of exercise and physical activity and any measure of weight change in aged adults (≥65 years) or postmenopausal women were considered. N=9 primary studies were identified. All were conducted in the US, with one study additionally including samples from Canada and the UK. Three studies focused on aged adults, while six concentrated specifically on postmenopausal women. Forms of exercise or physical activity comprised self-reported exercise history in four studies and low, moderate or high intensity exercise interventions in five studies. Four studies combined exercise with a hypocaloric diet and included comparison groups receiving either diet only, health education, stretching or a delayed intervention (one study each). Exercise was associated with weight loss (1.1-6 kg) in all intervention studies, all of which studied an overweight sample, and with weight maintenance in most observational studies, all of which studied a general population or otherwise overweight-unspecified sample. In sum, exercise and physical activity can effectively prevent weight gain in older adults and postmenopausal women either in terms of weight loss or maintenance. They can preserve lean body mass and thus are important for the balance between potentially positive and negative effects of weight reduction in later life. In addition, since all intervention studies were conducted with an overweight sample, it seems that primordial prevention (in terms of preventing the development of risk factors such as excess weight in the first place) might be a neglected issue in geriatric and postmenopausal prevention. PURPOSE. The purpose of this study was to describe the current literature on interventions to reduce obesity in middle school-age children of ethnic minority. DESIGN AND METHODS. A systematic review of the literature was conducted. RESULTS. A total of eight studies matched the inclusion criteria. Findings support personal, behavioral, and environmental factors that contribute to obesity in children, yet results for ethnic minorities were inconclusive. PRACTICE IMPLICATIONS. Obesity research suggests that there is merit in addressing specific factors. This review highlights the absence of prevention interventions for middle school-age children, particularly of ethnic decent.</td>
<td>Obes Rev.</td>
<td>Oct;14(10):818-38.</td>
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Interventions to reduce or prevent obesity in pregnant women: a systematic review.

Health Technol Assess Volume: 16 Year: 2012

Thangaratina, S; Rogozińska, E; Jolly, K; et al

Abstract: Around 50% of women of childbearing age are either overweight [body mass index (BMI) 25-29.9 kg/m(2)] or obese (BMI ≥ 30 kg/m(2)). The antenatal period provides an opportunity to manage weight in pregnancy. This has the potential to reduce maternal and fetal complications associated with excess weight gain and obesity. To evaluate the effectiveness of dietary and lifestyle interventions in reducing or preventing obesity in pregnancy and to assess the beneficial and adverse effects of the interventions on obstetric, fetal and neonatal outcomes. Major electronic databases including MEDLINE, EMBASE, BIOSIS and Science Citation Index were searched (1950 until March 2011) to identify relevant citations. Language restrictions were not applied. Systematic reviews of the effectiveness and harm of the interventions were carried out using a methodology in line with current recommendations. Studies that evaluated any dietary, physical activity or mixed approach intervention with the potential to influence weight change in pregnancy were included. The quality of the studies was assessed using accepted contemporary standards. Results were summarised as pooled relative risks (RRs) with 95% confidence intervals (CIs) for dichotomous data. Continuous data were summarised as mean difference (MD) with standard deviation. The quality of the overall evidence synthesised for each outcome was summarised using GRADE (Grading of Recommendations Assessment, Development, and Evaluation) methodology and reported graphically as a two-dimensional chart. A total of 88 studies (40 randomised and 48 non-randomised and observational studies, involving 182,139 women) evaluated the effect of weight management interventions in pregnancy on maternal and fetal outcomes. Twenty-six studies involving 468,858 women reported the adverse effect of the interventions. Meta-analysis of 30 RCTs (4503 women) showed a reduction in weight gain in the intervention group of 0.97 kg compared with the control group (95% CI -1.60 kg to -0.34 kg; p = 0.003). Weight management interventions overall in pregnancy resulted in a significant reduction in the incidence of pre-eclampsia (RR 0.74, 95% CI 0.59 to 0.92; p = 0.008) and shoulder dystocia (RR 0.39, 95% CI 0.22 to 0.70; p = 0.02). Dietary interventions in pregnancy resulted in a significant decrease in the risk of pre-eclampsia (RR 0.67, 95% CI 0.53 to 0.85; p = 0.0009), gestational hypertension (RR 0.30, 95% CI 0.10 to 0.88; p = 0.03) and preterm birth (RR 0.68, 95% CI 0.48 to 0.96; p = 0.03) and showed a trend in reducing the incidence of gestational diabetes (RR 0.52, 95% CI 0.27 to 1.03). There were no differences in the incidence of small-for-gestational-age infants between the groups (RR 0.99, 95% CI 0.76 to 1.29). There were no significant maternal or fetal adverse effects observed for the interventions in the included trials. The overall strength of evidence for weight gain in pregnancy and birthweight was moderate for all interventions considered together. There was high-quality evidence for small-for-gestational-age infants as an outcome. The quality of evidence for all interventions on pregnancy outcomes was very low to moderate. The quality of evidence for all adverse outcomes was very low. The included studies varied in the reporting of population, intensity, type and frequency of intervention and patient compliance, limiting the interpretation of the findings. There was significant heterogeneity for the beneficial effect of diet on gestational weight gain. Interventions in pregnancy to manage weight result in a significant reduction in weight gain in pregnancy (evidence quality was moderate). Dietary interventions are the most effective type of intervention in pregnancy in reducing gestational weight gain and the risks of pre-eclampsia, gestational hypertension and shoulder dystocia. There is no evidence of harm as a result of the dietary and physical activity-based interventions in pregnancy. Individual patient data meta-analysis is needed to provide robust evidence on the differential effect of intervention in various groups based on BMI, age, parity, socioeconomic status and medical conditions in pregnancy.

Tiffin, R; Salois, M; et al

Based physical activity is an important determinant of trial efficiency. Some large, higher quality RCTs provided strong evidence for interventions to decrease skin-fold thickness, increase fitness and high-density lipoprotein cholesterol. Evidence for body mass index, body fat and waist circumference, blood pressure and triglycerides, low-density lipoprotein cholesterol and total cholesterol remain inconclusive and require additional higher quality studies with high dose of interventions to provide conclusive evidence.

The inequality of nutrition and obesity re-focuses concern on who in society is consuming the worst diet. Identification of individuals with the worst of dietary habits permits for targeting interventions to assure obesity among the population segment where it is most prevalent. We argue that the use of fiscal interventions does not appropriately take into account the...
economics, social and health circumstances of the intended beneficiaries of the policy. This paper reviews the influence of socio-demographic factors on nutrition and health status and considers the impacts of nutrition policy across the population drawing on methodologies from both public health and welfare economics. The effects of a fat tax on diet are found to be small and while other studies show that fat taxes saves lives, we show that average levels of disease risk do not change much; those consuming particularly bad diets continue to do so. Our results also suggest that the regressivity of the policy increases as the tax becomes focused on products with high saturated fat contents. A fiscally neutral policy that combines the fat tax with a subsidy on fruit and vegetables is actually more regressive because consumption of these foods tends to be concentrated in socially undeserving households. We argue that when inequality is of concern, population-based measures must reflect this and approaches that target vulnerable populations which have a shared propensity to adopt unhealthy behaviours are appropriate.

OBJECTIVE: To assess the effectiveness of workplace interventions in improving physical activity. DATA SOURCE: EBSCO research database (and all subdatabases). STUDY INCLUSION AND EXCLUSION CRITERIA: Articles were published from 2000 to 2010 in English, had appropriate designs, and measured employees' physical activity, energy consumption, and/or body mass index (BMI) as primary outcomes. Articles that did not meet the inclusion criteria were excluded. DATA EXTRACTION: Data extracted included study design, study population, duration, intervention activities, outcomes, and results. DATA SYNTHESIS: Data were synthesized into one table. Results of each relevant outcome including p values were combined. RESULTS: Twelve (60%) of 20 selected interventions reported an improvement in physical activity level, steps, or BMI, and there was one slowed step reduction in the intervention group. Among these, 10 were less than 6 months in duration; 9 used pedometers; 6 applied Internet-based approaches; and 5 included activities targeting social and environmental levels. Seven of 8 interventions with pre-posttest and quasi-experimental controlled design showed improvement on at least one outcome. However, 7 of 12 randomized controlled trials (RCTs) did not prove effective in any outcome. CONCLUSION: Interventions that had less rigorous research designs, used pedometers, applied Internet-based approaches, and included activities at social and environmental levels were more likely to report being effective than those without these characteristics.

The aim of this review was to systematically assess the effectiveness of obesity prevention and control interventions in US immigrant populations across the life course, from preschool-age to adults. A systematic review of relevant studies was undertaken and eligible articles included. The initial search identified 684 potentially relevant articles, of which only 20 articles met the selection criteria, representing 20 unique studies. They were divided into interventions that targeted adults (n=7), interventions that targeted children (n=5) and pilot studies (n=8). The majority of interventions targeted Latinos, predominately Mexican-origin populations. Among the interventions targeting adults, five had an effect on obesity related outcomes. However, they tended to use less rigorous study designs. Among the interventions that targeted children, three had a positive effect on obesity-related outcomes. Three of the eight pilot studies had an effect on obesity-related outcomes. There is a paucity of data on effective interventions but a great need to address obesity prevention to help inform health policies and programs to reduce migration-related obesity inequalities.

Trickett, EJ; Beehler, S
The Ecology of Multilevel Interventions to Reduce Social Inequalities in Health
AMERICAN BEHAVIORAL SCIENTIST 2013 57 1227 1246

Objective: To review federal, state, and local antiobesity policies and to assess their relationships with obesity growth rates.

METHODS: We performed a literature review, acquired data from governmental Internet sources, and assessed the statistical...


van Sluijs, EMF; McMinn, AM; Griffin, SJ. Effectiveness of interventions to promote physical activity in children and adolescents: systematic review of controlled trials. BRITISH JOURNAL OF SPORTS MEDICINE 2008 42 653 657

correlation between state antiobesity policies and the concavity in obesity growth rates. RESULTS: State-by-state antiobesity policies in 3 categories-taxation of sugared beverages and snacks, physical education and physical activity in schools, and funding for bicycle trails-were found to have no significant immediate correlation with the change in obesity growth rates. CONCLUSIONS: Ineffective antiobesity legislation may be attributable to shortcomings in policy implementation. Behavioral economics and addressing large-scale cultural issues may have critical roles in promoting more healthful lifestyles. We propose that a systems-based paradigm evaluating complex interactions among pathophysiological, cultural, political, economic, and behavioral components can improve antiobesity policy implementation and should therefore be a research focus.

The objective of the present review was to summarise the existing European published and 'grey' literature on the effectiveness of school-based interventions to promote a healthy diet in children (6-12 years old) and adolescents (13-18 years old). Eight electronic databases, websites and contents of key journals were systematically searched, reference lists were screened, and authors and experts in the field were contacted for studies evaluating school-based interventions promoting a healthy diet and aiming at primary prevention of obesity. The studies were included if they were published between 1 January 1990 and 31 December 2007 and reported effects on dietary behaviour or on anthropometrics. Finally, forty-two studies met the inclusion criteria: twenty-nine in children and thirteen in adolescents. In children, strong evidence of effect was found for multicomponent interventions on fruit and vegetable intakes. Limited evidence of effect was found for educational interventions on behaviour, and for environmental interventions on fruit and vegetable intakes. Interventions that specifically targeted children from lower socio-economic status groups showed limited evidence of effect on behaviour. In adolescents, moderate evidence of effect was found for educational interventions on behaviour and limited evidence of effect for multicomponent programmes on behaviour. In children and adolescents, effects on anthropometrics were often not measured, and therefore evidence was lacking or delivered inconclusive evidence. To conclude, evidence was found for the effectiveness of specific school-based interventions promoting a healthy diet in school-aged children in European Union countries on self-reported dietary behaviour. Evidence for effectiveness on anthropometrical obesity-related measures is lacking.

This systematic review summarizes the current evidence on the financial return of worksite health promotion programmes aimed at improving nutrition and/or increasing physical activity. Data on study characteristics and results were extracted from 18 studies published up to 14 January 2011. Two reviewers independently assessed the risk of bias of included studies. Three metrics were (re-)calculated per study: the net benefits, benefit cost ratio (BCR) and return on investment (ROI). Metrics were averaged, and a post hoc subgroup analysis was performed to compare financial return estimates between study designs. Four randomized controlled trials (RCTs), 13 non-randomized studies (NRSs) and one modelling study were included. Average financial return estimates in terms of absenteeism benefits (NRS: ROI 325%, BCR 4.25; RCT: ROI -49%, BCR 0.51), medical benefits (NRS: ROI 95%, BCR 1.95; RCT: ROI -112%, BCR -0.12) or both (NRS: ROI 387%, BCR 4.87; RCT: ROI -92%, BCR 0.08) were positive in NRSs, but negative in RCTs. Worksite health promotion programmes aimed at improving nutrition and/or increasing physical activity generate financial savings in terms of reduced absenteeism costs, medical costs or both according to NRSs, whereas they do not according to RCTs. Since these programmes are associated with additional types of benefits, conclusions about their overall profitability cannot be made.

Objective To review the published literature on the effectiveness of interventions to promote physical activity in children and adolescents. Design Systematic review. Data sources Literature search using PubMed, SCOPUS, Psyhiat, Ovid Medline, Sportdiscus, and Embase up to December 2006. Review methods Two independent reviewers assessed studies against the following inclusion criteria: controlled trial, comparison of intervention to promote physical activity with no intervention control condition, participants younger than 18 years, and reported statistical analyses of a physical activity outcome measure. Levels of evidence, accounting for methodological quality, were assessed for three types of intervention, five settings, and three target populations. Results The literature search identified 57 studies: 33 aimed at children and 24 at adolescents. Twenty four studies were of high methodological quality, including 13 studies in children. Interventions that were found to be effective
achieved increases ranging from an additional 2.6 minutes of physical education related physical activity to 283 minutes per week of overall physical activity. Among children, limited evidence for an effect was found for interventions targeting children from low socioeconomic populations, and environmental interventions. Strong evidence was found that school based interventions with involvement of the family or community and multicomponent interventions can increase physical activity in adolescents. Conclusion Some evidence was found for potentially effective strategies to increase children's levels of physical activity. For adolescents, multicomponent interventions and interventions that included both school and family or community involvement have the potential to make important differences to levels of physical activity and should be promoted. A lack of high quality evaluations hampers conclusions concerning effectiveness, especially among children.

OBJECTIVE: Obesity prevention requires effective interventions targeting the so-called energy balance-related behaviours (that is, physical activity, sedentary and dietary behaviours). To improve (cost-)effectiveness of these interventions, one needs to know the working mechanisms underlying behavioural change. Mediation analyses evaluates whether an intervention works via hypothesised working mechanisms. Identifying mediators can prompt intervention developers to strengthen effective intervention components and remove/adapt ineffective components. This systematic review aims to identify psychosocial and environmental mediators of energy balance-related behaviours interventions for youth. METHOD: Studies were identified by a systematic search of electronic databases (PubMed, Embase, PsycINFO, ERIC and SPORTDiscus). Studies were included if they (1) were school-based randomised controlled or quasi-experimental studies; (2) targeted energy balance behaviours; (3) conducted among children and adolescents (4-18 years of age); (4) written in English; and (5) conducted mediation analyses. RESULTS: A total of 24 studies were included. We found strong evidence for self-efficacy and moderate evidence for intention as mediators of physical activity interventions. Indications were found for attitude, knowledge and habit strength to be mediators of dietary behaviour interventions. The few sedentary behaviour interventions reporting on mediating effects prevented us from forming strong conclusions regarding mediators of sedentary behaviour interventions. The majority of interventions failed to significantly change hypothesised mediators because of ineffective intervention strategies, low power and/or use of insensitive measures. CONCLUSION: Despite its importance, few studies published results of mediation analysis, and more high-quality research into relevant mediators is necessary. On the basis of the limited number of published studies, self-efficacy and intention appear to be relevant mediators for physical activity interventions. Future intervention developers are advised to provide information on the theoretical base of their intervention including the strategies applied to provide insight into which strategies are effective in changing relevant mediators. In addition, future research is advised to focus on the development, validity, reliability and sensitivity of mediator measures.

BACKGROUND: Prevention of childhood obesity is an international public health priority given the significant impact of obesity on acute and chronic diseases, general health, development and well-being. The international evidence base for strategies that governments, communities and families can implement to prevent obesity, and promote health, has been accumulating but remains unclear. OBJECTIVES: This review primarily aims to update the previous Cochrane review of childhood obesity prevention research and determine the effectiveness of evaluated interventions intended to prevent obesity in children, assessed by change in Body Mass Index (BMI). Secondary aims were to examine the characteristics of the programs and strategies to answer the questions "What works for whom, why and for what cost?" SEARCH METHODS: The searches were re-run in CENTRAL, MEDLINE, EMBASE, PsycINFO and CINAHL in March 2010 and searched relevant websites. Non-English language papers were included and experts were contacted. SELECTION CRITERIA: The review includes data from childhood obesity prevention studies that used a controlled study design (with or without randomisation). Studies were included if they evaluated interventions, policies or programs in place for twelve weeks or more. If studies were randomised at a cluster level, 6 clusters were required. DATA COLLECTION AND ANALYSIS: Two review authors independently extracted data and assessed the risk of bias of included studies. Data was extracted on intervention implementation, cost, equity and outcomes. Outcome measures were grouped according to whether they measured adiposity, physical activity (PA)-related behaviours or diet-related behaviours. Adverse outcomes were recorded. A meta-analysis was conducted using available BMI


or standardised BMI (zBMI) score data with subgroup analysis by age group (0-5, 6-12, 13-18 years, corresponding to stages of developmental and childhood settings). MAIN RESULTS: This review includes 55 studies (an additional 36 studies found for this update). The majority of studies targeted children aged 6-12 years. The meta-analysis included 37 studies of 27,946 children and demonstrated that programmes were effective at reducing adiposity, although not all individual interventions were effective, and there was a high level of observed heterogeneity (I² = 82%). Overall, children in the intervention group had a standardised mean difference in adiposity (measured as BMI or zBMI) of -0.15kg/m(2) (95% confidence interval (CI): -0.21 to -0.09). Intervention effects by age subgroups were -0.26kg/m(2) (95% CI: -0.53 to 0.00) (0-5 years), -0.15kg/m(2) (95% CI: -0.23 to -0.08) (6-12 years), and -0.09kg/m(2) (95% CI: -0.20 to 0.03) (13-18 years). Heterogeneity was apparent in all three age groups and could not be explained by randomisation status or the type, duration or setting of the intervention. Only eight studies reported on adverse effects and no evidence of adverse outcomes such as unhealthy dieting practices, increased prevalence of underweight or body image sensitivities was found. Interventions did not appear to increase health inequalities although this was examined in fewer studies. AUTHORS' CONCLUSIONS: We found strong evidence to support beneficial effects of childhood obesity prevention programmes on BMI, particularly for programmes targeted to children aged six to 12 years. However, given the unexplained heterogeneity and the likelihood of small study bias, these findings must be interpreted cautiously. A broad range of programme components were used in these studies and whilst it is not possible to distinguish which of these components contributed most to the beneficial effects observed, our synthesis indicates the following to be promising policies and strategies: school curriculum that includes healthy eating, physical activity and body image; increased sessions for physical activity and the development of fundamental movement skills throughout the school week; improvements in nutritional quality of the food supply in school-environments and cultural practices that support children eating healthier foods and being active throughout each day; support for teachers and other staff to implement health promotion strategies and activities (e.g. professional development, capacity building activities); parent support and home activities that encourage children to be more active, eat more nutritious foods and spend less time in screen based activities. However, study and evaluation designs need to be strengthened, and reporting extended to capture process and implementation factors, outcomes in relation to measures of equity, longer term outcomes, potential harms and costs. Childhood obesity prevention research must now move towards identifying how effective intervention components can be embedded within health, education and care systems and achieve long term sustainable impacts.

To address growing concerns over childhood obesity, the United States Preventive Services Task Force (USPSTF) recently recommended that children undergo obesity screening beginning at age 6. An Expert Committee recommends starting at age 2. Analysis is needed to assess these recommendations and investigate whether there are better alternatives. We model the age- and sex-specific population-wide distribution of BMI through age 18 using National Longitudinal Survey of Youth (NLSY) data. The impact of treatment on BMI is estimated using the targeted systematic review performed to aid the USPSTF. The prevalence of hypertension and diabetes at age 40 are estimated from the Panel Study of Income Dynamics (PSID). We fix the screening interval at 2 years, and derive the age- and sex-dependent BMI thresholds that minimize adult disease prevalence, subject to referring a specified percentage of children for treatment yearly. We compare this optimal biennial policy to biennial versions of the USPSTF and Expert Committee recommendations. Compared to the USPSTF recommendation, the optimal policy reduces adult disease prevalence by 3% in relative terms (the absolute reductions are <1%) at the same treatment referral rate, or achieves the same disease prevalence at a 28% reduction in treatment referral rate. If compared to the Expert Committee recommendation, the reductions change to 6 and 40%, respectively. The optimal policy treats mostly 16-year olds and few children under age 14. Our results suggest that adult disease is minimized by focusing childhood obesity screening and treatment on older adolescents.

The aim of this review was to systematically review the results and quality of studies investigating the moderators of school-based interventions aimed at energy balance-related behaviors. We systematically searched the electronic databases of Pubmed, EMBASE, Cochrane, PsycInfo, ERIC and Sportdiscus. In total 61 articles were included. Gender, ethnicity, age,

Baseline values of outcomes, initial weight status and socioeconomic status were the most frequently studied potential moderators. The moderator with the most convincing evidence was gender. School-based interventions appear to work better for girls than for boys. Due to the inconsistent results, many studies reporting non-significant moderating effects, and the moderate methodological quality of most studies, no further consistent results were found. Consequently, there is lack of insight into what interventions work for whom. Future studies should apply stronger methodology to test moderating effects of important potential target group segmentations.


Childcare settings are an opportune location for early intervention programs seeking to prevent childhood obesity. This article reports on a systematic review of controlled trials of obesity prevention interventions in childcare settings. Data Source: The review was limited to English language articles published in PubMed, Web of Science, and Education Resources Information Center (ERIC) between January 2000 and April 2012. Study Inclusion and Exclusion Criteria: Inclusion criteria: childhood obesity prevention interventions in childcare settings using controlled designs that reported adiposity and behavior outcomes. Exclusion criteria: no interventions, non-childcare settings, clinical weight loss programs, non-English publications. Data Extraction: Publications were identified by key word search. Two authors reviewed eligible studies to extract study information and study results. Data Synthesis: Qualitative synthesis was conducted, including tabulation of information and a narrative summary. Results: Fifteen studies met the eligibility criteria. Seven studies reported improvements in adiposity. Six of the 13 interventions with dietary components reported improved intake or eating behaviors. Eight of the 12 interventions with physical activity components reported improved activity levels or physical fitness. Conclusion: Evidence was mixed for all outcomes. Results should be interpreted cautiously given the high variability in study designs and interventions. Further research needs long-term follow-up, multistrategy interventions that include changes in the nutrition and physical activity environment, reporting of cost data, and consideration of sustainability.
## Annex 5  Treatment of obesity including access and use of health services, and health professionals’ behaviour and practice.

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### Abstract

Bariatric surgery is currently considered the most effective treatment of severe obesity, but considerable individual variations in weight loss results have been reported. We therefore conducted a systematic review and meta-analysis of studies investigating the effect of psychotherapeutic interventions and support groups on weight loss following bariatric surgery. A literature search was conducted in the databases PubMed and PsycINFO, identifying nine eligible studies reporting results of the effect of psychotherapeutic interventions and support groups on weight loss following bariatric surgery. The results revealed a statistically significant overall effect of both psychotherapeutic interventions and support groups on weight loss (pooled effect size correlation (ESr) = 0.18; p < 0.0001). When comparing the effect sizes of psychotherapeutic interventions and support groups, no difference was found (p = 0.51). Higher quality studies had smaller effect sizes (0.22), but the difference did not reach statistical significance (p = 0.26). Patients attending psychotherapeutic interventions or support groups in combination with bariatric surgery appeared to experience greater weight loss results than patients treated with bariatric surgery only. However, research in this area is characterized by a lack of methodological rigor, and it is recommended that future study designs include randomization and active attention control conditions.

**BACKGROUND:** Surgical treatment for degenerative conditions of the hip, knee, and spine has an impact on overall healthcare spending. Surgical rates have increased dramatically and considerable regional variation has been observed. The reasons behind these increasing rates and variation across regions have not been well elucidated.

**QUESTIONS/PURPOSES:** We therefore identified demographic (D), social structure (SS), health belief (HB), personal (PR) and community resources (CR), and medical need (MN) factors that drive rates of hip, knee, and spine surgery. **METHODS:** We conducted a systematic review to include all observational, population-based studies that compared surgical rates with potential drivers (D, SS, HB, PR, CR, MN). We searched PubMed combining key words focusing on (1) disease and procedure; (2) study methodology; and (3) explanatory models. Independent investigators selected potentially eligible studies from abstract review and abstracted methodological and outcome data. From an initial search of 256 articles, we found 37 to be potentially eligible (kappa 0.86) but only 28 met all our inclusion criteria. **RESULTS:** Age, nonminority, insurance coverage, and surgeon enthusiasm all increased surgical rates. Rates of arthroplasty were higher for females with higher education, income, obesity, rurality, willingness to consider surgery, and prevalence of disease, whereas spinal rates increased with male gender, lower income, and the availability of advanced imaging. **CONCLUSIONS:** Regional variation in these procedures exists because they are examples of preference-sensitive care. With strategies that may affect change in factors that are potentially modifiable by behavior or resources, extreme variation in rates may be reduced.

Obesity is well recognized as a significant risk factor for certain cancers; however, a corresponding risk reduction with weight loss is not yet clearly defined. This review aims to examine the literature investigating the effect of all types of weight loss on cancer incidence and mortality, and to more clearly describe the relationship between these two factors. A literature search identified 34 publications reporting weight loss data in relation to cancer incidence or mortality. All except one were observational studies and the majority used self-reported weights and did not define intentionality of weight loss. 16/34 studies found a significant inverse association between weight loss and cancer incidence or mortality. The remainder returned null findings. The observed association was more consistently seen in studies that investigated the effect of...
intentional weight loss (5/6 studies) and the risk reduction was greatest for obesity-related cancers and in women. In conclusion, intentional weight loss does result in a decreased incidence of cancer, particularly female obesity-related cancers. However, there is a need for further evaluation of sustained intentional weight loss in the obese with less reliance on self-reported weight data and more focus on male populations.

This narrative review examines randomized controlled trials of the management of obesity in primary care practice, in light of the Centers for Medicare and Medicaid Services' decision to support intensive behavioral weight loss counseling provided by physicians and related health professionals. Mean weight losses of 0.1-2.3 kg were observed with brief (10- to 15-min) behavioral counseling delivered by primary care providers (PCPs) at monthly to quarterly visits. Losses increased to 1.7-7.5 kg when brief PCP counseling was combined with weight loss medication. Collaborative treatment, in which medical assistants delivered brief monthly behavioral counseling in conjunction with PCPs, produced losses of 1.6-4.6 kg in periods up to two years. Remotely delivered, intensive (>monthly contact) behavioral counseling, as offered by telephone, yielded losses of 0.4-5.1 kg over the same period. Further study is needed of the frequency and duration of visits required to produce clinically meaningful weight loss (>5%) in primary care patients. In addition, trials are needed that examine the cost-effectiveness of PCP-delivered counseling, compared with that potentially provided by registered dietitians or well-studied commercial programs.

PURPOSE: Doctors will increasingly encounter opportunities to support obese patients in lifestyle change efforts, but the extent to which medical schools prepare their students for this challenge is unknown. Further, despite evidence indicating theory-based techniques are effective in facilitating patients' behavioral changes, the methods taught to medical students and the means of content delivery are unclear. The authors reviewed the literature to investigate how effective educational interventions are in preparing medical students to facilitate lifestyle changes with obese patients. METHOD: The authors systematically searched Excerpta Medica (EMBASE), PsycINFO, MEDLINE, and Scopus for educational interventions on obesity management for medical students published in English between January 1990 and November 2010 and matching PICO (Population, Interventions, Comparators, Outcomes, Study design) inclusion criteria.

RESULTS: Results of a narrative synthesis are presented. Of 1,680 studies initially identified, 36 (2%) full-text articles were reviewed, and 12 (1%) were included in the final dataset. Eleven (92%) of these studies had quantitative designs; of these, 7 (64%) did not include control groups. Nine (75%) of the 12 studies were atheoretical, and 4 (33%) described behavior management strategies. Despite positive reported outcomes regarding intervention evaluations, procedures to control for bias were infrequently reported, and conclusions were often unsupported by evidence. CONCLUSIONS: Evidence from this systematic review revealed data highly susceptible to bias; thus, intervention efficacy could not be determined. Additionally, evidence-based strategies to support patients' obesity-related behavior changes were not applied to these studies, and thus it remains unknown how best to equip medical students for this task.

The purpose of this mini-review is to present the National Health System and services available for adolescents in Italy, and to review the most relevant data on morbidity and mortality in Italian teens. Adolescent medicine in Italy is not a separate specialization, but there are some distinct services for adolescents in paediatric departments or gynaecologic wards, mostly in large cities where university hospitals or hospital of national relevance are located. Primary health care in Italy is provided mainly by general practitioners (GPs) and pediatricians, and on-call physicians (Guardia Medica) for after-hours medical care and services. The number of centres providing care for adolescents in Italy is 4097 (50% of these are in the North of Italy, 20% in the Central regions and 20% in the South and Islands). The population of Italy on January 1st 2011 was approximately 60,477,881 and the number of adolescents, aged 10 to 19 years, was 6,214,000. The most
A. frequent causes of death in adolescents are motor vehicle accidents - more than half of which are related to drug or alcohol use - followed by cancer and suicide. In primary care, adolescents present with a large number of issues, particularly upper respiratory infections, musculoskeletal problems, pain syndromes, obesity, eating disorders, dermatological issues, mood and somatoform disorders, school and mental health problems, and chronic fatigue, many of which require a coordinated, multidisciplinary management approach. The estimated population with a chronic illness is 8%. There are no specific protocols for the transition to adult medicine physicians for patients with chronic diseases or special health needs. In order to improve the quality and quantity of education in adolescent health for paediatricians and GPs, the Study Group of Emilia and Romagna Region for Adolescent Health Care (SGA-ER) is going to organize, beginning in 2012, a two year educational intervention course in adolescent health.

Background: Type 2 diabetes is a common and costly chronic disease which is associated with significant premature mortality and morbidity. Although patient education is an integral component of diabetes care, there remain uncertainties regarding the effectiveness of different methods and modes of education. Objectives: To evaluate the effectiveness of individual patient education on metabolic control, diabetes knowledge and psychosocial outcomes.

Search methods: Multiple electronic bibliographic databases were searched, including The Cochrane Library, MEDLINE, Premedline, ERIC, Biosis, AMED, Psychinfo, EMBASE, CINAHL, APAIS-health, Australian Medical Index, Web of Science, dissertation abstracts and Biomed Central.

Selection criteria: Randomized controlled and controlled clinical trials which evaluated individual education for adults with type 2 diabetes. The intervention was individual face-to-face patient education while control individuals received usual care, routine treatment or group education. Only studies that assessed outcome measures at least six months from baseline were included.

Data collection and analysis: Information was extracted by two reviewers who summarized both study characteristics and outcome statistics. A meta-analysis using a fixed-effect model was performed if there were adequate studies with a specified outcome of sufficient homogeneity. For outcomes where there were too few studies or the assessment measurements were not standardized or variable, the results were summarised qualitatively.

Main results: Nine studies involving 1359 participants met the inclusion criteria. Six studies compared individual education to usual care and three compared individual education to group education (361 participants). There were no long-term studies and overall the quality of the studies was not high. In the six studies comparing individual face-to-face education to usual care, individual education did not significantly improve glycaemic control (weighted mean difference (WMD) in HbA1c -0.1% (95% confidence interval (CI) -0.3 to 0.1, P = 0.33) over a 12 to 18 month period. However, there did appear to be a significant benefit of individual education on glycaemic control in a subgroup analysis of three studies involving participants with a higher mean baseline HbA1c greater than 8% (WMD -0.3% (95% CI -0.5 to -0.1, P = 0.007). In the two studies comparing individual to group education, there was no significant difference in glycaemic control between individual or group education at 12 to 18 months with a WMD in HbA1c of 0.03% (95% CI -0.02 to 0.1, P = 0.22). There was no significant difference in the impact of individual versus usual care or group education on body mass index systolic or diastolic blood pressure. There were too few studies to perform a meta-analysis on the effect of individual education on dietary self management, diabetes knowledge, psychosocial outcomes and smoking habits. No data were available on the other main outcome measures of diabetes complications or health service utilization and cost analysis in these studies.

Authors’ conclusions: This systematic review suggests a benefit of individual education on glycaemic control when compared with usual care in a subgroup of those with a baseline HbA1c greater than 8%. However, overall there did not appear to be a significant difference between individual education and usual care. In the small number of studies, individual patient education for people with type 2 diabetes mellitus. Cochrane Database Syst Rev. 2009 Jan 21;(1):CD005268.


Comparing group and individual education, there was an equal impact on HbA1c at 12 to 18 months. Additional studies are needed to delineate these findings further.

OBJECTIVE: To review some of the persistent disparities in health and health care in the United States related to race, ethnicity, and socioeconomic status, with a focus on diabetes mellitus and obesity, and to discuss the role of endocrinologists in preventing these disparities. METHODS: Some of the efforts made by the US government, such as public health strategies, to address health disparities are outlined, and statistics about diabetes and obesity are presented. RESULTS: The elimination of health disparities, recognized as a national challenge for decades, is a national priority as defined in the national goals for Healthy People 2010. Health disparities refer to the differences in the quality of health and health care access and outcomes across racial, ethnic, and socioeconomic groups. Such disparities may be related to the patient (education, socioeconomic status, environment, language), the health care system (location, structural barriers, financial resources), or the provider, including a lack of diversity in the health care workforce. Endocrinologists are responsible for the care of many patients with chronic diseases, including obesity and diabetes mellitus. Both of these chronic diseases are diagnosed with increased frequency in minority populations and are preventable, difficult to manage, and associated with many complications and high health care costs. CONCLUSION: The role of endocrinologists is to provide equitable, affordable, accessible, high-quality, timely, cost-effective, and culturally sensitive health care. They must be involved in population health decisions and development of optimal health care policy so that endocrine disorders can ultimately be prevented. In addition, they must educate themselves, their patients, and the community regarding maintenance of healthy lifestyles to prevent complications.

PURPOSE OF REVIEW: Behavioral medicine is a vast field with an ever-increasing knowledge base. We review important findings over the last 18 months. RECENT FINDINGS: We organized advances in behavioral medicine into four main topic areas: the doctor and patient, health-related behavior, integration of behavioral medicine in primary care, and teaching and assessing behavioral medicine competencies in primary care. Section I reviews research on difficult encounters, delivering bad and sad news, and physician well being. Section II examines improvements in the treatment of obesity and tobacco abuse, as well as interventions which boost adherence. Section III discusses advancements in care management and collaborative care in the USA and resource-constrained settings. Finally, section IV deals with teaching and assessing communication skills, behavior change, and professionalism. SUMMARY: Physician skills such as communication, professionalism, behavior change, and self-care are not innate abilities, but teachable and learnable skills. Collaborative care and the integration of behavioral medicine with care for other conditions can benefit patients, and can be done effectively with case management and telemonitoring strategies. Future behavioral medicine research should include evaluation of implementation strategies so that we may incorporate principles of behavioral medicine more widely into clinical practice.

Background: The prevalence of obesity is increasing globally and will, if left unchecked, have major implications for both population health and costs to health services. Objectives: To assess the effectiveness of strategies to change the behaviour of health professionals and the organisation of care to promote weight reduction in overweight and obese people. Search methods: We updated the search for primary studies in the following databases, which were all interrogated from the previous (version 2) search date to May 2009: The Cochrane Central Register of Controlled Trials (which at this time incorporated all EPOC Specialised Register material) (The Cochrane Library 2009, Issue 1), MEDLINE (Ovid), EMBASE (Ovid), CINAHL (EBSCO), and PsyCINFO (Ovid). We identified further potentially relevant studies from the reference lists of included studies. Selection criteria: Randomised controlled trials (RCTs) that compared routine provision of
considering the controversies existent on the subject, the aim of this review is to discuss adherence to diet in obese adolescents. The selection of articles was made in the SCOPUS, COCHRANE, APA Psy Net, SciELO, LILACS, CAPES Journals, PUBMED/MEDLINE and GOOGLE ACADEMIC databases. Studies published between 2002 and 2012 were selected. There was lack of evidence of conceptual discussion about adherence to diet in obesity in the child-youth context, in addition to scarcity of data on adherence to diet in obese adolescents and the methods of evaluating this. Lasty, multiple interdependent factors were found which both facilitated and made the process of adherence to diet difficult for obese youngsters. The majority of these (factors) belong to the socioeconomic and cultural dimension, in addition to pointing out cognitive and psychological factors and those associated with health services and professionals.

Purpose: A concept analysis was undertaken to examine the attributes, characteristics, and uses of the concept of obesogenic environment within a pediatric context. Conclusions: Utilizing a modified version of Walker and Avant's method, the attributes and characteristics of obesogenic environment were identified as it pertains to children. Based on the review of the literature and previous definitions applied to adults, a definition of the concept of obesogenic environment within a pediatric context was developed; examples of sample cases illustrate the concept further. Practice implications: Defining the concept of obesogenic environment has utility for nursing theory development, practice, research, and education.

Abstract: The objective of this study is to evaluate the long-term outcomes following laparoscopic Roux-en-Y gastric bypass (LREYGB) in veteran patients. The VA bariatric population differs from its counterpart in the private sector by the predominance of a male population, a higher percentage of patients from a socioeconomic background, a higher mean age, and a higher rate of obesity-related comorbidities. A retrospective review with prospectively collected data was used to analyze postoperative changes of comorbidities and percent of excess weight loss (% EWL) in consecutive patients who underwent LREYGB between August 2003 and September 2006. Among 70 patients, 73% were men with a mean age of 52 years (29-66 years). Average preoperative weight and body mass index were 310 lbs (224-397 lbs) and 46 kg/m(2)
The incidence of major and minor complications was 1.4% and 15.7%, respectively. There were no mortalities. Follow-up (f/u) was possible in all patients. At a mean f/u rate of 39 months, % EWL was 56%. At 1, 3, and 5 years, % EWL was 61%, 53%, and 59%, respectively. Thirty-five patients (50%) had type 2 diabetes mellitus (T2DM). Glycosylated hemoglobin concentrations returned to normal levels in 91% of patients and improved in an additional 6% of T2DM cases. Only 7% of patients are still maintained on antidiabetic medications. In patients with more than 1 year f/u, most other comorbidities were improved or resolved. Long-term f/u of LRYGB in veteran patients demonstrated significant and durable weight loss (56% EWL) with marked improvements in comorbidities especially T2DM.

Bariatric surgery is the only weight-loss treatment available that results in both sustained weight loss and improvements of obesity-related comorbidities. Individuals who meet the eligibility criteria for bariatric surgery are generally older, come from racial or ethnic minorities, are economically disadvantaged, and have low levels of education. However, the population who actually receives bariatric surgery does not reflect the individuals who need it the most. The objective is to conduct a systematic review of the literature exploring the inequities to the access of bariatric surgery. METHODS/DESIGN: EMBASE and Medline databases will be searched for observational studies that compared at least one of the PROGRESS-PLUS sociodemographic characteristics of patients eligible for bariatric surgery to those who actually received the procedure. Articles published in the year 1980 to present with no language restrictions will be included. For inclusion, studies must only include adults (≥18 years old) who meet National Institutes of Health (NIH) eligibility criteria for bariatric surgery defined as having either (1) a body mass index (BMI) of 40 kg/m² or greater; or (2) BMI of 35 kg/m² or greater with significant weight-related comorbidities. Eligible interventions will include malabsorptive, restrictive, and mixed bariatric procedures. DISCUSSION: There appears to be inequities in access to bariatric surgery. In order to resolve the health inequity in the treatment of obesity, a synthesis of the literature is needed to explore and identify barriers to accessing bariatric surgery. It is anticipated that the results from this systematic review will have important implications for advancing solutions to minimize inequities in the utilization of bariatric surgery.

AIM: This paper is a review of the effectiveness of non-surgical, non-pharmaceutical interventions designed to promote weight loss in people with a learning disability and how qualitative evidence on people's experiences and motivations can help understanding of the quantitative research outcomes. BACKGROUND: The health risks of obesity underline the importance of effective evidence-based weight loss interventions for people with learning disabilities as they are at increased risk of being overweight. DATA SOURCES: Papers published from 1998 to 2009 were identified through searches of the Cumulative Index for Nursing and Allied Health Literature, Proquest, Medline (PubMed), PSYCHINFO databases, and the Cochrane Library. REVIEW METHODS: An integrative review method was used. Studies included were non-surgical or non-pharmaceutical interventions aimed at weight reduction for people with a learning disability. Synthesis of the findings related to study design, participants, types of interventions, outcome measures and participant perspectives. RESULTS: Twelve studies met the inclusion criteria. The most common research design was quasi-experimental pretest and post-test. Few researchers used a clinical trial approach, and there was only one predominantly qualitative study. Interventions were mainly focused on energy intake, energy expenditure or health promotion. Only a few studies incorporated behaviour modification approaches. CONCLUSION: Nurses who work with children with learning disabilities have a key role to play in the management of obesity. Future research needs to focus on qualitative studies of the perceptions of clients and their families, controlled trials investigating the effectiveness of interventions and their costs and sustainability, and longitudinal studies examining weight loss over time.
OBJECTIVE: To compare and contrast 5 sets of expert recommendations about the treatment of childhood and adolescent obesity. METHOD: We reviewed 5 sets of recent expert recommendations: 2007 health care organizations' four stage model, 2007 Canadian clinical practice guidelines, 2008 Endocrine Society recommendations, 2009 seven step model, and 2010 U.S. Preventive Task Force recommendations. We described an empirically based sequential model by which expert recommendations may affect weight loss outcomes and then examined the recommendations pertaining to 4 treatments (self-help groups, outpatient cognitive behavior therapy [CBT], immersion CBT, and surgery). RESULTS: All of the expert committees supported using intensive dietary, physical activity, and cognitive-behavioral counseling; 2 of the 5 groups discouraged reliance on educational interventions alone; and 2 of the groups advised referring clients to increasingly intensive interventions, a stepped-care approach. CONCLUSIONS: Expert recommendations that include clear, simple, goal-oriented directions may impact the behaviors of health care providers most effectively and, in turn, help decrease childhood and adolescent obesity. Greatest benefits may accrue by
Predictors of attrition in bariatric aftercare: a systematic review of the literature. 


Predictors of dropout in weight loss interventions: a systematic review of the literature.


An Integrative Review of Relationships Between Discrimination and Asian American Health

Nadimpalli, SB; Hutchinson, MK JOURNAL OF NURSING SCHOLARSHIP 2012 44 127 135

encouraging health care providers and parents to view medical management and education as foundations to change but to pursue increasingly intensive viable options until overweight and obese children make clinically significant progress toward improved health and happiness.

Bariatric surgery results in greater weight loss and maintenance than non-surgical interventions in obese patients. Inadequate adherence to aftercare is associated with poor weight loss and maintenance, poorer control of obesity-related comorbidities, and the development of post-operative complications. This study aims to identify factors influencing failure to attend follow-up visits in the adult post-bariatric surgery patients. A systematic review was undertaken to identify factors associated with attrition from bariatric aftercare in adult (18-65 years) obese (BMI > 30) patients. Eight studies published before May 2011 and addressing factors associated with bariatric aftercare attendance were identified. Few consistent findings were evident. Greater pre-surgical weight and greater travel distance to the follow-up centre were more commonly associated with attrition. Conclusions were limited by the very small number of studies, the different types of bariatric surgery studied and the variety of methodologies employed and variables considered. There is a need for research identifying the modifiable attrition risk factors that can be targeted to improve surgical aftercare attendance. This has the potential to facilitate long-term weight loss and maintenance as well as to reduce post-operative complications and costs; thus improving both the effectiveness and the cost-effectiveness of bariatric surgery.

Attendance and completion of weight loss intervention is associated with better weight loss outcomes; however, attrition is neither consistently reported nor comprehensively explored in the weight loss literature. A systematic review was undertaken to identify factors associated with attrition in weight loss interventions involving overweight or obese (body mass index ≥ 25) adults (18-65 years). Sixty-one studies published before May 2011 and addressing factors associated with weight loss programme attrition were identified. Conclusions were limited by the large number of variables explored, the small number of studies exploring each variable, the large variety of study settings and methodologies used, the inconsistent reporting of results, and the conflicting findings across studies. A consistent set of predictors has not yet been identified. The majority of studies relied on pre-treatment routinely collected data rather than variables selected because of their theoretical and/or empirical relationship with attrition. However, psychological and behavioural patient factors and processes associated with the treatment were more commonly associated with attrition than patient background characteristics. Future research should consider theoretically grounded social-psychological and behavioural processes as potential predictors of dropout. Identification of patients at risk of dropout will contribute to both the effectiveness and the cost-effectiveness of weight loss interventions.

Purpose: Many ethnic minorities in the United States experience disproportionate rates of adverse health outcomes or health disparities. Factors such as socioeconomic status do not fully explain how these disparities are generated and maintained. Research has demonstrated that chronic experiences of discrimination are harmful to the health of African Americans and Latinos. However, there is a dearth of research examining Asian Americans experiences with discrimination and health disparities. The purpose of this integrative review was to summarize the current literature examining discrimination and the mental and physical health of Asian Americans. Design and Methods: Combinations of search terms related to discrimination, health, and Asian Americans were used to search five electronic databases. Inclusion criteria were primary research studies, published in English between 1980 and 2011, Asian American adults, and discrimination examined in relationship to a physical or mental health outcome. The search initially yielded 489 results; 14 quantitative studies met inclusion criteria. Findings and Conclusions: Quantitative studies in this review revealed several significant associations between discrimination and health outcomes in Asian
Discrimination was significantly associated with depressive symptoms in seven studies. Three studies found associations between discrimination and physical health, including cardiovascular disease, respiratory conditions, obesity, and diabetes. Although the literature was limited by self-reported data, cross-sectional designs, and inconsistent definitions and measurement of discrimination, the findings suggest that discrimination is a significant contributor to poorer health and health disparities for Asian Americans. The findings clearly demonstrate the need for further nursing research in this area to inform evidence-based practice and social policy. Clinical Relevance: Patient care providers can recognize discrimination as a significant stressor or purveyor of illness and explore ways to facilitate coping and resilience with their Asian American patients. Community-based participatory research approaches can be implemented by clinicians, academicians, and Asian American community partners to address the issue of discrimination and Asian American health outcomes.

**Clinical Relevance:** Patient care providers can recognize discrimination as a significant stressor or purveyor of illness and explore ways to facilitate coping and resilience with their Asian American patients. Community-based participatory research approaches can be implemented by clinicians, academicians, and Asian American community partners to address the issue of discrimination and Asian American health outcomes.


The primary care setting presents an opportunity for intervention of overweight and obese children but is in need of a feasible model of care with demonstrated effectiveness. The aims were to (i) identify controlled interventions that treated childhood overweight or obesity in either a primary care setting or with the involvement of a primary healthcare professional and (ii) examine components of those interventions associated with effective outcomes in order to inform future intervention trials in primary care settings. Major health and medicine databases were searched: MEDLINE, CINAHL, EMBASE, Cochrane Reviews, CENTRAL, DARE, PsycINFO and ERIC. Articles were excluded if they described primary prevention interventions, involved surgical or pharmacological treatment, were published before 1990 or not published in English. Twenty-two papers describing 17 studies were included. Twelve studies reported at least one significant intervention effect. Comparison of these 12 interventions provides evidence for: training for health professionals before intervention delivery; behaviour change options (including healthy diet, activity and sedentary behaviour); effecting behaviour change via a combination of counselling, education, written resources, support and motivation; and tailoring intensity according to whether behavioural, anthropometric or metabolic changes are the priority. These components are practicable to future intervention studies in primary care.


OBJECTIVE: This systematic review was conducted to determine user satisfaction and effectiveness of smartphone applications and text messaging interventions to promote weight reduction and physical activity. METHODS: Studies of smartphone applications and text messaging interventions related to the cardiovascular risk factors of physical inactivity and overweight/obesity published between January 2005 and August 2010 were eligible. Studies related to disease management were excluded. Study characteristics and results were gathered and synthesized. RESULTS: A total of 36 citations from CINAHL, EMBASE, MEDLINE, PsycINFO, and PubMed were identified; 7 articles were eligible for inclusion. The most frequent outcome measured in the studies was change in the weight of participants (57%). More than half of the studies (71%) reported statistically significant results in at least 1 outcome of weight loss, physical activity, dietary intake, decreased body mass index, decreased waist circumference, sugar-sweetened beverage intake, screen time, and satisfaction or acceptability outcomes. CONCLUSIONS: All of the technology interventions that were supported by education or an additional intervention demonstrated a beneficial impact of text messaging or smartphone application for reduction of physical inactivity and/or overweight/obesity. More rigorous trials that determine what parts of the technology or intervention are effective as well as establishment of cost-effectiveness are necessary for further evaluation of smartphone and text messaging interventions.

**Teixeira FV, Beliefs and practices of** Rev Assoc Med

Despite the implementation of various intervention measures, the number of obese individuals remain high;
thus, it is important to consider what is contributing to this scenario. Authors have been striving to understand the role healthcare providers, especially in primary healthcare, seem to play in this context. The present review aims to synthesize the main investigation results regarding beliefs, attitudes, and practices of healthcare providers, as they seem to negatively influence the practitioner's actions. The words "obesity", "beliefs", "healthcare professionals", "general practitioners", "attitudes", "practices", "health physicians", and "family practitioners" were entered into databases, such as EBSCOHost, ScienceDirect, Psychlnfo, PubMed, and SciELO. Thirteen studies from 1991 to 2011 were reviewed. The data indicate a lack of appropriate understanding and adequate competence regarding obesity, which likely contributes to ambivalent belief development and negative attitudes toward obese individuals, who are described as unmotivated, lazy, and lacking self-control. These professionals consider it hard to deal with obesity, manifesting low expectations of success regarding weight loss, thus considering themselves unsuccessful. Their practices are inconsistent, mirroring a certain skepticism towards the efficacy of available interventions. Either during graduation or as active practitioners, it is imperative to make healthcare providers aware of the impact their beliefs regarding obesity can exert on their practices, as these may impair appropriate and effective treatment delivery to obese individuals.

Background: Obesity is a global public health threat. Chromium picolinate (CrP) is advocated in the medical literature for the reduction of body weight, and preparations are sold as slimming aids in the USA and Europe, and on the Internet. Objectives: To assess the effects of CrP supplementation in overweight or obese people. Search methods: We searched The Cochrane Library, MEDLINE, EMBASE, ISI Web of Knowledge, the Chinese Biomedical Literature Database, the China Journal Fulltext Database and the Chinese Scientific Journals Fulltext Database (all databases to December 2012), as well as other sources (including databases of ongoing trials, clinical trials registers and reference lists). Selection criteria: We included trials if they were randomised controlled trials (RCT) of CrP supplementation in people who were overweight or obese. We excluded studies including children, pregnant women or individuals with serious medical conditions. Data collection and analysis: Two authors independently screened titles and abstracts for relevance. Screening for inclusion, data extraction and 'Risk of bias' assessment were carried out by one author and checked by a second. We assessed the risk of bias by evaluating the domains selection, performance, attrition, detection and reporting bias. We performed a meta-analysis of included trials using Review Manager 5. Main results: We evaluated nine RCTs involving a total of 622 participants. The RCTs were conducted in the community setting, with interventions mainly delivered by health professionals, and had a short- to medium-term follow up (up to 24 weeks). Three RCTs compared CrP plus resistance or weight training with placebo plus resistance or weight training, the other RCTs compared CrP alone versus placebo. We focused this review on investigating which dose of CrP would prove most effective versus placebo and therefore assessed the results according to CrP dose. However, in order to find out if CrP works in general, we also analysed the effect of all pooled CrP doses versus placebo on body weight only. Across all CrP doses investigated (200 µg, 400 µg, 500 µg, 1000 µg) we noted an effect on body weight in favour of CrP of debatable clinical relevance after 12 to 16 weeks of treatment: mean difference (MD) -1.1 kg (95% CI -1.7 to -0.4); P = 0.001; 392 participants; 6 trials; low-quality evidence (GRADE)). No firm evidence and no dose gradient could be established when comparing different doses of CrP with placebo for various weight loss measures (body weight, body mass index, percentage body fat composition, change in waist circumference). Only three studies provided information on adverse events (low-quality evidence (GRADE)). There were two serious adverse events and study dropouts in participants taking 1000 µg CrP, and one serious adverse event in an individual taking 400 µg CrP. Two participants receiving placebo discontinued due to adverse events; one event was reported as
This study investigated the relationship between weight loss from gastric bypass surgery, patient characteristics, and compliance with physician instructions before and after surgery. A chart review of psychiatric and medical files was conducted for an initial cohort of 172 patients in a postsurgical management program. A total of 112 patients (primarily women (85%), white (79%), and well educated) from this cohort had presurgical data. Of these 112 subjects, 67 (60%) had postsurgical compliance information and BMI at 24 months postsurgery. The relationships between weight loss and a number of demographic, psychiatric, comorbid, and behavioral compliance factors were examined for these 67 patients. Missed appointments and noncompliance with exercise and weight loss plan instructions were high before and after surgery (65% vs. 72% for missed appointments, 39% vs. 51% for exercise, 42% vs. 57% for weight loss instructions). Although poor food choices were not frequently a problem before surgery (11%), they increased significantly after surgery: 37%, $\chi^2(1) = 25.00, P < 0.001$. Participants who lost the least weight at 2 years postsurgery were more likely to be nonwhite ($r = 0.27, P = 0.039$), have a lower socioeconomic status (SES) ($r = 0.285, P = 0.02$), and have a diagnosis of binge eating before surgery ($r = 0.25, P = 0.039$). Having more contact with patients and requiring adherence to behavioral changes, especially with respect to exercise and dietary restrictions, may improve the long-term outcomes for bariatric procedures. In addition, those patients who are depressed and suffer from binge eating may need special attention from physicians during long-term postoperative follow-up.

OBJECTIVE: The aim of this critical review is to provide insight into the main outcomes of research on communication about nutrition and/or physical activity between GPs and patients for prevention or treatment of overweight and obesity. METHODS: Relevant studies were identified by a computerized search of multiple electronic databases (MEDLINE, PsycINFO) for all available papers between 1 January 1995 and 1 January 2012. In addition, two independent reviewers judged all studies on ten quality criteria. RESULTS: In total, 41 studies were retrieved. More studies were found about the guidance of obese patients than of overweight patients. The most common weight guidance practice was discussion of weight. The range of communication strategies for nutrition showed to be more diverse than for physical activity. Twelve studies were considered as high-quality studies, 18 were having medium quality, and 11 were seen as low quality. CONCLUSION: We reflected on the fact that the content of advice about nutrition and physical activity was quite general. GPs' provision of combined lifestyle advice to overweight and obese patients seems to be rather low. PRACTICE IMPLICATIONS: Observational research is needed to unravel the quality of the advice given by GPs to overweight and obese patients. Although pediatric providers have traditionally assessed and treated childhood obesity and associated health-related conditions in the clinic setting, there is a recognized need to expand the provider role. We reviewed the literature published from 2005 to 2012 to (1) provide examples of the spectrum of roles that primary care providers can play in the successful treatment and prevention of childhood obesity in both clinic and community settings and (2) synthesize the evidence of important characteristics, factors, or strategies in successful community-based models. The review identified 96 articles that provide evidence of how primary care providers can successfully prevent and treat childhood obesity by coordinating efforts within the primary care setting and through linkages to obesity prevention and treatment resources within the community. By aligning the most promising interventions with recommendations published over the past decade by the Institute of Medicine, the American Academy of Pediatrics, and other health organizations, we present nine high-quality studies that can serve as examples of strategies that primary care providers can use to improve their role in the prevention and treatment of childhood obesity.
OBESITY EDUCATIONAL INTERVENTIONS IN U.S. MEDICAL SCHOOLS: A SYSTEMATIC REVIEW AND IDENTIFIED GAPS


Managing obesity in primary care practice: an overview with perspective from the POWER-UP study.


OBJECTIVES: To examine available behavioral, pharmacological, and surgical weight management interventions for overweight (defined as BMI > 85th to 94th percentile of age and sex-specific norms) and/or obese (BMI > 95th percentile) children and adolescents in clinical and nonclinical community settings.

DATA SOURCES: We identified two good quality recent systematic reviews that addressed our research questions. We searched Ovid MEDLINE, PsycINFO, Database of Abstracts of Reviews of Effects, the...
K. Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, and Education Resources Information Center from 2005 (2003 for pharmacological studies) to December 11, 2007, to identify literature that was published after the search dates of prior relevant systematic reviews; we also examined reference lists of five other good-quality systematic reviews and of included trials, and considered experts’ recommendations. We identified two good quality systematic reviews and 2,355 abstracts from which we identified 45 primary studies and trials that addressed our research questions. REVIEW METHODS: After review by two investigators against pre-determined inclusion/exclusion criteria, we included existing good-quality systematic reviews, fair-to-good quality trials, and case series (for bariatric surgeries only) to evaluate the effects of treatment on weight and weight-related co-morbidities; we would have included large comparative cohort studies to evaluate longer term followup and harms of behavioral and pharmaceutical treatment and noncomparative cohort studies for surgical treatments if they had been available. Investigators abstracted data into standard evidence tables with abstraction checked by a second investigator. Studies were quality-rated by two investigators using established criteria. RESULTS: Available research primarily enrolled obese (but not overweight) children and adolescents aged 5 to 18 years and no studies targeted those less than 5 years of age. Behavioral interventions in schools or specialty health care settings can result in small to moderate short-term improvements. Absolute or relative weight change associated with behavioral interventions in these settings is generally modest and varies by treatment intensity and setting. More limited evidence suggests that these improvements can be maintained completely (or somewhat) over the 12 months following the end of treatments and that there are few harms with behavioral interventions. Two medications (sibutramine, orlistat) combined with behavioral interventions can result in small to moderate short-term weight loss in obese adolescents with potential side effects that range in severity. Among highly selected morbidly obese adolescents, very limited data from case series suggest bariatric surgical interventions can lead to moderate to substantial weight loss in the short term and to some immediate health benefits through resolution of comorbidities, such as sleep apnea or asthma. Harms vary by procedure. Short-term severe complications are reported in about 5 percent and less severe short-term complications occur in 10 to 39 percent. Very few cases provide data to determine either beneficial or harmful consequences more than 12 months after surgery. CONCLUSIONS: The research evaluating the treatment of obese children and adolescents has improved in terms of quality and quantity in the past several years. While there are still significant gaps in our understanding of obesity treatment in children and adolescents, the current body of research points the way to further improvements needed to inform robust policy development. Publication of additional research and policy activities by others, including the U.S. Preventive Services Task Force, is expected in the near future. And, in considering this important public health issue, policymakers should not ignore the importance of obesity prevention efforts as well as treatment.
## Annex 6 Neighbourhoods including food environments and food deserts, built environments and green spaces, and neighbourhood security.

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<th>Authors</th>
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<td>Black JL, Macinko J.</td>
<td>Neighborhoods and obesity.</td>
<td>NUTR REV. 2008 JAN;66(1):2-20.</td>
<td>This review critically summarizes the literature on neighborhood determinants of obesity and proposes a conceptual framework to guide future inquiry. Thirty-seven studies met all inclusion criteria and revealed that the influence of neighborhood-level factors appears mixed. Neighborhood-level measures of economic resources were associated with obesity in 15 studies, while the associations between neighborhood income inequality and racial composition with obesity were mixed. Availability of healthy versus unhealthy food was inconsistently related to obesity, while neighborhood features that discourage physical activity were consistently associated with increased body mass index. Theoretical explanations for neighborhood-obesity effects and recommendations for strengthening the literature are presented. Children living in poverty are disproportionately at risk from and affected by environmental hazards. According to the National Center for Children in Poverty, 13 million children in America live in poverty. Thus, not only are millions of children living in poverty but are also living in environments that are hazardous to their health. Impoverished children are more likely to live in environments with heavily polluting industries, hazardous waste sites, contaminated water and soil, in old housing with deteriorating lead-based paint, in areas with limited access to healthy food, and more. Poor children residing in these toxic environments are either at risk or suffer from a myriad of health disparities, such as asthma, cancer, lead poisoning, obesity, and hyperactivity. This unfortunate reality is better known as environmental injustice. Environmental injustice recognizes that economically disadvantaged groups are adversely affected by environmental hazards more than other groups. To remedy this dilemma, environmental justice seeks to address these unfair burdens of environmental health hazards on poor communities. The purpose of this article is to (a) examine the environmental living conditions of children living in poverty, (b) examine the environmental health disparities of children living in poverty, (c) discuss environmental justice legislation, (d) describe government initiatives to improve environmental health, and (e) propose recommendations that executes measures to protect the health of children.</td>
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<td>Cureton S.</td>
<td>Environmental victims: environmental injustice issues that threaten the health of children living in poverty.</td>
<td>REV ENVIRON HEALTH. 2011;26(3):14 1-7.</td>
<td>Evidence synthesis: Papers were categorized by design features, sample characteristics, and measurement mode. Relevant results were summarized, stratified by age (children or adolescents) and mode of measurement (objective or perceived) for environmental attributes and physical activity. Percentage of significant results was calculated. Conclusions: Mode of measurement greatly influenced the consistency of associations between environmental attributes and youth physical activity. For both children and adolescents, the most consistent associations involved objectively measured environmental attributes and reported physical activity. The most supported correlates for children were walkability, traffic speed/volume, access/proximity to recreation facilities, land-use mix, and residential density. The most supported correlates for adolescents were land-use mix and residential density. These findings support several recommendations for policy and environmental change from such groups as the IOM and National Physical Activity Plan. Increasing rates of childhood obesity in the USA and other Western countries are a cause for serious public health concern.</td>
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<tr>
<td>Ding, D; Sallis, JF; Kerr, J; Lee, S; Rosenberg, DE</td>
<td>Neighborhood and Physical Activity Among Youth A Review</td>
<td>AMERICAN JOURNAL OF PREVENTIVE MEDICINE 2011 41 442 455</td>
<td>Context: Research examining the association between environmental attributes and physical activity among youth is growing. An updated review of literature is needed to summarize the current evidence base, and to inform policies and environmental interventions to promote active lifestyles among young people. Evidence acquisition: A literature search was conducted using the Active Living Research (ALR) literature database, an online database that codes study characteristics and results of published papers on built/social environment and physical activity/obesity/sedentary behavior. Papers in the ALR database were identified through PubMed, Web of Science, and SPORT Discus using systematically developed and expert-validated search protocols. For the current review, additional inclusion criteria were used to select observational, quantitative studies among youth aged 3-18 years. Evidence synthesis: Papers were categorized by design features, sample characteristics, and measurement mode. Relevant results were summarized, stratified by age (children or adolescents) and mode of measurement (objective or perceived) for environmental attributes and physical activity. Percentage of significant results was calculated. Conclusions: Mode of measurement greatly influenced the consistency of associations between environmental attributes and youth physical activity. For both children and adolescents, the most consistent associations involved objectively measured environmental attributes and reported physical activity. The most supported correlates for children were walkability, traffic speed/volume, access/proximity to recreation facilities, land-use mix, and residential density. The most supported correlates for adolescents were land-use mix and residential density. These findings support several recommendations for policy and environmental change from such groups as the IOM and National Physical Activity Plan. Increasing rates of childhood obesity in the USA and other Western countries are a cause for serious public health concern.</td>
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Neighborhood and community environments are thought to play a contributing role in the development of obesity among youth, but it is not well understood which types of physical environmental characteristics have the most potential to influence obesity outcomes. This paper reports the results of a systematic review of quantitative research examining built and biophysical environmental variables associated with obesity in children and adolescents through physical activity. Literature searches in PubMed, PsychInfo and Geobase were conducted. Fifteen quantitative studies met the inclusion criteria for this systematic review. The majority of studies were cross-sectional and published after 2005. Overall, few consistent findings emerged. For children, associations between physical environmental variables and obesity differed by gender, age, socioeconomic status, population density and whether reports were made by the parent or child. Access to equipment and facilities, neighborhood pattern (e.g. rural, exurban, suburban) and urban sprawl were associated with obesity outcomes in adolescents. For most environmental variables considered, strong empirical evidence is not yet available. Conceptual gaps, methodological limitations and future research directions are discussed.

Utilizing data from the Large Analysis and Review of European Housing and Health Status (LARES) research program conducted by the WHO in eight European cities (Forli, Vilnius, Ferreira do Alentejo, Bonn, Geneva, Angers, Bratislava, Budapest), we examined whether the well-documented inverse correlation between family income and children’s BMI might be explained, in part, by access to open green space and ensuing physical activity. We found that household income was inversely related to BMI among 1184 children, ages 6-18 years of age. Utilizing structural equation modeling with statistical controls for age and gender, we found evidence for two indirect paths between household income and BMI. One indirect relationship operates successively through open green space and physical activity. The second path operates through physical activity alone. The child's height and weight as well as level of physical activity were reported by their mother. Open green space was assessed by trained observers' ratings of the area surrounding the child's home. Limitations of the study and implications for better understanding of the ecological context of obesity are discussed.

The capacity of public parks and recreation environments to promote physical activity for low-income communities of color is receiving increased attention from researchers and policymakers. As a result, several systems to measure park and recreation environments have been recently developed. Developing measures is important because they are critical to establishing key correlates and determinants that drive physical activity and inform intervention strategies. This paper briefly reviews recent approaches to advance an understanding of how parks and recreation settings contribute to physical activity in low-income communities of color. Residents of low-income communities of color are usually found to have lower physical activity, and this may be due partly to a disparity in access to parks and other recreation environments. Three primary recommendations are presented. First, future measurement tools should explicitly reflect inequality in the built environment in terms of availability and quality of parks and recreation areas. Second, measurement strategies should incorporate research on recreation activity and setting preferences important in low-income communities of color. Finally, the perceptions of residents of low-income communities of color should be reflected in measurement approaches. One strategy for incorporating the perceptions is community-based participatory research. The rapid development of high-quality tools for measuring parks and recreation environments is encouraging. However, existing measures should be tested and refined in varying social-ecologic conditions, and new tools should be developed specifically for nuances associated with low-income minority communities.

Although the overall population in the United States has experienced a dramatic increase in obesity in the past 25 years, ethnic/racial minorities, and socioeconomically disadvantaged populations have a greater prevalence of obesity, as compared to white, and/or economically advantaged populations. Disparities in obesity are unlikely to be predominantly due to individual psychosocial or biological differences, and they may reflect differences in the built or social environment. The retail food environment is a critical aspect of the built environment that can contribute to observed disparities. This paper reviews the literature on retail food environments in the United States and proposes interrelated hypotheses that geographic, racial, ethnic, and socioeconomic disparities in obesity within the United States are the result of disparities in the retail food environment. The
The geography of Fast Food outlets: a review.

The availability of food high in fat, salt and sugar through Fast Food (FF) or takeaway outlets, is implicated in the causal pathway for the obesity epidemic. This review aims to summarise this body of research and highlight areas for future work. Thirty three studies were found that had assessed the geography of these outlets. Fourteen studies showed a positive association between availability of FF outlets and increasing deprivation. Another 13 studies also included overweight or obesity data and showed conflicting results between obesity/overweight and FF outlet availability. There is some evidence that FF availability is associated with lower fruit and vegetable intake. There is potential for land use policies to have an influence on the location of new FF outlets. Further research should incorporate good quality data on FF consumption, weight and physical activity.

Cycling for transport and public health: a systematic review of the effect of the environment on cycling

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A Tale of Two ObesCities: The Role of Municipal Governance in Reducing Childhood Obesity in New York City and London

As rates of childhood obesity and overweight rise around the world, researchers and policy makers seek new ways to reverse these trends. Given the concentration of the world's population, income inequalities, unhealthy diets, and patterns of physical activity in cities, urban areas bear a disproportionate burden of obesity. To address these issues, in 2008, researchers from the City University of New York and London Metropolitan University created the Municipal Responses to Childhood Obesity Collaborative. The Collaborative examined three questions: What role has city government played in responding to childhood obesity in each jurisdiction? How have municipal governance structures in each city influenced its capacity to respond effectively? How can policy and programmatic interventions to reduce childhood obesity also reduce the growing socioeconomic and racial/ethnic inequities in its prevalence? Based on a review of existing initiatives in London and New York City, the Collaborative recommended 11 broad strategies by which each city could reduce childhood obesity. These recommendations were selected because they can be enacted at the municipal level; will reduce socioeconomic and racial/ethnic inequities in obesity; are easily supported by research or are already being implemented in one city, demonstrating their feasibility; build on existing city assets; and are both green and healthy.

A systematic review of environmental factors and obesogenic dietary intakes among adults:

This study examined whether physical, social, cultural and economical environmental factors are associated with obesogenic dietary behaviours and overweight/obesity among adults. Literature searches of databases (i.e. PubMed, CSA Illumina, Web of Science, PsychInfo) identified studies examining environmental factors and the consumption of energy, fat, fibre, fruit, vegetables, sugar-sweetened drinks, meal patterns and weight status. Twenty-eight studies were in-scope, the majority (n = 16) were conducted in the USA. Weight status was consistently associated with the food environment; greater accessibility to
Introduction Many small-store intervention trials have been conducted in the United States and other countries to improve the food environment and dietary behaviors associated with chronic disease risk. However, no systematic reviews of the methods and outcomes of these trials have been published. The objective of this study was to identify small-store interventions and to determine their impact on food availability, dietary behaviors, and psychosocial factors that influence chronic disease risk.

Methods From May 2009 through September 2010, we used PubMed, web-based searches, and listservs to identify small-store interventions that met the following criteria: 1) a focus on small food stores, 2) a completed impact evaluation, and 3) English-written documentation (peer-reviewed articles or other trial documents). We initially identified 28 trials; 16 met inclusion criteria and were used for analysis. We conducted interviews with project staff to obtain additional information. 

Food security is a fundamental human right yet many people are food insecure, even in high-income countries. Reviewed here is the evidence for the physical, economic, sociocultural, and political environmental influences on household food security in high-income countries. The literature was evaluated using the ANGELO framework, which is a lens developed for understanding the environmental factors underpinning the obesity pandemic. A review of the literature identified 78 articles, which mostly reported on cross-sectional or qualitative studies. These studies identified a wide range of factors associated with food security. Foremost among them was household financial resources, but many other factors were identified and the complexity of the issue was highlighted. Few studies were prospective and even fewer tested the use of interventions other than the supplemental nutrition assistance program to address food security. This indicates a solution-oriented research paradigm is required to identify effective interventions and policies to enhance food security. In addition, comprehensive top-down and bottom-up interventions at the community and national levels are urgently needed.

The evidence for the physical, economic, sociocultural, and political environmental influences on household food security in high-income countries is inconsistent and often conflicting. This systematic review uncovered several key findings.

1. Systematic measurement of determining availability of food within stores and store types is needed.
2. Context is relevant for understanding the complexities of the consumer food environment.
3. Interventions and longitudinal studies addressing purchasing habits, diet, and obesity outcomes are needed.
4. Influences of price and marketing that may be linked with why people purchase certain products or services are not well understood.

Supermarkets or less access to takeaway outlets were associated with a lower BMI or prevalence of overweight/obesity. However, obesogenic dietary behaviors did not mirror these associations; mixed associations were found between the environment and obesogenic dietary behaviors. Living in a socioeconomically-deprived area was the only environmental factor consistently associated with a number of obesogenic dietary behaviors. Associations between the environment and weight status are more consistent than that seen between the environment and dietary behaviors. The environment may play an important role in the development of overweight/obesity, however the dietary mechanisms that contribute to this remain unclear.

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Food security is a fundamental human right yet many people are food insecure, even in high-income countries. Reviewed here is the evidence for the physical, economic, sociocultural, and political environmental influences on household food security in high-income countries. The literature was evaluated using the ANGELO framework, which is a lens developed for understanding the environmental factors underpinning the obesity pandemic. A review of the literature identified 78 articles, which mostly reported on cross-sectional or qualitative studies. These studies identified a wide range of factors associated with food security. Foremost among them was household financial resources, but many other factors were identified and the complexity of the issue was highlighted. Few studies were prospective and even fewer tested the use of interventions other than the supplemental nutrition assistance program to address food security. This indicates a solution-oriented research paradigm is required to identify effective interventions and policies to enhance food security. In addition, comprehensive top-down and bottom-up interventions at the community and national levels are urgently needed.

Description of the consumer food environment has proliferated in publication. However, there has been a lack of systematic reviews focusing on how the consumer food environment is associated with the following: (1) neighborhood characteristics; (2) food prices; (3) dietary patterns; and (4) weight status. We conducted a systematic review of primary, quantitative, observational studies, published in English that conducted an audit of the consumer food environment. The literature search included electronic, hand searches, and peer-reviewed from 2000 to 2011. Fifty six papers met the inclusion criteria. Six studies reported stores in low income neighborhoods or high minority neighborhoods had less availability of healthy food, while four studies found there was no difference in availability between neighborhoods. The results were also inconsistent for differences in food prices, dietary patterns, and weight status. This systematic review uncovered several key findings.

1. Systematic measurement of determining availability of food within stores and store types is needed.
2. Context is relevant for understanding the complexities of the consumer food environment.
3. Interventions and longitudinal studies addressing purchasing habits, diet, and obesity outcomes are needed.
4. Influences of price and marketing that may be linked with why people purchase certain products or services are not well understood.
BACKGROUND: Improving parks in low income and minority neighborhoods may be a key way to increase physical activity and decrease overweight and obesity prevalence among children at the greatest risk. To advocate effectively for improved recreation infrastructure, public health advocates must understand the legal and policy landscape in which public recreation decisions are made. METHODS: In this descriptive legal analysis, we reviewed federal, state, and local laws to determine the authority of each level of government over parks. We then examined current practices and state laws regarding park administration in urban California and rural Texas. RESULTS: We identified several themes through the analysis: (1) multiple levels of governments are often involved in parks offerings in a municipality, (2) state laws governing parks vary, (3) local authority may vary substantially within a state, and (4) state law may offer greater authority than local jurisdictions use. CONCLUSIONS: Public health advocates who want to improve parks need to (1) think strategically about which levels of government to engage; (2) identify parks law and funding from all levels of government, including those not typically associated with local parks; and (3) partner with advocates with similar interests, including those from active living and school communities.

BACKGROUND: Low-income, ethnic/racial minorities and rural populations are at increased risk for obesity and related chronic health conditions when compared to white, urban and higher-socio-economic status (SES) peers. Recent systematic reviews highlight the influence of the built environment on obesity, yet very few of these studies consider rural areas or populations. Utilizing a CBPR process, this study advances community-driven causal models to address obesity by exploring the difference in resources for physical activity and food outlets by block group race and income in a small regional city that anchors a rural health disparate region. To guide this inquiry we hypothesized that lower income and racially diverse block groups would have fewer food outlets, including fewer grocery stores and fewer physical activity outlets. We further hypothesized that walkability, as defined by a computed walkability index, would be lower in the lower income block groups. Methods: Using census data and GIS, base maps of the region were created and block groups categorized by income and race. All food outlets and physical activity resources were enumerated and geocoded and a walkability index computed. Analyses included one-way MANOVA and spatial autocorrelation. Results: In total, 49 stores, 160 restaurants and 79 physical activity outlets were enumerated. There were no differences in the number of outlets by block group income or race. Further, spatial analyses suggest that the distribution of outlets is dispersed across all block groups. Conclusions: Under the larger CPBR process, this enumeration study advances the causal models set forth by the community members to address obesity by providing an overview of the food and physical activity environment in this region. This data reflects the food and physical activity resources available to residents in the region and will aid many of the community-academic partners as they pursue intervention strategies targeting obesity.

Abstract (English): BACKGROUND: Most adults in Europe lead sedentary lives; their physical inactivity is associated with a rising prevalence of obesity and is considered to contribute significantly to health inequalities. A recent NICE (2006) review concluded that, "there is an urgent need to conduct research into the effectiveness of environmental interventions, particularly within socially excluded sectors of the population who have the highest prevalence of physical inactivity". OBJECTIVE: To investigate and utilise the community "knowledge" of individuals living in a socio-economically deprived community and of relevant stakeholders in statutory and voluntary organisations, regarding the design of community-based initiatives on increasing physical activity (PA) levels. SETTING: The Connswater Community Greenway is a pound sterling 32 million investment in East Belfast. The aim of the Greenway is to provide a safe and accessible area which increases PA and improves the people's quality of life. METHOD: Semi-structured interviews with leading community representatives were conducted regarding (i) the nature and extent to which there are specific groups of residents who would benefit from increased PA, (ii) the nature and provision of PA initiatives, and (iii) practical advice regarding the selection of focus group participants from "Physical Activity Need Groups". Transcriptions were audio recorded and transcribed verbatim. Interim thematic analysis was conducted after each interview to inform the primary questions for subsequent interviews. Findings were validated by a second researcher. RESULTS:
Greenspace is theoretically a valuable resource for physical activity and hence has potential to contribute to reducing obesity and improving health. This paper reports on a systematic review of quantitative research examining the association between objectively measured access to greenspace and (i) Physical activity, (ii) Weight status and (iii) Health conditions related to elevated weight. Literature searches were conducted in SCOPUS, Medline, Embase and PYSCHINFO. Sixty studies met the inclusion criteria and were assessed for methodological quality and strength of the evidence. The majority (68%) of papers found a positive or weak association between greenspace and obesity-related health indicators, but findings were inconsistent and mixed across studies. Several studies found the relationship varied by factors such as age, socioeconomic status and greenspace measure. Developing a theoretical framework which considers the correlates and interactions between different types of greenspace and health would help study design and interpretation of reported findings, as would improvement in quality and consistency of greenspace access measures. Key areas for future research include investigating if and how people actually use greenspace and improving understanding of the mechanisms through which greenspace can improve health and, in particular, if physical activity is one such mechanism.
Neighborhood disparities in access to healthy foods in the U.S.

BACKGROUND: Poor dietary patterns and obesity, established risk factors for chronic disease, have been linked to neighborhood deprivation, neighborhood minority composition, and low area population density. Neighborhood differences in access to food may have an important influence on these relationships and health disparities in the U.S. This article reviews research relating to the presence, nature, and implications of neighborhood differences in access to food.

METHODS: A snowball strategy was used to identify relevant research studies (n=54) completed in the U.S. and published between 1985 and April 2008. RESULTS: Research suggests that neighborhood residents who have better access to supermarkets and limited access to convenience stores tend to have healthier diets and lower levels of obesity. Results from studies examining the accessibility of restaurants are less consistent, but there is some evidence to suggest that residents with limited access to fast-food restaurants have healthier diets and lower levels of obesity. National and local studies across the U.S. suggest that residents of low-income, minority, and rural neighborhoods are most often affected by poor access to supermarkets and healthful food. In contrast, the availability of fast-food restaurants and energy-dense foods has been found to be greater in lower-income and minority neighborhoods.

CONCLUSIONS: Neighborhood disparities in access to food are of great concern because of their potential to influence dietary intake and obesity. Additional research is needed to address various limitations of current studies, identify effective policy actions, and evaluate intervention strategies designed to promote more equitable access to healthy foods.

The influence of geographic life environments on cardiometabolic risk factors: a systematic review, a methodological assessment and a research agenda

BACKGROUND: Poor dietary patterns and obesity, established risk factors for chronic disease, have been linked to neighborhood deprivation, neighborhood minority composition, and low area population density. Neighborhood differences in access to food may have an important influence on these relationships and health disparities in the U.S. This article reviews research relating to the presence, nature, and implications of neighborhood differences in access to food.

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CONCLUSIONS: Neighborhood disparities in access to food are of great concern because of their potential to influence dietary intake and obesity. Additional research is needed to address various limitations of current studies, identify effective policy actions, and evaluate intervention strategies designed to promote more equitable access to healthy foods.

Combating childhood obesity: a survey of laws affecting the built environments of low-income and minority children.

BACKGROUND: Poor dietary patterns and obesity, established risk factors for chronic disease, have been linked to neighborhood deprivation, neighborhood minority composition, and low area population density. Neighborhood differences in access to food may have an important influence on these relationships and health disparities in the U.S. This article reviews research relating to the presence, nature, and implications of neighborhood differences in access to food.

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Built environments and obesity in disadvantaged populations.

BACKGROUND: Poor dietary patterns and obesity, established risk factors for chronic disease, have been linked to neighborhood deprivation, neighborhood minority composition, and low area population density. Neighborhood differences in access to food may have an important influence on these relationships and health disparities in the U.S. This article reviews research relating to the presence, nature, and implications of neighborhood differences in access to food.

METHODS: A snowball strategy was used to identify relevant research studies (n=54) completed in the U.S. and published between 1985 and April 2008. RESULTS: Research suggests that neighborhood residents who have better access to supermarkets and limited access to convenience stores tend to have healthier diets and lower levels of obesity. Results from studies examining the accessibility of restaurants are less consistent, but there is some evidence to suggest that residents with limited access to fast-food restaurants have healthier diets and lower levels of obesity. National and local studies across the U.S. suggest that residents of low-income, minority, and rural neighborhoods are most often affected by poor access to supermarkets and healthful food. In contrast, the availability of fast-food restaurants and energy-dense foods has been found to be greater in lower-income and minority neighborhoods.

CONCLUSIONS: Neighborhood disparities in access to food are of great concern because of their potential to influence dietary intake and obesity. Additional research is needed to address various limitations of current studies, identify effective policy actions, and evaluate intervention strategies designed to promote more equitable access to healthy foods.

In the United States, health disparities in obesity and obesity-related illnesses have been the subject of growing concern. To better understand how obesity-related health disparities might relate to obesogenic built environments, the authors conducted a systematic review of the published scientific literature, screening for studies with relevance to disadvantaged individuals or areas, identified by low socioeconomic status, black race, or Hispanic ethnicity. A search for related terms in publication databases and topically related resources yielded 45 studies published between January 1995 and January 2009 with at least 100 participants or area residents that provided information on 1) the built environment correlates of obesity or related health
behaviors within one or more disadvantaged groups or 2) the relative exposure these groups had to potentially obesogenic built environment characteristics. Upon consideration of the obesity and behavioral correlates of built environment characteristics, research provided the strongest support for food stores (supermarkets instead of smaller grocery/convenience stores), places to exercise, and safety as potentially influential for disadvantaged groups. There is also evidence that disadvantaged groups were living in worse environments with respect to food stores, places to exercise, aesthetic problems, and traffic or crime-related safety. One strategy to reduce obesity would involve changing the built environment to be more supportive of physical activity and a healthy diet. Based on the authors' review, increasing supermarket access, places to exercise, and neighborhood safety may also be promising strategies to reduce obesity-related health disparities.

This article examines the current state of science of Community-based Childhood Obesity Prevention Environmental Nutrition Interventions (CCOPENIs). Findings from the literature review indicate that CCOPENIs are effective in altering "obesogenic" community behaviors, reducing the prevalence of childhood obesity. However, the shortage of long-term communitywide interventions that address community characteristics limits our understanding of their effectiveness, feasibility, and sustainability. CCOPENIs have the potential to be utilized within clinical practice as well as within public health practice; however, further interdisciplinary research utilizing a CCOPENI framework is necessary to create innovative CCOPENIs that are effective, feasible, and sustainable long term.

Background: There is growing recognition that the urban built environment influences physical activity at the population level, although the effects on disadvantaged groups are less well understood. Using the examples of open/green space and street connectivity, this paper explores whether enhancements to the built environment have potential for addressing physical activity-related health inequalities among Maori, Pacific and low income communities in New Zealand. Method: A high-level review of the international literature relating open space and street connectivity to physical activity and/or related health outcomes at a population level was completed. Consideration was given to whether these features of the built environment have a disproportionate effect on disadvantaged populations. Results: Findings from international studies suggest that open space and street connectivity have a beneficial effect on physical activity. Enhancing the built environment may be particularly advantageous for improving physical activity levels among disadvantaged populations. Conclusion: It is likely that open space and street connectivity have a positive effect on physical activity behaviour; however due to the cross-sectional nature of existing research and the paucity of research among disadvantaged populations definitive conclusions about the effect in these populations cannot be made. Further research is required (e.g. natural experiments or quasi experimental research designs) to determine the effect of changing the environment on physical activity and obesity.

Abstract: Background: Obesity and physical inactivity rates have reached epidemic levels in Canada, but differ based on whether they are self-reported or directly measured. Canadian research examining the combined and independent effects of social and built environments on adult physical activity (PA) and body mass index (BMI) is limited. Furthermore there is a lack of Canadian studies to assess these relationships using directly measured PA and BMI. Objectives: The objectives of this thesis were to systematically compare self-reported and directly measured PA and to examine associations between neighbourhood built and social environmental factors with both self-reported and directly measured PA and overweight/obesity in adults living in Ottawa, Canada. Methods: A systematic review was conducted to identify observational and experimental studies of adult populations that used both self-report and direct measures of PA and to assess the agreement between the measures. Associations between objectively measured neighbourhood-level built recreation and social environmental factors and self-reported individual-level data including total and leisure-time PA (LTPA) and overweight/obesity were examined in the adult population of Ottawa, Canada using multilevel models. Neighbourhood differences in directly measured BMI and PA (using accelerometry) were evaluated in a convenience sample of adults from four City of Ottawa neighbourhoods with contrasting socioeconomic (SES) and built recreation (REC) environments. Results: Results from the review generally indicate a poor level of agreement between self-report and direct measures of PA, with trends differing based on the measures of PA, the level of PA examined and the sex of the participants. Results of the multilevel analyses identified that very few of the built and social environmental
Objective. To review the available literature assessing differences in physical activity levels of children living in different environments and adolescence: a systematic review.

The childhood obesity has been a growing concern over the last decade all over the world. Built environmental characteristics such as parks and playgrounds serves as a reference point for physical activity in children. The equality issues related to ethnicity, Social Economic Status (SES), gender and social support have been related with both physical activity and presence and quality of parks and playgrounds. However, only limited studies have addressed these issues in children. The current paper is a general enumerative review that would discusses the above issues with respect to obesity in all age groups, giving particular emphasis to childhood obesity. The importance of this review is to further explore the importance and highlight the findings related to these issues, so that future original studies could be planned keeping these associations in mind.

Intention is theorised as the proximal determinant of behaviour in many leading theories and yet intention–behaviour discord is prevalent. The purpose of this review was to retrieve, theme and appraise the variables that have been evaluated as the potential moderators of the intention–behaviour relationship in the physical activity (PA) domain. Eligible studies were selected from English peer-reviewed journals and had to report an empirical test of moderation of intention-PA (I-PA) with a third variable. Fifty-seven studies passed the inclusion criteria and these represented 38 different potential moderators of I-PA. Intention stability proved to be the most consistent moderator of I-PA, suggesting that much of the discordance may be from motivational flux between initial intention and eventual behaviour. Anticipated regret and conscientiousness also had evidence as the moderators of I-PA. Perceived control/self-efficacy, planning, extraversion, habit and environmental proximity to recreation showed some evidence for moderation, while gender, agreeableness, openness, body mass index and ethnicity did not appear to moderate I-PA. The findings demonstrate that traditional intention theories may need augmentation to better account for the evidence present in I-PA discordance.

This umbrella review analyzed the relationships between social and physical micro-environmental (neighborhood, school) characteristics as predictors of child and adolescent diet, physical activity, and body weight. Eight systematic reviews, discussing 132 original studies (97% correlational, 3% experimental) yielded 98 social, physical, and socio-economic characteristics, as categorized in the original reviews. Among micro-environmental predictors stronger support (i.e., replicated results) was obtained for 12 out of 98 original micro-environmental variables, with physical activity as the outcome in 10 out of 12 cases. In particular, replicated significant relationships were found for several physical activity-specific neighborhood and school characteristics (e.g., community opportunities to exercise, lower costs of physical activity facilities, physical activity build environment) and adolescent physical activity. Among more general (i.e., not behavior-specific) micro-environmental characteristics, stronger support was found for low crime level, school type, and child/adolescent physical activity. Objective. To review the available literature assessing differences in physical activity levels of children living in different built environments classified according to land use within developed countries. Methods. A systematic review of published literature up to March 2009. Online searches of five databases yielded 18 studies which met inclusion criteria. Studies provided data on n

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<th>Qazi, HA</th>
<th>Childhood obesity and parks and playgrounds: A review of issues of equality, gender and social support</th>
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<td>Rhodes RE, Dickau L.</td>
<td>Moderators of the intention-behaviour relationship in the physical activity domain: a systematic review.</td>
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<td>Sandersock, G; Angus, C; Barton, J</td>
<td>Physical activity levels of children living in different environments classified according to land use within developed countries.</td>
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Variables were significantly associated with PA or overweight/obesity. Greater park area was significantly associated with total PA in females. Greater green space was shown to be associated with lower odds of male LTPA. Factors from the social environment were generally more strongly related to male outcomes. Further to the recreation and social environment, factors in the food landscape were significantly associated with male and female PA and overweight/obesity. Results of the directly measured PA and BMI investigation showed significant neighbourhood-group effects for light intensity PA and sedentary time. Post-hoc tests identified that the low REC/high SES neighbourhood had significantly more minutes of light PA than the low REC/low SES. BMI differed between the four neighbourhoods, but the differences were not significant after controlling for age, sex and household income. Conclusions: Results of this dissertation show that the quantity of PA can differ based on its method of measurement (i.e. between self-report and direct methods) with implications for the interpretation of study findings. It also identifies that PA and BMI can differ by neighbourhood and recognizes that the relationships between neighbourhood environments and PA and body composition are complex, may be differ between males and females, and may not always follow intuitive relationships. Furthermore it suggests that other factors in the environment not examined in this dissertation may influence adult PA and BMI and that longitudinal and intervention studies are needed.
Previous research has clearly established associations between low socioeconomic status (SES) and poor youth physical health outcomes. This article provides an overview of the main pathways through which low SES environments come to influence youth health. We focus on 2 prevalent chronic health problems in youth today, asthma and obesity. We review and propose a model that encompasses (a) multiple levels of influence, including the neighborhood, family and person level; (b) both social and physical domains in the environment; and finally (c) dynamic relationships between these factors. A synthesis of existing research and our proposed model draw attention to the notion of adverse physical and social exposures in youth's neighborhood environments altering family characteristics and youth psychosocial and behavioral profiles, thereby increasing youth's risk for health problems. We also note the importance of acknowledging reciprocal influences across levels and domains (e.g., between family and child) that create self-perpetuating patterns of influence that further accentuate the impact of these factors on youth health. Finally, we document that factors across levels can interact (e.g., environmental pollution levels with child stress) to create unique, synergistic effects on youth health. Our model stresses the importance of evaluating influences on youth's physical health not in isolation but in the context of the broader social and physical environments in which youth live. Understanding the complex relationships between the factors that link low SES to youth's long-term health trajectories is necessary for the creation and implementation of successful interventions and policies to ultimately reduce health disparities. Increasingly, studies are focusing on the role the local food environment plays in residents' ability to purchase affordable, healthy and nutritious foods. In a food desert, an area devoid of a supermarket, access to healthy food is limited. We conducted a systematic review of studies that focused on food access and food desert research in the United States. The 31 studies identified utilized 9 measures to assess food access. Results from these studies can be summarized primarily into four major statements.
physiological factors (i.e., vitamin D deficiency, inflammation, poor nutritional status). Interpersonal risk factors related to mobility limitation include weak social networks and limited social activities. Geriatric clients may also experience a decline in mobility when they encounter environmental challenges such as an inconvenient home environment and lack of availability of services in their community, as well as lack of organizational resources stemming from social policy. Potential intervention strategies focused on modifiable risk factors may include lifestyle modifications, social networking programs, and enhancing awareness of environmental and organizational resources in the community for older adults at risk for mobility limitation.
Annex 7 Policies and strategies which address obesity and attend to socio-economic differentials, sub-groups and health inequalities related to overweight and obesity.

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<td>Allender, S;</td>
<td>Policy change to create supportive environments</td>
<td>HEALTH PROMOTION AL 2012 27 261 274</td>
<td>The objective is to identify and test regulatory options for creating supportive environments for physical activity and healthy eating among local governments in Victoria, Australia. A literature review identified nine potential areas for policy intervention at local government level, including the walking environment and food policy. Discussion documents were drafted which summarized the public health evidence and legal framework for change in each area. Levels of support for particular interventions were identified through semi-structured interviews conducted with key informants from local government. We conducted 11 key informant interviews and found support for policy intervention to create environments supportive of physical activity but little support for policy changes to promote healthy eating. Participants reported lack of relevance and competing priorities as reasons for not supporting particular interventions. Promoting healthy eating environments was not considered a priority for local government above food safety. There is a real opportunity for action to prevent obesity at local government level (e.g. mandate the promotion of healthy eating environments). For local government to have a role in the promotion of healthy food environments, regulatory change and suitable funding are required. According to the Commission of the European Communities, Public Private Partnerships (PPPs) are ‘the cornerstone’ to tackle obesity today. This research analyzes if and how current PPPs combating obesity in Europe vary between Nordic social-democratic, conservative, liberal, Mediterranean, and East European regimes. It identifies main characteristics of PPPs focusing on cooperating partners, target groups, and objectives. Some variations between European regimes were found, but a general conclusion is that most PPPs fighting obesity in Europe aim at changing consumers' eating and exercise practices through information. As information-based PPPs may increase social inequality, it is suggested that more efforts should be made to establish PPPs aiming to change the structures in society that make it difficult for disadvantaged groups to ‘choose’ health. The results of this study may be interpreted as indicating tendencies towards standardization and harmonization of nutrition policies and food culture across Europe. Unhealthy diets can lead to various diseases, which in turn can translate into a bigger burden for the state in the form of health services and lost production. Obesity alone has enormous costs and claims thousands of lives every year. Although diet quality in the European Union has improved across countries, it still falls well short of conformity with the World Health Organization dietary guidelines. In this review, we classify types of policy interventions addressing healthy eating and identify through a literature review what specific policy interventions are better suited to improve diets. Policy interventions are classified into two broad categories: information measures and measures targeting the market environment. Using this classification, we summarize a number of previous systematic reviews, academic papers, and institutional reports and draw some conclusions about their effectiveness. Of the information measures, policy interventions aimed at reducing or banning unhealthy food advertisements generally have had a weak positive effect on improving diets, while public information campaigns have been successful in raising awareness of unhealthy eating but have failed to translate the message into action. Nutritional labeling allows for informed choice. However, informed choice is not necessarily healthier; knowing or being able to read and interpret nutritional labeling on food purchased does not necessarily result in consumption of healthier foods. Interventions targeting the market environment, such as fiscal measures and nutrient, food, and diet standards, are rarer and generally</td>
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<td>Anthropology of Food; 2012. (S7):7286.</td>
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more effective, though more intrusive. Overall, we conclude that measures to support informed choice have a mixed and limited record of success. On the other hand, measures to target the market environment are more intrusive but may be more effective.

Food and health are at the core of human existence and serve as common indicators of economic and social well-being. The simultaneous escalation in obesity rates and evidence of a food system marked by a lack of access and sustainability suggest the need for comprehensive systematic approaches to understanding, evaluating, and transforming both these complex and interrelated entities. This article reviews obesity trends and food system forces that may contribute to excessive caloric intake and food inequality. Given that obesity and food insecurity share many of the same etiologies, comprehensive evidence-based strategies designed to address shared causes may leverage the impact of shared solutions. The potential benefits of promoting healthy sustainable food systems to build healthy just communities are briefly explored to encourage more in-depth discussion.

A close examination of epidemiological data reveals burdens of disease particular to culturally and linguistically diverse (CALD) migrants, as these individuals adjust to both culture and modernization gaps. Despite the increased risk of hypertension, diabetes mellitus, overweight/obesity and cardiovascular disease, individuals from CALD groups are less likely to be proactive in accessing healthcare or undertaking preventative measures to ensure optimal health outcomes. The purpose of this paper is to review literature that outlines the barriers, challenges and enablers of physical activity in CALD groups who have recently migrated to Western society, and to identify key strategies to increase physical activity participation for these individuals. Electronic and manual literature searches were used to identify 57 publications that met the inclusion criteria. Findings from the review indicate that migration to Western societies has a detrimental effect on the health status and health behaviours of CALD groups as they assimilate to their new surroundings, explore different cultures and customs, and embrace a new way of life. In particular, there is evidence that physical inactivity is common in migrant CALD groups, and is a key contributing risk factor to chronic disease for these individuals. Challenges and barriers that limit physical activity participation in CALD groups include: cultural and religious beliefs, issues with social relationships, socioeconomic challenges, environmental barriers, and perceptions of health and injury. Strategies that may assist with overcoming these challenges and barriers consist of the need for cultural sensitivity, the provision of education sessions addressing health behaviours, encouraging participation of individuals from the same culture, exploration of employment situational variables, and the implementation of 'Health Action Zones' in CALD communities. This information will inform and support the development of culturally appropriate programmes designed to positively influence the physical activity behaviours of individuals from CALD populations.

The high prevalence of obesity among low income groups has led some to question the role of food assistance programs in contributing to the problem. The USDA’s Food Stamp Program (now known as the Supplemental Nutrition Assistance Program - SNAP) is the largest food assistance program in the United States with over 40 million participants. This paper employed systematic realist review methods to determine whether participation in the Food Stamp Program causes obesity and the causal pathways through which this relationship may exist. Findings indicate a more consistent positive relationship for women than for men, especially for women who are long term users of the program. All studies discussed the "food stamp cycle" and an "income effect" as explanations for the role of food stamps in increased obesity yet evidence for these factors is limited. Curiously, the research in this field does not address obesogenic environments and we suggest that the absence of an understanding of household behavior in local contexts is a significant
Obesity is currently a global public health problem. Obesity in early life increases the risk of long-term energy imbalance and adult obesity and its comorbidities, type 2 diabetes, and cardiovascular disease. Since infancy and childhood are critical periods for the adoption of food preferences and physical activity, prevention strategies must intervene in these early periods to promote healthy habits and reduce risk behaviors. Trends in the prevalence of childhood obesity and overweight in Spain have continuously increased in the last three decades. Obesity and overweight currently affect 15 and 20% of Spanish children, respectively, and these percentages are among the highest in Europe. Childhood obesity is determined by social and economic factors pertaining to sectors other than the health system, such as advertising, the built environment, education and the school environment, transportation and the food environment. Following the Health in All Policies (HiAP) approach, the authors identified a series of multisector policy changes that may help to prevent and control the current rising trend of childhood obesity in Spain. The HiAP approach acknowledges that social factors including socioeconomic status, gender differences and the work-life
A Tale of Two ObesCities: The Role of Municipal Governance in Reducing Childhood Obesity in New York City and London

Freudenberg, N; Libman, K; O'Keefe, E

Have, M. ten Beaufort, I., D. de Teixeira, P. J.

Ethics and prevention of overweight and obesity: an inventory.


Tackling overweight and obesity: does the public health message match the science?


Hafekost K, Lawrence D, Mitrou F, O'Sullivan TA, Zubrick SR.

Efforts to counter the rise in overweight and obesity, such as taxes on certain foods and beverages, limits to commercial advertising, a ban on chocolate drink at schools or compulsory physical exercise for obese employees, sometimes raise questions about what is considered ethically acceptable. There are obvious ethical incentives to these initiatives, such as improving individual and public health, enabling informed choice and diminishing societal costs. Whereas we consider these positive arguments to put considerable resistance from various sectors and stakeholders. As rates of childhood obesity and overweight rise around the world, researchers and policy makers seek new ways to reverse these trends. Given the concentration of the world's population, income inequalities, unhealthy diets, and patterns of physical activity in cities, urban areas bear a disproportionate burden of obesity. To address these issues, in 2008, researchers from the City University of New York and London Metropolitan University created the Municipal Responses to Childhood Obesity Collaborative. The Collaborative examined three questions: What role has city government played in responding to childhood obesity in each jurisdiction? How have municipal governance structures in each city influenced its capacity to respond effectively? How can policy and programmatic interventions to reduce childhood obesity also reduce the growing socioeconomic and racial/ethnic inequalities in its prevalence? Based on a review of existing initiatives in London and New York City, the Collaborative recommended 11 broad strategies by which each city could reduce childhood obesity. These recommendations were selected because they can be enacted at the municipal level; will reduce socioeconomic and racial/ethnic inequalities in obesity; are either well supported by research or are already being implemented in one city, demonstrating their feasibility; build on existing city assets; and are both green and healthy.

BACKGOUND: Despite the increasing understanding of the mechanisms relating to weight loss and maintenance, there are currently no validated public health interventions that are able to achieve sustained long-term weight loss or to stem the increasing prevalence of obesity in the population. We aimed to examine the models of energy balance underpinning current research about weight-loss intervention from the field of public health, and to determine whether they are consistent with the model provided by basic science. EMBASE was searched for papers published in 2011 on weight-loss interventions. We extracted details of the population, nature of the intervention, and key findings for 27 articles. DISCUSSION: Most public health interventions identified were based on a simple model of energy balance, and thus attempted to reduce caloric consumption and/or increase physical activity in order to create a negative energy balance. There appeared to be little consideration of homeostatic feedback mechanisms and their effect on weight-loss success. It seems that there has been a lack of translation between recent advances in understanding of the basic science behind weight loss, and the concepts underpinning the increasingly urgent efforts to reduce excess weight in the population. SUMMARY: Public health weight-loss interventions seem to be based on an outdated understanding of the science. Their continued failure to achieve any meaningful, long-term results reflects the need to develop intervention science that is integrated with knowledge from basic science. Instead of asking why people persist in eating too much and exercising too little, the key questions of obesity research should address those factors (environmental, behavioral or otherwise) that lead to dysregulation of the homeostatic mechanism of energy regulation. There is a need for a multidisciplinary approach in the design of future weight-loss interventions in order to improve long-term weight-loss success.

Observations of weight-loss interventions over the past 50 years suggest that it is unlikely that the population will achieve the anticipated reduction in obesity through short-term weight loss or to stem the increasing prevalence of obesity in the population. We aimed to examine the models of energy balance underpinning current research about weight-loss intervention from the field of public health, and to determine whether they are consistent with the model provided by basic science. EMBASE was searched for papers published in 2011 on weight-loss interventions. We extracted details of the population, nature of the intervention, and key findings for 27 articles. DISCUSSION: Most public health interventions identified were based on a simple model of energy balance, and thus attempted to reduce caloric consumption and/or increase physical activity in order to create a negative energy balance. There appeared to be little consideration of homeostatic feedback mechanisms and their effect on weight-loss success. It seems that there has been a lack of translation between recent advances in understanding of the basic science behind weight loss, and the concepts underpinning the increasingly urgent efforts to reduce excess weight in the population. SUMMARY: Public health weight-loss interventions seem to be based on an outdated understanding of the science. Their continued failure to achieve any meaningful, long-term results reflects the need to develop intervention science that is integrated with knowledge from basic science. Instead of asking why people persist in eating too much and exercising too little, the key questions of obesity research should address those factors (environmental, behavioral or otherwise) that lead to dysregulation of the homeostatic mechanism of energy regulation. There is a need for a multidisciplinary approach in the design of future weight-loss interventions in order to improve long-term weight-loss success.
Our intention is to structure the ethical issues that may occur in programmes to prevent overweight and/or obesity in order to encourage further debate. We selected 60 recently reported interventions or policy proposals targeting overweight or obesity and systematically evaluated their ethically relevant aspects. Our evaluation was completed by discussing them in two expert meetings. We found that currently proposed interventions or policies to prevent overweight or obesity may (next to the benefits they strive for) include the following potentially problematic aspects: effects on physical health are uncertain or unfavourable; there are negative psychosocial consequences including uncertainty, fears and concerns, blaming and stigmatization and unjust discrimination; inequalities are aggravated; inadequate information is distributed; the social and cultural value of eating is disregarded; people's privacy is disrespected; the complexity of responsibilities regarding overweight is disregarded; and interventions infringe upon personal freedom regarding lifestyle choices and raising children, regarding freedom of private enterprise or regarding policy choices by schools and other organizations. The obvious ethical incentives to combat the overweight epidemic do not necessarily override the potential ethical constraints, and further debate is needed. An ethical framework to support decision makers in balancing potential ethical problems against the need to do something would be helpful. Developing programmes that are sound from an ethical point of view is not only valuable from a moral perspective, but may also contribute to preventing overweight and obesity, as societal objections to a programme may hamper its effectiveness.


**BACKGROUND:** Improving parks in low income and minority neighborhoods may be a key way to increase physical activity and decrease overweight and obesity prevalence among children at the greatest risk. To advocate effectively for improved recreation infrastructure, public health advocates must understand the legal and policy landscape in which public recreation decisions are made. METHODS: In this descriptive legal analysis, we reviewed federal, state, and local laws to determine the authority of each level of government over parks. We then examined current practices and state laws regarding park administration in urban California and rural Texas. RESULTS: We identified several themes through the analysis: (1) multiple levels of governments are often involved in parks offerings in a municipality, (2) state laws governing parks vary, (3) local authority may vary substantially within a state, and (4) state law may offer greater authority than local jurisdictions use. CONCLUSIONS: Public health advocates who want to improve parks need to (1) think strategically about which levels of government to engage; (2) identify parks law and funding from all levels of government, including those not typically associated with local parks; and (3) partner with advocates with similar interests, including those from active living and school communities.


Background Nutrient-poor diets, especially if high in fat and sugar, are associated with an estimated 70 000 excess deaths annually in the UK. Multifactorial strategies are needed to address this burden of ill health. Government regulations provide a framework for action, setting standards that can be monitored. In this systematic scoping review, we considered the effectiveness of regulatory interventions to promote healthy eating. Methods The review (PROSPERO #CRD4201302998) comprised a systematic scoping review of regulatory interventions directed at healthy eating, and two in-depth reviews on (1) regulatory strategies to reduce artificial trans-fats in food and (2) school-based fruit and vegetable initiatives. As a systematic scoping review, we followed Cochrane and other systematic review guidance, but the search was designed to be comprehensive rather than specific, and data were synthesised to map the published work. We systematically searched for studies of regulations, rules, and legislation (regulation) to affect healthy eating. Regulations might seek to affect dietary behaviour (food consumption) or to control the nutritional content of food (food production) by specifying levels of individual nutrients such as artificial trans-fats or salt. Regulations to facilitate healthier choices may alter food environments though labelling, calorie display,
marketing or advertising controls, food served in schools or child care, zoning and urban planning regulations, restrictions to benefits schemes, and taxes or subsidies. Population-level initiatives and targeting population subgroups were included. Outcomes could be long term, intermediate, or short term. Primary research studies with a recognisable research method were included; those of indirect and non-regulatory interventions were excluded. We searched Medline, Embase, ISI Web of Knowledge, and EconLit from their start dates to the end of December, 2012; Google Scholar for grey literature, including unpublished research or government reports; and bibliographies by hand. 10% of titles and abstracts were independently double screened. A data extraction form, which also assessed risk of bias, was derived from Cochrane Effective Practice and Organisation of Care guidelines, with a subsample of studies extracted in duplicate. Findings We screened 38 162 de-duplicated records, of which 80 were included in the scoping review. Eligible studies were analysed by narrative synthesis because of their heterogeneity. Studies of nutrition claims and information labels on packaging or menus (11), and compliance with school food standards (25), occurred most frequently. 13 studies examined artificial trans-fat controls through maximum limits or labelling, which achieved good compliance since measured levels were consistently below legislated maxima. Six studies of school-based fruits and vegetables reported intake increased by 0·5 to 1 portion per day, although changes were not sustained after a programme ceased. The remaining studies reported on marketing regulations (four), taxes or subsidies (15), and multi-component regulations (six). We identified no studies assessing environments or enabling healthier choices through food distribution or retail. Interpretation Regulations can achieve compliance in terms of increasing the proportion of food items, people, or organisations that accord with the regulation; for example, the proportion of schools serving food that meets a required standard or the proportion of food items for sale that contain less than a legal maximum of artificial trans-fats. Whether regulations affect food choices, nutrition, obesity, or other health outcomes is unclear, since these effects have not been assessed. Strategies that reduce artificial trans-fats might improve diets without affecting individual behaviours, although reinforcing consumer engagement should strengthen public health messages while inducing food producers to reformulate. School-based fruits and vegetables encourage children to eat more during the programme, although the intention is also to encourage healthier food choices over the long term. Understanding the effectiveness and costs of regulatory interventions will highlight where government-led action could help promote healthier diets in the population.

Isganaitis, E; Levitsky, LL Preventing childhood obesity: can we do it? Current Opinion in Endocrinology Diabetes and Obesity 2008 15 18

Jenkin GL, Framing obesity: the Obes Rev. 2011 Drawing on submissions to the 2006-2007 New Zealand Inquiry into Obesity and Type 2 Diabetes, this


This article outlines how the food and marketing industries (industry) and the public health sector framed the issue of obesity. The analysis revealed that industry framed obesity as a consequence of poor lifestyle choices attributed largely to knowledge, cultural or other character deficits. Industry argued that lack of physical activity rather than increased food consumption was the dominant cause of obesity. In contrast, public health groups positioned obesity as a normal response to an obesogenic environment, characterized by the ubiquitous marketing and availability of low-cost, energy-dense/nutrient-poor foods. For public health groups, increased consumption of energy-dense/nutrient-poor foods was positioned as the dominant cause of obesity. Many public health submitters also suggested that social inequalities contributed to obesity. Industry emphasized education as the key solution to obesity, while public health groups argued for regulation of the activities of the food and marketing industries, and policies to address wider determinants of health and social inequalities. Identifying and documenting these frames, by making transparent the interests of the frame's sponsors, contributes to greater understanding of the wider policy context around obesity and provides useful information for public health advocacy.

BACKGROUND: Consumers regularly and predictably behave in ways that contradict standard assumptions of economic analysis such that they make decisions that prevent them from reaching rationally intended goals. These contradictions play a significant role with respect to consumers’ food decisions and the effect these decisions have on their health. DISCUSSION: Food decisions that are rationally derived include those that trade short-term gains of sensory pleasure (hedonic) for longer term gains of health and wellness (utilitarian). However, extra-rational food decisions are much more common. They can occur because of the contexts in which they are made—such as being distracted or pressed for time. In these contexts, heuristics (or rules of thumb) are used. Because food decisions are made with little cognitive involvement, food policies designed to appeal to highly cognitive thought (e.g., fat taxes, detailed information labels) are likely to have little impact. Furthermore, food marketing environments influence not only what foods consumers buy but also how much. As a general principle, when individuals do not behave in their own interest, markets will feed perverse and sub-optimal behaviors. CONCLUSION: Given the limited ability of individuals to retain and use accurate health information coupled with varying levels of self control, profit motivations of marketers can become predatory—though not necessarily malicious. Alternative policy options that do not restrict choice are outlined, which enable consumers to make better decisions. These options allow for profit motivations of marketers to align with the long-term well being of the consumer.

Colorado’s adult obesity rate has more than doubled since 1995, prompting its Department of Public Health and Environment to list obesity as its top prevention priority. To initiate comprehensive and effective action, the department used a well-known evidence-based public health framework developed by Brownson and others. This article describes the tools and process developed to conduct 2 of the 7 stages in this framework that challenge public health organizations: reviewing the literature and prioritizing effective strategies from that literature. Forty-five department staff participated in an intensive literature review training to identify physical activity and nutrition strategies that effectively address obesity and worked with external stakeholders to prioritize strategies for the state. Divided into 8 multidisciplinary teams organized by the setting where public health could exert leverage, they scanned the scientific literature to identify potential strategies to implement. These teams were trained to use standardized tools to critique findings, systematically abstract key information, and classify the evidence level for each of 58 identified strategies. Next, departmental subject matter experts and representatives from local public health and nonprofit health agencies selected and applied prioritization criteria to rank the 58 strategies. A team charter, group facilitation tools, and 2 web-based surveys were used in the prioritization stage. This process offered the staff...
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Sugar sweetened beverages (SSB) constitute a large percentage of energy consumed by youth. This paper reviews the literature on school nutrition policies and price interventions directed at youth SSB consumption. In addition to considering the direct effect of policies on SSB consumption, we provide an overview of the literature on how SSB consumption affects total energy intake (TEI) and BMI, as well as on how TEI affects BMI. By considering each of these links, we attempted to gauge the effect of policies directed at SSB consumption, as well as highlight areas that merit future research. We found that school nutrition and price policies reduce SSB consumption and that reduced SSB consumption is associated with a reduction in energy intake that can influence BMI. Policies directed at SSB consumption can play an important role in reducing youth overweight and obesity.

This article is the second in a two-part review of law's possible role in a regulatory approach to healthier nutrition and obesity prevention in Australia. As discussed in Part 1, law can intervene in support of obesity prevention at a variety of levels: by engaging with the health care system, by targeting individual behaviours, and by seeking to influence the broader, socio-economic and environmental factors that influence patterns of behaviour across the population. Part 1 argued that the most important opportunities for law lie in seeking to enhance the effectiveness of a population health approach. Part 2 of this article aims to provide a systematic review of the legal strategies that are most likely to emerge, or are worth considering, as part of a suite of policies designed to prevent population weight gain and, more generally, healthier nutrition. While the impact of any one intervention may be modest, their cumulative impact could be significant and could also create the conditions for more effective public education campaigns. This article addresses the key contenders, with particular reference to Australia and the United States.

CONTEXT: Financial incentives, including taxes and subsidies, can be used to encourage behavior change. They are common in transport policy for tackling externalities associated with use of motor vehicles, and in public health for influencing alcohol consumption and smoking behaviors. Financial incentives also offer policymakers a compromise between "nudging," which may be insufficient for changing habitual behavior, and regulations that restrict individual choice. EVIDENCE ACQUISITION: The literature review identified studies published between January 1997 and January 2012 of financial incentives relating to any mode of travel in which the impact on active travel, physical activity, or obesity levels was reported. It encompassed macroenvironmental schemes, such as gasoline taxes, and microenvironmental schemes, such as employer-subsidized bicycles. Five relevant reviews and 20 primary studies (of which nine were not included in the reviews) were identified. EVIDENCE SYNTHESIS: The results show that more-robust evidence is required if policymakers are to maximize the health impact of fiscal policy relating to transport schemes of this kind. CONCLUSIONS: Drawing on a literature review and insights from the SLOTH (sleep, leisure, occupation, transportation, and home-based activities) time-budget model, this paper argues that financial incentives may have a larger role in promoting walking and cycling than is acknowledged generally.

OBJECTIVES: School nutrition policies offer a promising avenue by which to promote healthy eating and reduce the risk of chronic disease. This article reviews policy components that could support healthy eating, examines their evidence base and suggests directions for future research. METHOD: Information was drawn from research and other literature written in English between 1994 and 2008. Guided by recommendations from the World Health Organization, evidence pertaining to five potential components of policies was identified and reviewed: foods available, the food environment, health education, health services and
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counselling, and family and community outreach. RESULTS: A limited number of evaluations have examined the impact of school nutrition standards and have shown a positive impact on food availability and student nutrient intake. Results have shown that behaviourally focused nutrition education, especially when combined with food services and other initiatives, may affect students’ eating habits positively but may not decrease obesity levels. Evidence pertaining to other potential policy subcomponents, such as limiting food marketing in schools, coordinating all food services and providing nutrition-related health services, is limited or lacking. CONCLUSION: Conceptually, comprehensive school nutrition policies comprising all five policy components offer an integrated and holistic approach to school nutrition. They could provide an umbrella to guide all school actions pertaining to nutrition and serve as a framework for accountability. Does conceptualization match reality? Further research is needed to determine how policy components affect implementation and outcomes.

Accumulating evidence shows that there seems to be a relation between the existence of a policy and at least some health behaviours of children. The purpose of this paper is to give a brief account of the value of policy as a tool that can be used at local level to guide action to promote healthy lifestyle in kindergartens. A policy can be defined as a set of adopted principles that guide the work of an organization and aim to achieve a well-defined goal, but only policies that rely on the active participation and involvement of concerned actors will be efficient. A number of studies suggest that local level policy on nutrition and on physical activity seems to have the potential to work as a good frame for the organizational efforts that the kindergarten undertakes in order to promote healthy eating and physical activity among children in kindergarten. However, kindergartens need to make the policy tool an active vehicle for an improvement of children's lifestyle behaviour and thus a dynamic instrument.

Obesity prevention efforts for school-aged children and adolescents are increasing in number. However, little has been done to address the problem in the preschool age. To address this age group, an evidence-based preschool programme on physical activity (PA) and nutrition is developed within the ToyBox project. Environmental influencing factors such as policies and competitive health promotion activities could inhibit or induce a successful health promotion programme. This paper describes an overview of existing policies, legislation and/or regulations and health promotion activities in the preschool setting. Method: data were gathered on policies and activities aiming to improve healthy eating and PA of young children (age group 4-6 years) in Belgium-Flanders, Bulgaria, Germany, Greece, Poland and Spain. A limited number of influencing policies, regulations and/or legislation exists; agenda setting of health promotion and policy evaluations in all relevant policy areas was lacking. Also, health promotion activities in preschool the setting did not exist in all six European countries and high-quality preschool-based health interventions existed in three of the six ToyBox countries.

Among affluent countries, those with market-liberal welfare regimes (which are also English-speaking) tend to have the highest prevalence of obesity. The impact of cheap, accessible high-energy food is often invoked in explanation. An alternative approach is that overeating is a response to stress, and that competition, uncertainty, and inequality make market-liberal societies more stressful. This ecological regression meta-study pools 96 body-weight surveys from 11 countries c. 1994-2004. The fast-food 'shock' impact is found to work most strongly in market-liberal countries. Economic insecurity, measured in several different ways, was almost twice as powerful, while the impact of inequality was weak, and went in the opposite direction. Issue addressed: Debate on obesity spans complex health and social issues drawing on varying representations of fat bodies. This paper seeks to determine whether the recent public health focus on social inequalities is reflected in broader policy debate on obesity. Methods: We reviewed public submissions to the
Baker, P  obesity policy discourse AUSTRALIA 2009 20 167 171 2008 Australian House Standing Committee on Health and Ageing inquiry into obesity. Using a qualitative framing approach we categorised the 95 submissions, analysing a sample of 20 of them, thereby, elucidating attitudes to obesity held by a range of interested stakeholders. Results: Two primary frames and one lesser frame were identified. While it was common for contributors to situate obesity as a problem of individuals, it was equally common for contributors to draw on environmental level arguments where obesity is located in structural forces outside of the individual. The range of attributing factors reflects disagreement as to the causes of obesity, although adherents to both the individual and environmental frames called for more government regulation and financial support. Only two submissions directed policy reform to issues of inequality. Conclusions: Empirically, this study represents a novel investigation of the role of public health ethics in obesity debate and policy. Politically, we highlight the relative lack of explicit attention given to inequality in the debate, even though social inequalities are demonstrably relevant.

Oyebode, O; Mindell, J Use of data from the Health Survey for England in obesity policy making and monitoring Obes Rev. 2013 Jun;14(6):463-76. Abstract: Summary Health data and statistics are the foundation of health policy. Over the last 20 years, numerous government documents have been commissioned and published to inform obesity strategies in the UK. The Health Survey for England, an annual cross-sectional survey of a nationally representative random general population sample in England, collects information on health, lifestyle and socioeconomic factors, physical measurements and biological samples. Heights and weights measured by the Health Survey for England are believed to have played a major part in promoting, shaping and evaluating obesity strategies. A formal review of how these data have been used has not been conducted previously. This paper reviews government documents demonstrating the contribution of Health Survey for England examination data to every stage of the policy making process: quantifying the obesity problem in England (e.g. Chief Medical Officer's reports); identifying inequalities in the burden of obesity (Acheson report); modelling potential future scenarios (Foresight); setting and monitoring specific, measurable, attainable targets (calorie reduction challenge in manufacturers’ Responsibility Deal); developing and informing strategies and clinical guidance; and evaluating the success of obesity strategies (Healthy Weights, Healthy Lives progress report). Measurement data are needed and used by governments to produce evidence-based strategies to combat obesity.

Paul-Ebbohimen V, Avenell A. Systematic review of the use of financial incentives in treatments for obesity and overweight. Obes Rev. 2008 Jul;9(4):355-67. Nine studies met the criteria for inclusion in this systematic review of randomized controlled trials of treatments for obesity and overweight involving the use of financial incentives, with reported follow-up of at least 1 year. All included trials were of behavioural obesity treatments. Justification of sample size and blinding procedure were not mentioned in any study. Attrition was well described in three studies and no study was analysed on an intention to treat basis. Participants were mostly women recruited through media advertisements. Mean age ranged from 35.7 to 52.8 years, and mean body mass index from 29.3 to 31.8 kg m(-2). Results from meta-analysis showed no significant effect of use of financial incentives on weight loss or maintenance at 12 months and 18 months. Further sub-analysis by mode of delivery and amount of incentives although also non-statistically significant were suggestive of very weak trends in favour of use of amounts greater than 1.2% personal disposable income, rewards for behaviour change rather than for weight, rewards based on group performance rather than for individual performance and rewards delivered by non-psychologists rather than delivered by psychologists.

Powell LM, Chriqui JF, Khan T, Wada R, Assessing the potential effectiveness of food and beverage taxes and subsidies for improving Obes Rev. 2013 Feb;14(2):110-28. Taxes and subsidies are increasingly being considered as potential policy instruments to incentivize consumers to improve their food and beverage consumption patterns and related health outcomes. This study provided a systematic review of recent U.S. studies on the price elasticity of demand for sugar-sweetened beverages (SSBs), fast food, and fruits and vegetables, as well as the direct associations of prices/taxes with body weight outcomes. Based on the recent literature, the price elasticity of demand for SSBs, fast food,
Chaloupka FJ. Will European agricultural policy for school fruit and vegetables improve public health? A review of school fruit and vegetable programmes.


Swinburn B; Vandevijvere S; Kraak V; et al. Monitoring and benchmarking government policies and actions to improve the healthiness of food environments: a proposed Government Healthy Food Environment Policy Index.

Obes Rev Volume: 14 Suppl 1 Year: 2013

Background: For the first time, public health, particularly obesity, is being seen as a driver of EU agricultural policy. In 2007, European Ministers of Agriculture were asked to back new proposals for school fruit and vegetable programmes as part of agricultural reforms. In 2008, the European Commission conducted an impact assessment to assess the potential impact of this new proposal on health, agricultural markets, social equality and regional cohesion. Methods: A systematic review of the effectiveness of interventions to promote fruit and/or vegetable consumption in children in schools, to inform the EC policy development process. Results: School schemes are effective at increasing both intake and knowledge. Of the 30 studies included, 70% increased fruits and vegetables (FV) intake, with none decreasing intake. Twenty-three studies had follow-up periods >1 year and provide some evidence that FV schemes can have long-term impacts on consumption. Only one study led to both increased fruit and vegetable intake and reduction in weight. One study showed that school fruit and vegetable schemes can also help to reduce inequalities in diet. Effective school programmes have used a range of approaches and been organized in ways which vary nationally depending on differences in food supply chain and education systems. Conclusions: EU agricultural policy for school fruits and vegetables schemes should be an effective approach with both public health and agricultural benefits. Aiming to increase FV intake amongst a new generation of consumers, it will support a range of EU policies including obesity and health inequalities.

Food and eating environments likely contribute to the increasing epidemic of obesity and chronic diseases, over and above individual factors such as knowledge, skills, and motivation. Environmental and policy interventions may be among the most effective strategies for creating population-wide improvements in eating. This review describes an ecological framework for conceptualizing the many food environments and conditions that influence food choices, with an emphasis on current knowledge regarding the home, child care, school, work site, retail store, and restaurant settings. Important issues of disparities in food access for low-income and minority groups and macro-level issues are also reviewed. The status of measurement and evaluation of nutrition environments and the need for action to improve health are highlighted.

Abstract: Government action is essential to increase the healthiness of food environments and reduce obesity, diet-related non-communicable diseases (NCDs), and their related inequalities. This paper proposes a monitoring framework to assess government policies and actions for creating healthy food environments. Recommendations from relevant authoritative organizations and expert advisory groups for reducing obesity and NCDs were examined, and pertinent components were incorporated into a comprehensive framework for monitoring government policies and actions. A Government Healthy Food Environment Policy Index (Food-EPI) was developed, which comprises a ‘policy’ component with seven domains on specific aspects of food environments, and an ‘infrastructure support’ component with seven domains to strengthen systems to prevent obesity and NCDs. These were revised through a week-long consultation process with international experts. Examples of good practice statements are proposed within each domain, and these will evolve into
Ethics and prevention of overweight and obesity: an inventory.


Abstract: Efforts to counter the rise in overweight and obesity, such as taxes on certain foods and beverages, limits to commercial advertising, a ban on chocolate drink at schools or compulsory physical exercise for obese employees, sometimes raise questions about what is considered ethically acceptable. There are obvious ethical incentives to these initiatives, such as improving individual and public health, enabling informed choice and diminishing societal costs. Whereas we consider these positive arguments to put considerable effort in the prevention of overweight indisputable, we focus on potential ethical objections against such an effort. Our intention is to structure the ethical issues that may occur in programmes to prevent overweight and/or obesity in order to encourage further debate. We selected 60 recently reported interventions or policy proposals targeting overweight or obesity and systematically evaluated their ethically relevant aspects. Our evaluation was completed by discussing them in two expert meetings. We found that currently proposed interventions or policies to prevent overweight or obesity may (next to the benefits they strive for) include the following potentially problematic aspects: effects on physical health are uncertain or unfavourable; there are negative psychosocial consequences including uncertainty, fears and concerns, blaming and stigmatization and unjust discrimination; inequalities are aggravated; inadequate information is distributed; the social and cultural value of eating is disregarded; people's privacy is disrespected; the complexity of responsibilities regarding overweight is disregarded; and interventions infringe upon personal freedom regarding lifestyle choices and raising children, regarding freedom of private enterprise or regarding policy choices by schools and other organizations. The obvious ethical incentives to combat the overweight epidemic do not necessarily override the potential ethical constraints, and further debate is needed. An ethical framework to support decision makers in balancing potential ethical problems against the need to do something would be helpful.

Developing programmes that are sound from an ethical point of view is not only valuable from a moral perspective, but may also contribute to preventing overweight and obesity, as societal objections to a programme may hamper its effectiveness.

The effect of fiscal policy on diet, obesity and chronic disease: a systematic review.


OBJECTIVE: To assess the effect of food taxes and subsidies on diet, body weight and health through a systematic review of the literature. METHODS: We searched the English-language published and grey literature for empirical and modelling studies on the effects of monetary subsidies or taxes levied on specific food products on consumption habits, body weight and chronic conditions. Empirical studies were dealing with an actual tax, while modelling studies predicted outcomes based on a hypothetical tax or subsidy. FINDINGS: Twenty-four studies met the inclusion criteria: 13 were from the peer-reviewed literature and 11 were published on line. There were 8 empirical and 16 modelling studies. Nine studies assessed the impact of taxes on food consumption only, 5 on consumption and body weight, 4 on consumption and disease and 6 on body weight only. In general, taxes and subsidies influenced consumption in the desired direction, with larger taxes being associated with more significant changes in consumption, body weight and disease incidence. However, studies that focused on a single target food or nutrient may have overestimated the impact of taxes by failing to take into account shifts in consumption to other foods. The quality of the evidence was generally low. Almost all studies were conducted in high-income countries. CONCLUSION: Food taxes and subsidies have the potential to contribute to healthy consumption patterns at the population level. However, current evidence is generally of low quality and the empirical evaluation of existing taxes is a research priority, along
with research into the effectiveness and differential impact of food taxes in developing countries.

**Trivedi NJ, Fields J, Mechanick CH, Klein M, Mechanick JI.**


**OBJECTIVE:** To review federal, state, and local antiobesity policies and to assess their relationships with obesity growth rates. **METHODS:** We performed a literature review, acquired data from governmental Internet sources, and assessed the statistical correlation between state antiobesity policies and the concavity in obesity growth rates. **RESULTS:** State-by-state antiobesity policies in 3 categories-taxation of sugared beverages and snacks, physical education and physical activity in schools, and funding for bicycle trails-were found to have no significant immediate correlation with the change in obesity growth rates. **CONCLUSIONS:** Ineffective antiobesity legislation may be attributable to shortcomings in policy implementation. Behavioral economics and addressing large-scale cultural issues may have critical roles in promoting more healthful lifestyles. We propose that a systems-based paradigm evaluating complex interactions among pathophysiological, cultural, political, economic, and behavioral components can improve antiobesity policy implementation and should therefore be a research focus.
### Annex 8 Co-morbidities linked to obesity, which implicate socio-economic or related inequalities.

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<td>Maternal body mass index and the risk of fetal death, stillbirth, and infant death: a systematic review and meta-analysis.</td>
<td>JAMA. 2014 Apr 16;311(15):15 36-46.</td>
<td>Evidence suggests that maternal obesity increases the risk of fetal death, stillbirth, and infant death; however, the optimal body mass index (BMI) for prevention is not known. <strong>OBJECTIVE:</strong> To conduct a systematic review and meta-analysis of cohort studies of maternal BMI and risk of fetal death, stillbirth, and infant death. <strong>DATA SOURCES:</strong> The PubMed and Embase databases were searched from inception to January 23, 2014. <strong>STUDY SELECTION:</strong> Cohort studies reporting adjusted relative risk (RR) estimates for fetal death, stillbirth, or infant death by at least 3 categories of maternal BMI were included. <strong>DATA EXTRATION:</strong> Data were extracted by 1 reviewer and checked by the remaining reviewers for accuracy. Summary RRs were estimated using a random-effects model. <strong>MAIN OUTCOMES AND MEASURES:</strong> Fetal death, stillbirth, and neonatal, perinatal, and infant death. <strong>RESULTS:</strong> Thirty eight studies (44 publications) with more than 10,147 fetal deaths, more than 16,274 stillbirths, more than 4311 perinatal deaths, 11,294 neonatal deaths, and 4983 infant deaths were included. The summary RR per 5-unit increase in maternal BMI for fetal death was 1.21 (95% CI, 1.09-1.35; I^2=77.6%; n=7 studies); for stillbirth, 1.24 (95% CI, 1.18-1.30; I^2=80%; n=18 studies); for perinatal death, 1.16 (95% CI, 1.00-1.35; I^2=93.7%; n=11 studies); for neonatal death, 1.15 (95% CI, 1.07-1.23; I^2=78.5%; n=12 studies); and for infant death, 1.18 (95% CI, 1.09-1.28; I^2=79%; n=4 studies). The test for nonlinearity was significant in all analyses but was most pronounced for fetal death. For women with a BMI of 20 (reference standard for all outcomes), 25, and 30, absolute risks per 10,000 pregnancies for fetal death were 76, 82 (95% CI, 76-88), and 102 (95% CI, 93-112); for stillbirth, 40, 48 (95% CI, 46-51), and 59 (95% CI, 55-63); for perinatal death, 66, 73 (95% CI, 67-81), and 86 (95% CI, 76-98); for neonatal death, 20, 21 (95% CI, 19-23), and 24 (95% CI, 22-27); and for infant death, 33, 37 (95% CI, 34-39), and 43 (95% CI, 40-47), respectively. <strong>CONCLUSIONS AND RELEVANCE:</strong> Even modest increases in maternal BMI were associated with increased risk of fetal death, stillbirth, and neonatal, perinatal, and infant death. Weight management guidelines for women who plan pregnancies should take these findings into consideration to reduce the burden of fetal death, stillbirth, and infant death.</td>
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<td>Birks S,</td>
<td>A systematic review of the impact of weight loss on cancer incidence and mortality.</td>
<td>Obes Rev. 2012 Oct;13(10):86 8-91.</td>
<td>Obesity is well recognized as a significant risk factor for certain cancers; however, a corresponding risk reduction with weight loss is not yet clearly defined. This review aims to examine the literature investigating the effect of all types of weight loss on cancer incidence and mortality, and to more clearly describe the relationship between these two factors. A literature search identified 34 publications reporting weight loss data in relation to cancer incidence or mortality. All except one were observational studies and the majority used self-reported weights and did not define intentionality of weight loss. 16/34 studies found a significant inverse association between weight loss and cancer incidence or mortality. The remainder returned null findings. The observed association was more consistently seen in studies that investigated the effect of intentional weight loss (5/6 studies) and the risk reduction was greatest for obesity-related cancers and in women. In conclusion, intentional weight loss does result in a decreased incidence of cancer, particularly female obesity-related cancers. However, there is a need for further evaluation of sustained intentional weight loss in the obese with less reliance on self-reported weight data and more focus on male populations.</td>
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<td>Backholer K,</td>
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<td>O'Brien P, Brown W.</td>
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<td>Bivanco-Lima D,</td>
<td>Cardiovascular risk in individuals with depression.</td>
<td>Rev Assoc Med Bras. 2013 May-Jun;59(3):298-304.</td>
<td>Depression and cardiovascular diseases (CVD) are both common illnesses. Several studies demonstrated that depressed individuals have higher mortality compared to age- and gender-matched population, with an excess of cardiovascular deaths. There is a bidirectional association between depression and CVD. Several factors can interact and influence this relationship: poverty and social inequality, reduced accessibility to health care, biological alterations (as reduced heart rate variability, endothelial dysfunction, increased inflammation and platelet function, and hyperactivity of hypothalamic-pituitary-adrenal axis), side effects of psychiatric medication, lower adherence to medical treatments, and higher frequency of cardiovascular risk factors (higher tobacco use, physical inactivity, obesity, diabetes mellitus). This article aims to update the current evidence of the possible mechanisms involved in the association between depression and CVD.</td>
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BACKGROUND: Psychiatric patients have more physical health problems and much shorter life expectancies compared to the general population, due primarily to premature cardiovascular disease. A multi-causal model which includes a higher prevalence of risk factors has provided a valid explanation. It takes into consideration not only risks such as gender, age, and family history that are inherently non-modifiable, but also those such as obesity, smoking, diabetes, hypertension, and dyslipidemia that are modifiable through behavioural changes and improved care. Thus, it is crucial to focus on factors that increase cardiovascular risk. Obesity in particular has been associated with both the lifestyle habits and the side effects of antipsychotic medications. The present systematic review and meta-analysis aims at collecting and updating available evidence on the efficacy of non-pharmacological health promotion programmes for psychotic patients in randomised clinical trials. METHODS: We systematically reviewed the randomised controlled trials from 1990 onward, in which psychoeducational and/or cognitive-behavioural interventions aimed at weight loss or prevention of weight gain in patients with psychosis had been compared to treatment as usual. We carried out a meta-analysis and pooled the results of the studies with Body Mass Index as primary outcome. RESULTS: The results of the meta-analysis show an effect toward the experimental group. At the end of the intervention phase there is a -0.98 kg/m(2) reduction in the mean Body Mass Index of psychotic subjects. Notably, prevention studies with individual psychoeducational programmes that include diet and/or physical activity seem to have the highest impact. CONCLUSIONS: When compared with treatment as usual in psychotic patients, preventive and individual lifestyle interventions that include diet and physical activity generally prove to be effective in reducing weight. Physical screening and monitoring programmes are well accepted by patients and can be implemented in a variety of settings. A weight loss of 0.98 points in the Body Mass Index corresponds to a loss of 3.12% of the initial weight. This percentage is below the 5% to 10% weight loss deemed sufficient to improve weight-related complications such as hypertension, type II diabetes, and dyslipidemia. However, it is reported that outcomes associated with metabolic risk factors may have greater health implications than weight changes alone. Therefore, in addition to weight reduction, the assessment of metabolic parameters to monitor other independent risk factors should also be integrated into physical health promotion and management in people with mental disorders.

OBJECTIVE: To systematically review published primary research on the development or validation of risk scores that require only self-reported or available clinical data to identify undiagnosed Type 2 Diabetes Mellitus (T2DM). METHODS: A systematic literature search of Medline and EMBASE was conducted until January 2011. Studies focusing on the development or validation of risk scores to identify undiagnosed T2DM were included. Risk scores to predict future risk of T2DM were excluded. RESULTS: Thirty-one studies were included; 17 developed a new risk score, 14 validated existing scores. Twenty-six studies were conducted in high-income countries. Age and measures of body mass/fat distribution were the most commonly used predictor variables. Studies developing new scores performed better than validation studies, with 11 reporting an AUC of >0.80 compared to one validation study. Fourteen validation studies reported sensitivities of <80%. The performance of scores did not differ by the number of variables included or the country setting. CONCLUSIONS: There is a proliferation of newly developed risk scores using similar variables, which sometimes perform poorly upon external validation. Future research should explore the recalibration, validation and applicability of existing scores to other settings, particularly in low/middle income countries, and on the utility of scores to improve diabetes-related outcomes.

BACKGROUND: Estimated number of the Roma people in central-eastern Europe cannot be precisely appreciated, but official data suggest that in the 2004 they were approximately 4.2 million. At this time, there are few available data about the health status of the Roma people, mostly assessing genetic and infectious diseases, which reflect poverty, overcrowding, and lack of education. There is even less data regarding non-communicable and chronic diseases, especially cardiovascular diseases. METHODS: We searched the published literature on the cardiovascular risk factors in Roma people using PubMed from January 2000 to July 2011. The searching criteria were: (1) randomized, prospective observational, retrospective and meta-analysis; (2) adult patients with cardiac diseases or cardiovascular risk factors; (3) data available for cardiovascular patients. Search terms...
Dode, Maria Alice Souza de Oliveira I; dos Santos, Iná S
Non classical risk factors for gestational diabetes mellitus: a systematic review of the literature.

Type 2 diabetes in France: epidemiology, trends of medical care, social and economic burden.

Fisher-Hoch SP, Mathews CE, McCormick JB
Obesity, diabetes and pneumonia: the menacing interface of non-communicable and infectious diseases.

Included dyslipidemia, obesity, tobacco, hypertension, and diabetes mellitus. RESULTS: Twenty-five studies were identified. Approximately 75% of them were related to just four countries: Slovakia, Croatia, Czech Republic, and Serbia. This paper is a review based on existing literature concerning classical risk factors in Roma people with emphasis on their ethnic features.

Despite limited data, the results showed that this ethnicity has the incriminated risk factors more frequently than the majority and consequently a higher cardiovascular morbidity rate. CONCLUSIONS: Quantification of the cardiovascular risk factor and their implication in the shortening of life expectancy in Roma population was a provocation due to a paucity of reliable data. At this time, we should pay more attention on the Roma health issues and the cultural concerns that might affect them in the context of borderless Europe.

Abstract: Age, obesity and family history of diabetes are well known risk factors for gestational diabetes mellitus. Others are more controversial. The objective of this review is to find evidence in the literature that justifies the inclusion of these other conditions among risk factors. The MEDLINE, Cochrane, LILACS and Pan American Health Organization databases were searched, covering articles dating from between 1992 and 2006. Keywords were used in combination (AND) with gestational diabetes mellitus separately and with each one of the risk factors studied. The methodological quality of the studies included was assessed, resulting in the selection of 41 papers. Most studies investigating maternal history of low birth weight, low stature, and low level of physical activity have found positive associations with gestational diabetes mellitus. Low socioeconomic levels, smoking during pregnancy, high parity, belonging to minority groups, and excessive weight gain during pregnancy presented conflicting results. Publication bias cannot be ruled out. Standardization of techniques, cutoff points for screening and diagnosis, as well as studies involving larger sample sizes would allow future meta-analyses.

Between 2001 and 2007, treatments for type 2 diabetes have increased and therapeutic choices have improved. However, glycemic control remains insufficient. Cardiovascular risk control has widely increased. Statins, hypertensive and antithrombotic treatments are more often prescribed. Blood pressure and LDL cholesterol levels have decreased whatever age. However, progress remains possible, especially regarding blood pressure control. Obesity has increased between 2001 and 2007 to reach 41% whereas the frequency of dietetic visits has decreased. Insulin therapy (more than obesity) determines the frequency of dietetic visits: dietetic care happens too late. Important improvements of the quality of follow-up are observed. However, fundus exams and more specifically albuminuria measurement remain insufficiently performed and their progression is too slow, as well as the podiatric examination. Only 10% of people with type 2 diabetes have an endocrinology visit, which has been stable between 2001 and 2007. Information expectations of people with type 2 diabetes are strong, especially for diet. Education demand is lower but more important for people who have already benefited. This improvement of medical care leads to an increase in the cost of reimbursements. The consequences of diabetes, more than the disease itself, alter the quality of life.

OBJECTIVES: To review current knowledge on the epidemiological, clinical and biological impact of the pandemic of obesity and diabetes on pneumonias. METHODS: We conducted a literature review using PubMed and EMBASE, supplemented by various sources. Given the disparate and fragmented nature of the literature, a formal systematic review was not possible. RESULTS: In 2008, globally 10% of men and 14% of women were obese and an estimated 371 million had diabetes; half undiagnosed and many obese. Numbers are rising rapidly in low- and middle-income countries where the majority reside, but reliable data are lacking. The most frequent pneumonias in obesity and diabetes are tuberculosis, influenza and pneumococcal, staphylococcal and opportunistic pathogens. Diabetes impacts tuberculosis control and increases drug resistance and mortality. Mortality and morbidity from pneumococcal pneumonia and influenza are increased in obesity and diabetes. In addition to mechanical and physiological effects, there are considerable immunological abnormalities characterised by chronic, low-grade inflammation. Simultaneous up-regulation and dysregulation of both innate and adaptive immune responses impair control and killing of invading organisms. Prevention in those at risk is poorly practised, although screening for tuberculosis in diabetes is beginning in high-burden settings. CONCLUSIONS: Pneumonia is a threat globally in obesity and diabetes with increased incidence and severity of disease. There is uncertainty about whether vaccines are equally effective in those with obesity and diabetes. Increased epidemiological, clinical and biological knowledge will be crucial to face this 21st century challenge.
BACKGROUND: Stillbirth rates in high-income countries have shown little or no improvement over the past two decades. Prevention strategies that target risk factors could be important in rate reduction. This systematic review and meta-analysis was done to identify priority areas for stillbirth prevention relevant to those countries.

METHODS: Population-based studies addressing risk factors for stillbirth were identified through database searches. The factors most frequently reported were identified and selected according to whether they could potentially be reduced through lifestyle or medical intervention. The numbers attributable to modifiable risk factors were calculated from data relating to the five high-income countries with the highest numbers of stillbirths and where all the data required for analysis were available. Odds ratios were calculated for selected risk factors, from which population-attributable risk (PAR) values were calculated.

FINDINGS: Of 6963 studies initially identified, 96 population-based studies were included. Maternal overweight and obesity (body-mass index ≥25 kg/m²) was the highest ranking modifiable risk factor, with PARs of 8-18% across the five countries and contributing to around 8000 stillbirths (>22 weeks' gestation) annually across all high-income countries. Advanced maternal age (>35 years) and maternal smoking yielded PARs of 7-11% and 4-7%, respectively, and each year contribute to more than 4200 and 2800 stillbirths, respectively, across all high-income countries. In disadvantaged populations maternal smoking could contribute to 20% of stillbirths. Primiparity contributes to around 15% of stillbirths. Of the pregnancy disorders, small size for gestational age and abruptio placentae are the highest PARs (23% and 15%, respectively), which highlights the notable role of placental pathology in stillbirth. Pre-existing diabetes and hypertension remain important contributors to stillbirth in such countries.

INTERPRETATION: The raising of awareness and implementation of effective interventions for modifiable risk factors, such as overweight, obesity, maternal age, and smoking, are priorities for stillbirth prevention in high-income countries.

FUNDING: The Stillbirth Foundation Australia, the Department of Health and Ageing, Canberra, Australia, and the Mater Foundation, Brisbane, Australia.

Abstract: Obesity is a major global health concern affecting all ages, socioeconomic groups, and countries. Although men have higher rates of overweight, women have higher rates of obesity. In the United States, more than 60% of women are overweight or obese, with slightly more than one-third considered frankly obese. Obesity is a major risk factor for noncommunicable diseases such as diabetes mellitus, cardiovascular disease, hypertension, stroke, and specific cancers. Obesity is associated with increased mortality for all cancers, with the highest death rates occurring in the heaviest women. Obesity can contribute to missed diagnoses, nondiagnostic results of imaging studies, imaging examination cancellation because of weight or girth restrictions, scheduling of inappropriate examinations, and increased radiation dose exposure. The utility of the clinical examination is often limited in the obese woman, which results in an even greater reliance on imaging; however, the obese woman may experience a lowered quality of and less access to medical imaging. Recognition of equipment limitations, imaging artifacts, optimization techniques, and appropriateness of modality choices is critical to providing good patient care to this health-challenged group. The clinical indication, the patient's weight, and the body diameters are three key factors to consider when choosing the most appropriate examination. Familiarity with the optimization of imaging techniques across all modalities is important to convert potentially suboptimal examinations into diagnostic-quality studies. The aim of this review is to identify key areas in which obesity affects the imaging care of women with pelvic conditions and to outline strategies to address these areas. © RSNA, 2012.

Renal cell carcinoma (RCC), the most common form of kidney cancer, initially has an asymptomatic clinical course; 25-30% of patients present with metastatic disease at time of diagnosis. Worldwide incidence and mortality rates are rising at a rate of approximately 2-3% per decade. Metastatic RCC (mRCC) is one of the most treatment-resistant malignancies; outcomes are generally poor and median survival after diagnosis is less than one year. Surgery and chemotherapy have limited or no effect, leaving mRCC patients underserved in the realm of cancer treatment. As the world's population ages and the prevalence of risk factors (obesity, hypertension) increases, the burden of mRCC is predicted to increase significantly. With a shift in treatment of mRCC to novel therapies, such as molecularly targeted therapies (MTTs) (e.g., sorafenib and sunitinib), clinicians, payers, and other healthcare decision-makers must re-evaluate the optimal role for new treatments. Timely understanding of the burden of mRCC on individuals and society clearly is needed at this juncture. Using a comprehensive literature review, we assessed the
Hayden, C; Bowler, JO; Chambers, S; Freeman, R; Humphris, G; Richards, D; Cecil, JE

Objectives: Obesity and dental caries have become increasingly prevalent challenges to public health. Research results into the relationship between obesity and dental caries in children have been mixed and inconclusive. The aim of this review and meta-analysis was to provide evidence to quantify the relationship between obesity and dental caries in children using a systematic approach. Methods: A systematic search for papers between 1980 and 2010 addressing childhood obesity and dental caries was conducted and a random effects model meta-analysis applied. Results: Fourteen papers met the selection criteria. Overall, a significant relationship between childhood obesity and dental caries (effect size = 0.104, P = 0.049) was found. When analysed by dentition type (primary versus permanent), there was a nonsignificant association of obesity and dental caries in permanent and primary dentitions, yet on accounting only for standardized definitions for assessment of child obesity using body mass index, a strong significant relationship was evident in children with permanent dentitions. Moderating for study country of origin (newly ‘industrialized’ versus industrialized) showed a significant relationship between obesity and dental caries in children from industrialized but not newly industrialized countries. Cofactors such as age and socioeconomic class were significant moderators. Conclusions: Future analysis should investigate these confounding variables, helping shape the future of obesity management programmes and oral health interventions, through determining common risk factors.

Heller T, Sorensen A.

Promoting healthy aging in adults with developmental disabilities.


This review addresses the research on health promotion for adults aging with developmental disabilities. First, it examines barriers to healthy aging, including health behaviors and access to health screenings and services. Second, it reviews the research on health promotion interventions, including physical activity interventions, health education interventions, and health care and screening preventive services. This review found evidence that the three types of health promotion interventions, physical activity and exercise, health education and mixed approaches, and health care and screening services can play a role in reducing health disparities for adults with developmental disabilities. Studies focusing primarily on physical activity and exercise tended to show improved fitness and some success in reducing obesity, reducing maladaptive behaviors, and improving alertness, though none of these studies showed longer term health benefits. The studies that took a more holistic approach by also including exercise and nutrition health education tended to show some evidence not only for changes in weight reduction but also for changes in health behavior attitudes (exercise self-efficacy, outcomes expectations, and barriers) and behaviors (e.g., dietary intake) and to a limited extent for improved life satisfaction. The literature on health screenings and services demonstrated the important role of health checks in identifying previously undetected conditions. These conditions include life threatening ones such as cancer and cardio-vascular disease, as well as less serious conditions that are often more common among adults with developmental disabilities and could be treated if caught early.

Juonala, M; Viikari, JSA; Raitakari, OT

Main findings from the prospective Cardiovascular Risk in Young Finns Study. This prospective multicenter study initiated in 1980 (N = 3596, baseline age 3-18 years) has followed up study participants over 30 years to investigate childhood risk factors for cardiometabolic outcomes in adulthood. Recent findings Childhood BMI, socioeconomic status, parental risk factor status, as well as genetic polymorphisms are independent predictors of adult obesity, hypertension, and dyslipidemia. Results from the Young Finns Study and other follow-up studies have shown that conventional childhood risk factors, such as dyslipidemia, obesity, elevated blood pressure and smoking, are predictive of subclinical atherosclerosis in young adults. Recent findings suggest that childhood lifestyle (diet, physical activity) is associated with subclinical atherosclerosis and its progression in adulthood. Concerning the timing of risk factor measurements, they seem to be predictive of adult atherosclerosis from the age of 9 onwards. From a clinical point of view, a recent observation suggesting that the adverse cardiometabolic effects of childhood overweight/obesity are reversed among those who become nonobese adults, provides optimism during the days of obesity epidemic. Summary Current data suggest that childhood risk factors are
Knutson KL. 
Sociodemographic and cultural determinants of sleep deficiency: implications for cardiometabolic disease risk.

Litwic, A; Edwards, MH; Dennison, EM; Cooper, C
Epidemiology and burden of osteoarthritis

Liu J, Zhang A, Li L.
Sleep duration and overweight/obesity in children: review and implications for pediatric nursing.

Malik, Sarah; Mitchell, James E; Engel, Scott; et al
Psychopathology in bariatric surgery candidates: a review of studies using structured diagnostic interviews.

Sociodemographic and cultural determinants of sleep deficiency: implications for cardiometabolic disease risk.


BRITISH MEDICAL BULLETIN
2013 105 185 199


Compr Psychiatry Volume: 55 Year: 2014

associated with higher risk of subclinical atherosclerosis in adulthood. Future studies among aging cohorts followed since childhood will provide data on their influence on clinical cardiovascular outcomes.

Sleep is a biological imperative associated with cardiometabolic disease risk. As such, a thorough discussion of the sociocultural and demographic determinants of sleep is warranted, if not overdue. This paper begins with a brief review of the laboratory and epidemiologic evidence linking sleep deficiency, which includes insufficient sleep and poor sleep quality, with increased risk of chronic cardiometabolic diseases such as obesity, diabetes and hypertension. Identification of the determinants of sleep deficiency is the critical next step to understanding the role sleep plays in human variation in health and disease. Therefore, the majority of this paper describes the different biopsychosocial determinants of sleep, including age, gender, psychosocial factors (depression, stress and loneliness), socioeconomic position and race/ethnicity. In addition, because sleep duration is partly determined by behavior, it will be shaped by cultural values, beliefs and practices. Therefore, possible cultural differences that may impact sleep are discussed. If certain cultural, ethnic or social groups are more likely to experience sleep deficiency, then these differences in sleep could increase their risk of cardiometabolic diseases. Furthermore, if the mechanisms underlying the increased risk of sleep deficiency in certain populations can be identified, interventions could be developed to target these mechanisms, reduce sleep differences and potentially reduce cardiometabolic disease risk.

Osteoarthritis (OA) is a degenerative joint disease involving the cartilage and many of its surrounding tissues. Disease progression is usually slow but can ultimately lead to joint failure with pain and disability. OA of the hips and knees tends to cause the greatest burden to the population as pain and stiffness in these large weight-bearing joints often leads to significant disability requiring surgical intervention. The article reviews the existing data on epidemiology of osteoarthritis and the burden of the disease. Symptoms and radiographic changes are poorly correlated in OA. Established risk factors include obesity, local trauma and occupation. The burden of OA is physical, psychological and socioeconomic. Available data does not allow definite conclusion regarding the roles of nutrition, smoking and sarcopenia as risk factors for developing OA. Variable methods of diagnosing osteoarthritis have significantly influenced the comparability of the available literature. Further research is required to fully understand how OA affects an individual physically and psychologically, and to determine their healthcare need.

PURPOSE: The purpose of this study was to review evidence from the last 5 years (2006-2011) regarding a relationship between sleep duration and childhood overweight/obesity. CONCLUSIONS: Among the 25 studies selected from PubMed and Web of Knowledge databases, all indicated significant associations between short sleep duration and childhood overweight/obesity. Studies explored a range of pediatric populations, methodologies, and potential contributing factors. PRACTICE IMPLICATIONS: Childhood sleep duration may be a modifiable risk factor in preventing obesity. In addition to identifying and assessing patients’ sleep habits, nurses play important roles as educators regarding the importance of adequate sleep and promoting it in children.

Abstract: Psychiatric disorders are not uncommon among severely obese patients who present for bariatric surgery. This paper (1) reviews the results of the published studies using the structured interviews to assess psychopathology in bariatric surgery candidates; (2) compares the prevalence rates of psychiatric disorders across these studies with the data from other population samples; and (3) assesses whether sociodemographic variables appear to affect these prevalence rates. We searched online resources, PubMed, PsychINFO and reference lists of all the relevant articles to provide an overview of evidence so far and highlight some details in the assessment and comparisons of different samples in different countries. The prevalence estimates in the non-treatment obese group did not appear to differ substantially from the general population group in the US or the Italian population samples, although they were relatively higher for the German population. However, the rates of psychopathology in the bariatric surgery candidates were considerably higher than the other two population groups in all the samples. Overall, the most common category of lifetime Axis I disorders in all the studies was affective disorders, with anxiety disorders being the most common category of current Axis I disorders. Certain demographic characteristics are also associated with higher rates of psychopathology, such as, female gender, low socioeconomic status, higher BMI. Overall, methodological and sociodemographic differences make these studies difficult to compare and these differences should be taken into account when
Introduction: Obesity and overweight (O/OW) in children have reached epidemic character and both are a risk factor for chronic serious health problems. This study was performed in order to research the relationship between O/OW and dental caries.

Material and methods: A SR was conducted between 2007-2011 in tertiary information sources (Trip, Cochrane and NGC), secondary (PubMed, IME, MEDES IBECS) and primary (reference checks). Inclusion criteria: Patients (children 0-18 years), risk factor (O/OW) and outcomes (primary: caries; secondary: other oral pathology). Data collected: Author, year, country, type of study, patient age, cases (with O/OW) and controls (body mass index-BMI-normal or low), comorbidities, socioeconomic status, prevalence of caries and other results in oral health. Results: Forty-seven documents were located, 37 of them met the criteria of the RS, temporarily distributed in 2007 (6 articles), 2008 (6), 2009 (5), 2010 (11) and 2011 (9). They presented a very wide degree of heterogeneity (in patients, intervention, primary outcome and type of design), which does not allow to apply quantitative synthesis of data (meta-analysis). Studies are conflicting regarding the relationship between BMI and frequency of dental caries (DMFT, dmft). Conclusions: Systematic review allows dentists and pediatricians to know the relationship between O/OW and dental caries.

Abstract: The incidence and prevalence of metabolic syndrome and chronic kidney disease (CKD) are increasing in the US population as a whole, but much more rapidly among ethnic minorities. Recent studies have shown that metabolic syndrome is an independent risk factor for the development of incident CKD in African Americans and American Indians distinct from its impact on cardiovascular and all-cause mortality. The pathogenesis of metabolic syndrome in ethnic minorities often is multifactorial. We review the myriad facets of the impact of the metabolic syndrome on the pathophysiology of CKD in minorities. In addition to classic biochemical and physiologic factors, increasing attention is being drawn to the major role of novel factors such as adiponectin and socioeconomic and cultural factors in the development of obesity and insulin resistance; an understudied area that may modulate clinically relevant consequences of biochemical and pathophysiologic aberrations. We present an integrated pathophysiologic viewpoint that incorporates insights from basic science, socioeconomic inquiry, and clinical studies into a framework for clinical practice and investigation. Copyright (c) 2010 Elsevier Inc. All rights reserved.

Purpose of review We discuss recent published epidemiologic data regarding risk factors for incident and progressive knee osteoarthritis and related knee pain to identify targets for primary and secondary prevention. We also discuss recently identified methodologic challenges to the study of knee osteoarthritis, particularly osteoarthritis progression. Recent findings Recent epidemiologic studies and systematic reviews of knee osteoarthritis have confirmed that being overweight and obese, and knee injuries increase the risk for incident knee osteoarthritis. Biomechanical risk factors such as leg-length inequalities and malalignment require further study. Obesity also appears to play a role in accelerating osteoarthritis worsening. However, with the exception of malalignment, no risk factors for knee osteoarthritis progression have been identified. Novel approaches to the study of knee pain have demonstrated a strong association between structural abnormalities and knee pain, contrary to the so-called' structure-symptom discordance, as well as between fluctuations of knee pain with changes in specific structural lesions. A number of methodologic issues, including conditioning on an intermediate stage of disease and depletion of susceptibles may explain, in part, the difficulty in identifying risk factors for knee osteoarthritis. Summary There is strong epidemiologic evidence that being overweight or obese and knee injury are associated with increased risk of developing knee osteoarthritis. Further study is required to confirm associations of leg-length inequality and malalignment with incident knee osteoarthritis. Few new risk factors for progression of knee osteoarthritis have been identified in the past few years. Without such knowledge, secondary prevention of osteoarthritis remains challenging.
Rudnicka AR, Wather AK, Kaye SJ, Eriksson JG, Osmond C, Cook DG.

Roles of gender, age, race/ethnicity, and socioeconomics in obstructive sleep apnea syndromes

CURRENT OPINION IN PULMONARY MEDICINE 2012 18 568 573

Ralls, FM; Grigg- Damberger, M

Impact of low socioeconomic status on the demography and co-morbidities of asthma

REVUE DES MALADIES RESPIRATOIRES 2008 25 275 281

Riachy, M; Khalil, PB; Khayat, G; Koeissy, Y; Yamout, R; Mitri, R; Saade- Riachy, C; Couche, N; Taan, G; Geahchan, N

Are joint injury, sport activity, physical or occupational


Asthma is a frequent and serious chronic respiratory disease which is sometimes fatal. It involves all ages and all social subclasses. The goal of our study was to determine the demography of asthma in a low socio-economic community in Lebanon and to describe its association with various epidemiologic factors. Materials and methods The computerized data of 44,814 patients of a nongovernmental organization (Hariri Foundation), in Lebanon were reviewed. Asthmatic patients diagnosed by a health professional on the basis of medical criteria during the period from January 2003 to June 2005 were included in the analysis. The socio-economic characteristics of this population were retrieved and their geographical distributions were depicted. The study focused on the association of asthma with cutaneous and ocular allergies, depression, obesity and alcohol consumption. Results The majority of asthmatic patients (75%) belonged to a low socio-economic environment with a salary lower than $200 per month. 31% were illiterate. 583 (1.3%) of patients on the database were asthmatic. The rate in children was higher (2.08%) than in adults (1.09%). The majority of asthma occurred among subjects from Bekaa valley and South Lebanon. Asthma was associated more strongly with being an ex-smoker (OR 4.37; 95% CI 2.38, 8.02) than being a current smoker (OR 1.44; 95% CI 1.11, 1.87). A significant and strong association was found with depression (OR 25.6; 95% CI 3.32, 197.6), obesity (OR 4.09; 95% CI 1.31, 12.73) and with regular alcohol consumption (OR 11.78; 95% CI 1.55, 89.44). Conclusion This study describes the association of asthma in this population with low socio-economic status. By defining the demographic characteristics of the asthma population the Ministry of Health and the medical organizations concerned should be better able to manage the condition. This study confirms, in a Lebanese population, the epidemiological associations described in other populations around the world.
People with severe mental illnesses, particularly those with schizophrenia, have poorer physical health than the general population with increased mortality and morbidity rates. Social and lifestyle factors are reported to contribute to this health inequality, though antipsychotic therapy poses additional risk to long-term physical health. Many behavioural lifestyle interventions including smoking cessation, exercise programmes and weight-management programmes have been delivered to this population with promising results. Surprisingly little attention has been given to factors that may facilitate or prevent engagement with these interventions in this population. DATA SOURCES: Eight electronic databases were searched [1985-December 2009] along with the Cochrane Library and Google Scholar. Electronic 'hand' searches of key journals and explosion of references were undertaken. METHODS: A narrative synthesis of qualitative, quantitative and mixed-methods studies was undertaken. RESULTS: No studies were identified that specifically explored the incentives and barriers to participation in lifestyle intervention for this population. Existing literature report some possible incentives and barriers including: illness symptoms, treatment effects, lack of support and negative staff attitudes as possible barriers; and symptom reduction, peer and staff support, knowledge, personal attributes and participation of staff as possible incentives. CONCLUSIONS: Healthcare professionals, in particular nurses, should consider issues that may hinder or encourage individuals in this clinical group to participate in lifestyle interventions if the full benefits are to be achieved. Further research is needed to explore possible incentives and barriers from the service users' own perspective.

Obesity and unintended pregnancy are two of the major health epidemics we are currently facing worldwide. Patient education is a clinician's greatest tool in combating both epidemics but many clinicians may be uncomfortable with counselling and prescribing contraception for obese women. Overall, the prevention of unintended pregnancy in obese women far outweighs any risk associated with oral contraceptive use. This review aims to provide the clinician with a practical guide to the use of oral contraceptive pills in obese women.

People with a mental illness show a growing incidence of obesity, and higher rates of metabolic syndrome when compared with the general population. This paper reviews research on obesity, cardiovascular disease and type 2 diabetes, with the aim of directing clinical attention towards the improvement of patient physical health. A systematic search of cross-discipline databases and journals provided peer-reviewed research for analysis, and national statistics allowed for the investigation of differences in
with a mental illness: a need for primary health care.

Weil, EJ; Curtis, JM; Hanson, RL; Knowler, WC; Nelson, RG

The impact of disadvantage on the development and progression of diabetic kidney disease

Weil, EJ; Curtis, JM; Hanson, RL; Knowler, WC; Nelson, RG

CLINICAL NEPHROLOGY 2010 74 S32 S38

rates of occurrence between people experiencing a mental illness and the general population. Treatment effects via psychotropic medications and lifestyle factors such as poor diet and low levels of exercise suggest that ongoing monitoring is necessary to prevent major physical disorders in people experiencing a mental illness. To aid clinicians, a comprehensive set of clinical guidelines have been developed for the physical assessment and ongoing monitoring of mental health patients.

Background Disadvantaged people include those experiencing economic, social or educational deprivation and, in some cases, those undergoing rapid transition from subsistence to industrial economies. Disadvantaged people worldwide are affected disproportionately by the global epidemic of diabetes. They are also at increased risk of kidney disease attributable to diabetes, and for many, the cost of managing their kidney disease far exceeds their available resources. Methods We review factors associated with disadvantage that may increase the risk of diabetic kidney disease, and the barriers to care that hinder attempts to provide an adequate therapeutic response. Results and conclusions A rapidly rising prevalence and magnitude of obesity among children and adults, increasing frequency of intrauterine exposure to diabetes, and inadequate access to healthcare are responsible, in part, for a surge in the frequency of diabetes and, in turn, diabetic kidney disease among disadvantaged people. These factors may also predispose to an earlier onset of diabetes and kidney disease, thereby perpetuating the disadvantage by reducing the earning potential of those affected through illness and disability.

Abstract: There is an emerging epidemic of type 2 diabetes (T2DM) in younger adults. They represent an extreme phenotype: likely to be obese, lead a sedentary lifestyle, have a strong family history of T2DM, be of black or minority ethnic origin, and come from less affluent socioeconomic groups. An accurate diagnosis of T2DM in younger adults, while essential to guide management, can be challenging even for the experienced diabetologist. Comorbidities such as hypertension, nephropathy and hyperlipidaemia are prevalent in this group, and, despite the lack of longitudinal data, they represent a very high risk group, with a need for aggressive management. This focused review of the epidemiology, aetiology, clinical outcomes, comorbidities and management of younger adults with T2DM will provide the non-specialist with up-to-date insight into the UK's emerging epidemic.

Wilmot, EG; Davies, MJ; Yates, T; et al

Type 2 diabetes in younger adults: the emerging UK epidemic.


Yasutake K, Kohjima M, Kotoh K, Nakashima M, Nakamuta M, Enjoji M.

Dietary habits and behaviors associated with nonalcoholic fatty liver disease.


Nonalcoholic fatty liver disease (NAFLD) is one of the most frequent causes of health problems in Western (industrialized) countries. Moreover, the incidence of infantile NAFLD is increasing, with some of these patients progressing to nonalcoholic steatohepatitis. These trends depend on dietary habits and life-style. In particular, overeating and its associated obesity affect the development of NAFLD. Nutritional problems in patients with NAFLD include excess intake of energy, carbohydrates, and lipids, and shortages of polyunsaturated fatty acids, vitamins, and minerals. Although nutritional therapeutic approaches are required for prophylaxis and treatment of NAFLD, continuous nutrition therapy is difficult for many patients because of their dietary habits and lifestyle, and because the motivation for treatment differs among patients. Thus, it is necessary to assess the nutritional background and to identify nutritional problems in each patient with NAFLD. When assessing dietary habits, it is important to individually evaluate those that are consumed excessively or insufficiently, as well as inappropriate eating behaviors. Successful nutrition therapy requires patient education, based on assessments of individual nutrients, and continuing the treatment. In this article, we update knowledge about NAFLD, review the important aspects of nutritional assessment targeting treatment success, and present some concrete nutritional care plans which can be applied generally.
<table>
<thead>
<tr>
<th>Title with hyperlink</th>
<th>Date</th>
<th>Origin</th>
<th>Summary points concerning inequalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Obesity Update 2014</td>
<td>2014</td>
<td>OECD</td>
<td>Prevalence – confirms continuing inequalities in OECD countries with sufficient comparable data. Uses secondary data sources from nationally representative surveys. Some data are self-reported heights and weights. SES measure is educational level. Confirms male gradient tends to be flatter and sometimes reversed compared with female. (See also OECD Obesity Update 2012, below.)</td>
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<tr>
<td>Health inequalities</td>
<td>2014</td>
<td>Public Health England</td>
<td>Prevalence --- “Health inequalities arise because of inequalities in society, in the conditions in which people are born, grow, live, work, and age. There is a ‘social gradient’ in health – the lower a person’s position in society, the worse their health [1]. In the UK, socioeconomic inequalities have increased since the 1960s and this has led to wider inequalities in both child and adult obesity, with rates increasing most among those from poorer backgrounds. This worsening of health inequalities in relation to obesity is more marked for women, and when socioeconomic position is measured by education, an indicator that captures the influence of childhood conditions as well as those in adulthood. In children, socioeconomic inequalities in obesity are stronger in girls than boys”.</td>
</tr>
<tr>
<td>Obesity and disability: Children and young people</td>
<td>2014</td>
<td>Public Health England</td>
<td>Prevalence of subgroup and policies --- “… factors linking disability and obesity among children and young people include diet, physical activity, parental attitudes and behaviour, access to recreational facilities, medication and genetics. Children and young people with disabilities are likely to experience health inequalities and these can be increased by obesity-obesity-related conditions can add to the medication and equipment needs of children and young people with disabilities, with associated healthcare costs “</td>
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<tr>
<td>The Current State of Obesity Solutions in the United States: Workshop Summary</td>
<td>2014</td>
<td>US Institute of Medicine</td>
<td>Policy – “Many communities take a universal approach to obesity-related strategy, policy, programming, and evaluation. But universal approaches that are not sensitive to particular needs can have uneven impacts and even exacerbate inequalities. Goals need to be universal, but this is not necessarily the case for processes – some policies need to target the populations most in need of help, an approach that has been labeled ‘targeted universalism.’ “</td>
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<tr>
<td>Review of social determinants and the health divide in the WHO European Region: Executive summary/Final Report</td>
<td>2014</td>
<td>WHO Regional Office for Europe</td>
<td>Policy ---- General review of health inequalities (‘inequities’) between and within countries across the 53 Member States of the Region, commissioned to support the development of Health 2020. “The European review builds on the global evidence and recommends policies to ensure that progress can be made in reducing health inequities and the health divide across all countries, including those with low incomes. Action is needed on the social determinants of health, across the life-course and in wider social and economic spheres to achieve greater health equity and protect future generations.”</td>
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<tr>
<td>Obesity and inequities. Guidance for addressing inequities in overweight and obesity (B Loring, A Robertson)</td>
<td>2014</td>
<td>WHO Regional Office for Europe</td>
<td>Policy “----- • Most low-income people in Europe know what constitutes a healthy diet. Rather than lack of knowledge, the priority is to address affordability, accessibility, availability and practicalities relating to healthy food. ---- • Interventions to address obesity at a population level are more likely to be effective than interventions at an individual level, especially for groups of low socioeconomic status. ---- • People on low incomes are more price sensitive than those on higher incomes. Taxing foods high in fat, sugar and salt...”</td>
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It is important to develop and assess the cost of the contents of a national healthy food basket to help decide the minimum wage and social benefit levels.

Initiatives to restrict marketing of unhealthy food high in fat, sugar and salt and sugary beverages to children may contribute to reducing inequities, due to the higher exposure and vulnerability of disadvantaged children to marketing.

Measures to improve the composition of processed foods (e.g. reducing fat, sugar and salt content) have the potential to reduce inequalities, on the condition that their cost is the same, or less than, unhealthy alternatives.

Interventions are needed to:
- increase social protection and income support, to cover the cost of buying a healthy food basket;
- ring-fence support for food, for example through vouchers for vegetables and fruit;
- reduce availability and marketing of unhealthy food in disadvantaged areas and schools;
- promote local supply of vegetables and fruit through initiatives which include the active participation of disadvantaged groups.

Pregnancy and early childhood are critical periods for intervention on inequities in obesity. Priority interventions include:
- paying maternity leave for six months to support exclusive breastfeeding for that period;
- increasing antenatal care attendance for socially deprived and young women by using participatory methods to address their needs and perceptions;
- supporting skilled breastfeeding and complementary feeding, tailored to the specific needs of disadvantaged obese mothers, including teenagers, and their families;
- providing free or subsidized healthy meals (including breakfasts), along with vegetables and fruit in schools and early childhood centres.

Differential access to and treatment within the health system contribute to inequities in obesity. Actions to address this include:
- offering comprehensive health and social support through primary care, maternal and child health services, and social services, addressing service users’ perceptions and needs;
- involving marginalized and low socioeconomic groups in the design, delivery and evaluation of services to ensure success.

New measures are required to address the gender gap in physical activity. This includes:
- improving physical activity participation of girls at school;
- improving the physical and cultural safety of spaces for physical activity;
- working with disadvantaged girls and women to remove barriers to their physical activity.

A balanced portfolio of action is needed, aiming for a mix of long- and short-term impacts, addressing the root social causes and consequences of inequities and acting at both individual and environmental levels.

A system of monitoring and evaluation should be developed (incorporating measured, not self-reported heights and weights) to measure: obesity levels in different socioeconomic groups; social determinants of obesity; and relative success of a range of policies and interventions.


| Health and Social Care Information Centre - Public Health England |
| 2013 | Prevalence --- The obesity prevalence among Reception Year [age 5-6y] children attending schools in areas in the least deprived decile was 6.4% compared with 12.1% among those attending schools in areas in the most deprived decile. Similarly, obesity prevalence among Year 6 [age 10-11] children attending schools in areas in the least deprived decile was 13.0% compared with 24.2% among those attending schools in areas in the most deprived decile. |

Childhood Obesity Prevention Programs: Comparative Effectiveness Review and Meta-Analysis (Y Wang et al)

<p>| Comparative Effectiveness Review 115, Agency for Healthcare |
| 2013 | Systematic review commissioned by the US Department of Health and Human Services. Finds little differential evidence, except for age and gender and ethnicity: “In some studies, children with different socio-demographic characteristics responded differently to the same intervention. For example, a combined dietary and physical activity intervention that involved the children’s schools, homes, and communities was effective in elementary school children, but not in middle-school students. Another intervention provided health and nutrition education to pupils in Crete and found girls to be more responsive to the intervention than boys. A community-based after-school program found an important decrease in BMI z-scores among Asian American children, with an unanticipated |
| Growing up in the UK: Ensuring a healthy future for our children | Research and Quality | 2013 | British Medical Association, Board of Science | Policy --- A life course perspective offers a more joined up approach with implications for long-term health gain and places emphasis on education and early intervention. It approaches health as an integrated continuum rather than as disconnected and unrelated stages. It puts forward a complex interplay of social and environmental factors mixed with biological, behavioural, and psychological issues that help to define health outcomes across the course of a person’s life. In this perspective, each life stage exerts influence on the next stage; social, economic, and physical environments also have influence throughout the life course. |
| Health inequalities in the EU — Final report of a Consortium (M Marmot) | Research and Quality | 2013 | European Commission Directorate-General for Health and Consumers. | Policy ---- “It is recommended that Member States should: ---- • lead on clear and comprehensive strategies to redress the current patterns and magnitude of health inequalities; ---- • ensure the coherence and effectiveness of action to reduce health inequalities at all levels of government and across all sectors and stakeholders; ---- • ensure that the capacities exist for coherent and effective implementation of action on health inequalities; ---- • ensure progressive improvement in the availability and use of data needed to identify priorities, plan action, monitor trends and evaluate what actions are most effective “In relation to the Commission the recommendation is that: ---- • leadership and action should be taken at the Commission level to stimulate action and build capacity to tackle health inequalities. |
| Director of Public Health Annual Report 2012: A Changing World | Research and Quality | 2013 | London Borough of Barking and Dagenham | Policy implementation – “The level of obesity in Barking and Dagenham demonstrates a clear need for weight loss and weight management support, to which this service is making a cost-effective contribution. However, we need to understand better how to make the service more attractive to men and to those from minority ethnic groups, as well as promoting the service to all GP practices and health care workers to ensure that access is more equitably distributed across the borough. ... --- Councils can mitigate the greatest social inequalities through their policies, but the continuing reductions in local authority funding at a time of increasing population need inevitably affects local people.” |
| Fast Food Saturation – A Resource Pack for London Boroughs | Research and Quality | 2013 | London Health Observatory | Policy implementation ---- “This document shares key known resources and local resources on managing the impact of fast food shops as contributed by professional colleagues in boroughs across London. It is hoped this resource will ---- support current initiatives to improve the wider determinants of health and negative impacts ---- encourage joint working between environmental health, planning, licensing and public health colleagues within boroughs. |
| Social and economic | Research and Quality | 2013 | Public Health | Trends, policy ---- “This briefing paper describes social and economic inequalities associated with two of the main increase in African American children. Such differences may be explained by fidelity to the intervention, cultural responses to the intervention, or differences in growth patterns. However, evidence is still limited to explain this variation. Our limited findings related to sub-populations are similar to previous reviews. For example, one review reported that efforts to prevent weight gain were more effective in children aged 6 to 12 than in older children. Another review found that girls may be more responsive to interventions built on the social learning theory, while boys may be more responsive to structural or environmental approaches. This suggests the need for stratified analyses of pre-specified sub-groups to assess the effects of the interventions in these subgroups. ... --- Future research should include stratified analyses of sub-groups by gender, age, race/ethnicity, or socio-economic status. This will help test how different groups may respond to the same intervention, and help tailor future interventions to maximize their benefits.” |
| Public Health England: Our priorities for 2013/14 | Public Health England | 2013 | Policy -- “We will work with the Department of Health, other government departments, schools, the NHS and local government to develop and implement a multi-component approach to promote greater awareness and focused action.” |
| Response to the Welsh Assembly consultation: Inquiry into Childhood Obesity | Royal College of Physicians, UK | 2013 | “We urge the Committee to recommend that the Welsh Government take a fresh approach to health policy and legislation. -- We urge the Committee to recommend that all government programmes, policy and legislation which affect health should be mapped out and considered together, before moving forward with genuinely joined-up policy and legislation. -- We also recommend that all government programmes are evaluated in detail for the effect they have had on reducing and preventing ill-health. -- We urge the Committee to recommend that the Welsh Government should require local health boards to implement all levels of the Wales Obesity Pathway as soon as possible. -- We urge the Committee to recommend that the Welsh Government should target more of the health budget towards prevention and early intervention. -- We urge the Committee to recommend that the Welsh Government implement recommendations from recent Royal College of Physician reports on obesity as a matter of urgency. “ |
| CDC Health Disparities and Inequalities Report — United States, 2013 | U.S. Centers for Disease Control and Prevention, MMWR 62/3 | 2013 | Prevalence ---- Obesity levels analysed by ethnic group, educational attainment, number of disabilities, country of birth and language spoken at home. Trends shown for period 1999-2010 (three surveys). Background drivers analysed include neighbourhood food supplies, proximity to major highways, but these are not cross-linked to obesity levels in the report. “The multiple, complex causes of health disparities can be fully addressed only with the involvement of many persons and organizations in fields that influence health such as housing, transportation, education and business.” |
| Discussion Paper: Addressing the Social Determinants of Noncommunicable Diseases | UNDP | 2013 | This paper offers two unique contributions to existing global and regional frameworks on multisectoral action on NCDs and their social determinants. The first is a typology of multisectoral action that highlights three general categories of possible action outside the health sector: expanding delivery platforms; NCD-specific actions on social determinants; and NCD-sensitive actions on social determinants. ---- This paper’s second contribution is a framework that outlines more specific areas and opportunities for actors outside the health sector to take action on the social determinants of NCDs. The framework has two parts. The first describes opportunities for NCD-specific and NCD-sensitive actions across the policy and programme lifecycle. The second part describes opportunities to create an enabling environment that promotes multisectoral action. |
| Evaluating Obesity Prevention Efforts: A Plan for Measuring Progress | US Institute of Medicine | 2013 | Surveillance --- the report emphasizes the need to recognise and build measurement of inequalities into surveillance protocols. |
| Creating Equal | US Institute of Medicine | 2013 | Policy --- The combination of unhealthy social and environmental risk factors, including limited access to healthy foods and physical activity – and provides possible explanations for these inequalities… The following interrelated social, economic, environmental, psychological and cultural factors may be important in explaining these associations: ---- low income households may be less likely to have disposable income for non-essential costs such as leisure-time physical activity and are also likely to be disproportionately affected by any increases in food prices compared with higher income groups. This may influence their eating habits and physical activity levels ---- areas of greater deprivation have reduced access to environments that support physical activity such as parks, gardens or safe areas for play, and are more likely to have transport environments less amenable to active travel. This is likely to influence the amount of physical activity that households living in these areas undertake ---- education is associated with diet and physical activity behaviour, with lower educational attainment associated with poorer diet and lower physical activity levels. This may be because education acts as a proxy for other measures such as income and area of residence ---- the evidence for a relationship between area deprivation and poor access to healthy food in the UK is inconclusive, and would benefit from further research -- Understanding the nature of health inequalities is an extremely important challenge for people involved in tackling obesity. The complexities of the relationship between all these factors can only be unravelled with further research”. |</p>
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<tr>
<th><strong>Opportunities for a Healthy Weight: Workshop Summary</strong></th>
<th><strong>Medicine</strong></th>
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<tr>
<td>opportunities for physical activity, can contribute to increased levels of chronic stress among community members, which have been linked to increased levels of sedentary activity and increased calorie consumption. This document focuses on goals and recommendations outlined in ‘Accelerating Progress in Obesity Prevention’ through the lens of health equity. This report explores critical aspects of obesity prevention, while discussing potential future research, policy, and action that could lead to equity in opportunities to achieve a healthy weight.</td>
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<tr>
<th><strong>Health inequalities in Scotland</strong></th>
<th><strong>Audit Scotland</strong></th>
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<tr>
<td>2012</td>
<td>Policy --- “The Scottish Government should:</td>
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<td></td>
<td>• introduce national indicators to specifically monitor progress in reducing health inequalities and report on progress.</td>
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<td>“The Scottish Government and NHS boards should</td>
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<td></td>
<td>• review the distribution of primary care services to ensure that needs associated with higher levels of deprivation are adequately resourced</td>
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<td>• include measurable outcomes in the GP contract to monitor progress towards tackling health inequalities, and ensure that the Quality and Outcomes Framework is specifically designed to help reduce health inequalities.</td>
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<td></td>
<td>“The Scottish Government and Community Planning Partnerships (CPPs) should:</td>
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<td>• ensure that cost effectiveness is built into evaluations of initiatives for reducing health inequalities from the start</td>
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<td>• align and rationalise the various performance measures to provide a clear indication of progress in reducing health inequalities.</td>
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<td>“CPPs should:</td>
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<td>• ensure that all partners are clear about their respective roles, responsibilities and resources in tackling health inequalities, and take shared ownership and responsibility for actions aimed at reducing health inequalities</td>
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<td></td>
<td>• build robust evaluation, using all available data and including outcome measures and associated costs, into local initiatives aimed at reducing health inequalities</td>
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<td>• include in Outcome Agreements clear outcome measures for reducing health inequalities which demonstrate impact, and improve the transparency of their performance reporting.</td>
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<td>“NHS boards should</td>
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<td>• monitor the use of primary care, preventative and early detection services by different groups, particularly those from more deprived areas. If this identifies systemic under-representation of particular groups, NHS boards should take a targeted approach to improve uptake</td>
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<td>• monitor the use of hospital services by different groups and use this information to identify whether specific action is needed to help particular groups access services.</td>
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<td>“NHS boards and councils should:</td>
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<td>• identify what they collectively spend on reducing health inequalities locally, and work together to ensure that resources are targeted at those with the greatest need.”</td>
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<th><strong>Australia’s Health 2012</strong></th>
<th><strong>Australian Institute of Health and Welfare</strong></th>
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<tr>
<td>2012</td>
<td>Prevalence --- Data shown for 2008-2009 measured survey, shows strong gradient for men and women, obesity by SES in quintiles. Also for physical activity. No data for diet.</td>
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<td>Title</td>
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<tr>
<td>NI Health &amp; Social Care Inequalities Monitoring System (Northern Ireland)</td>
<td>2012</td>
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<tr>
<td>Income and Health Inequalities in Halton Region</td>
<td>2012</td>
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<tr>
<td>The effects of income inequality on BMI and obesity: Evidence from the BRFSS (B Volland)</td>
<td>2012</td>
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<tr>
<td>An update on the government’s approach to tackling obesity (UK)</td>
<td>2012</td>
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<tr>
<td>Environmental inequalities and their impact on the health outcomes of children and young people</td>
<td>2012</td>
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<tr>
<td>Obesity: working with local Communities (UK)</td>
<td>2012</td>
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<td>National costing report:</td>
<td>2012</td>
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<tr>
<td><strong>Obesity: working with local communities (UK)</strong></td>
<td>Institute for Health and Clinical Excellence</td>
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<tr>
<td><strong>Review of Health Inequalities Committee Report</strong></td>
<td>Northern Ireland Assembly: Cttee for Health, Social Services &amp; Public Safety</td>
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<tr>
<td><strong>OECD Obesity Update 2012</strong></td>
<td>OECD</td>
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<tr>
<td><strong>Health inequalities and the social determinants of health</strong></td>
<td>Royal College of Nursing</td>
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<tr>
<td><strong>Reducing Childhood Obesity in Ontario through a Health Equity Lens (S)</strong></td>
<td>The Wellesley Institute, Toronto,</td>
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<td>Title</td>
<td>Year</td>
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<tr>
<td>Background paper: Inequality on the rise? An assessment of current available data on income inequality, at global, international and national levels, (S Vieira)</td>
<td>2012</td>
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<tr>
<td>Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation</td>
<td>2012</td>
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<tr>
<td>Social determinants of health and well-being among young people. Health Behaviour in School-aged Children - 2009/2010 survey.</td>
<td>2012</td>
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<tr>
<td>Equality Analysis: A call to action on obesity in England</td>
<td>2011</td>
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<tr>
<td>Health Needs Assessment: Community-Based Weight Management Services and the Black and Minority Ethnic Community in Dartford Borough (A Card)</td>
<td>2011</td>
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<tr>
<td>Childhood obesity and</td>
<td>2011</td>
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<tr>
<td><strong>educational attainment: A systematic review</strong> (J Caird et al)</td>
<td>(Institute of Education, University of London)</td>
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| **A Tale of Two ObesCities: Comparing responses to childhood obesity in London and New York City** | 2011 City University of New York and London Metropolitan University | Policy – Analyses of the responses at municipal level to the child obesity problems facing the two cities. Recommends a series of interventions which the authors believe can reduce child obesity and child obesity inequalities:
- Land use and planning (zoning authority, land use review and other municipal authority to limit access to fast food and the promotion of unhealthy foods to children, increase the availability of healthy, affordable, and culturally appropriate food in neighborhoods, incorporate active design principles into building codes, housing strategies, and neighborhood planning).
- Food (set standards for municipal purchase of food in public agencies and leverage economies of scale to promote food systems that support economic, environmental, and human health, redefine food safety standards to reflect current threats to health and create new ways to use the municipal food safety workforce to promote healthier eating).
- Parks and Green Spaces (promote and support urban agriculture as a sustainable and health promoting use of green space, increase access to and safety of places where people can be physically active).
- Transportation (promote walking and cycling, especially in neighborhoods with high levels of childhood and adult obesity).
- Schools (implement a universal free school meal program with nutritional standards that promote health, provide drinking water in schools by improving infrastructure for tap water delivery and bathrooms).
- Research and training (promote research that helps cities understand how to best address health inequalities and childhood obesity by developing and improving the data systems that (i) monitor childhood obesity so that cities can track and report citywide prevalence as well as information about social, economic, and geographic disparities; (ii) track the cost and outcomes of municipal policies and programs that address childhood obesity and disseminate this work internationally; (iii) documenting the adverse impact of food marketing practices on children and designing and evaluating strategies to reduce this influence; (iv) finding the best ways to prepare health providers, educators and others to reduce childhood obesity; and (v) using urban planning as a tool for assessing and changing the built environment to promote health.) |
<p>| <strong>Report on reducing health inequalities in the EU (2010/2089(INI))</strong> | 2011 European Parliament, Cttee on the Environment, Public Health and Food Safety (Rp: E Estrela) | Policy ---- Recommendations: “Collecting and sharing evidence on effective strategies, policies and actions will help engage support across government and different sectors. It is essential that the reduction of health inequalities is considered an essential priority, at all levels of policy making, thereby pursuing a Health in All Policies Approach (HiAP) and ensuring effective impact assessments that take health equity outcomes into account.” |
| <strong>Health Inequalities Strategy: One Year On Report</strong> | 2011 Greater London Authority | Policy implementation, statement of intent ---- “Through coordinated work with Local Authorities, the board will integrate local and regional strategies as it works alongside the Health Inequalities Strategy in championing the tackling of health inequalities in London.” |
| <strong>Childhood Obesity in London</strong> | 2011 Greater London Authority | Prevalence and costs --- Gives data on child obesity prevalence showing disparities between boroughs (from NCMP surveys) and notes need to attend to inequalities issues. Reviews different intervention approaches. Estimates the current costs for publicly-funded treatment of child obesity in London (£7.1m/year) but notes that most costs arising from obesity in childhood will occur in adulthood, for which the report estimates £33m direct costs and £110m indirect costs per year, at 2007 prices, |</p>
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<th>Title</th>
<th>Year</th>
<th>Author/Institution</th>
<th>Description</th>
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<tbody>
<tr>
<td>Early years interventions to address health inequalities in London – the economic case</td>
<td>2011</td>
<td>Greater London Authority</td>
<td>Policy ---- Results of the analysis based on US studies show that some home visiting programmes and pre-school programmes are particularly effective, especially for disadvantaged groups. The report cites examples of effective home-visiting and pre-school programmes that address or negate early causes of inequalities and lead to improved child outcomes, which would likely benefit London if implemented more widely. Obesity not a prime focus of this paper, although it is recognized as part of the spectrum of health inequalities needing attention.</td>
</tr>
<tr>
<td>Does income inequality cause health and social problems? (Karen Rowlingson)</td>
<td>2011</td>
<td>Joseph Rowntree Foundation</td>
<td>Theoretical paper ---- Reviews the points made in various critiques that have appeared since The Spirit Level was published in 2009, alongside the evidence and debate in the broader peer-reviewed literature. The report examines: ---- • whether or not there is a link between income inequality and health and social problems; ---- • who might be most affected by income inequality; and ---- • other possible impacts of income inequality, for example, on the economy.</td>
</tr>
<tr>
<td>Tower Hamlets Healthy Borough Programme Phase 1 Progress Report: Executive Summary</td>
<td>2011</td>
<td>London Borough of Tower Hamlets</td>
<td>Policy implementation ---- There were a number of broad messages on health behaviour and inequalities: ---- • Some of the national targets for physical activity and healthy eating may be too challenging for the most at risk communities; ---- • Both targeted and universal approaches are needed in combination if whole population behavioural change is to be stimulated and supported; ---- • Project work that does not sit so easily with mainstream service delivery poses more of a challenge to sustain yet may be important and worthwhile to sustain; ---- • Community engagement identified scope for much better and more productive use of land and other resources such as community facilities held by the public sector.</td>
</tr>
<tr>
<td>Growing Up in Ireland: Overweight And Obesity Among 9-Year-Olds</td>
<td>2011</td>
<td>Minister for Children and Youth Affairs</td>
<td>Prevalence – reports measured data for children aged 9 in a survey conducted 2007. Overweight prevalence data are given for five levels of occupational status, showing expected SES gradient for girls and milder gradient for boys. Risk behaviours also given for the five levels of occupational status, including exercise, sedentary behaviour, breakfast consumption and general diet quality.</td>
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<tr>
<td>Exploring the Relationship Between Education and Obesity (M Devaux)</td>
<td>2011</td>
<td>OECD Journal: Economic Studies, Vol. 2011/1.</td>
<td>Prevalence and role of education -- Analyses of health survey data from Australia, Canada, England, and Korea, with social gradients in obesity assessed across the entire education spectrum, overall and in different population sub-groups. “The strength of the correlation between education and obesity is approximately constant throughout the education spectrum. Increasing education at any point along that spectrum would be expected to reduce obesity to a similar degree, if the causal nature of the link between education and obesity had been established. The education gradient in obesity is stronger in women than in men. Differences between genders are minor in Australia and Canada, more pronounced in England and major in Korea. The gradient has not meaningfully changed over the time periods covered by the health survey data available, however, there is at least some evidence that over longer periods of time more educated individuals have been less likely to become obese than their less educated counterparts, suggesting that education produces its influence on obesity only in the long term. … the direction of causality appears to run mostly from education to obesity, as the strength of the association is only minimally affected when accounting for reduced educational opportunities for those who are obese in young age. Most of the effect of education on obesity is direct. Small components of the overall effect of education on obesity are mediated by an improved socio-economic status linked to higher levels of education, and by a higher level of education of other family members, associated with an individual’s own level of education.”</td>
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| Obesity in Canada: A joint report from the Public Health Agency of Canada and the Canadian Institute | 2011 | Public Health Agency of Canada                  | Prevalence and policy ---- Re-presents data from other surveys. Includes prevalence of obesity among aboriginal groups by level of income and by educational attainment (both show expected SES gradient for women, not for men). “Like smoking cessation, effective obesity prevention may require a multifaceted, long-term approach involving interventions that operate at multiple levels and in complementary ways. Relatively few population-level obesity prevention and management interventions – especially public policy approaches that target broader environmental factors – have been systematically evaluated in terms of their effectiveness or cost-effectiveness. Developing and implementing effective
interventions will require close and frequent monitoring to identify which approaches work in different settings and with different populations, as well as economic analysis to understand their potential value for money.”

**Findings from the CDC Health Disparities and Inequalities Report – United States, 2011**

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<th>Year</th>
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<tr>
<td>2011</td>
<td>U.S. Department of Health and Human Services Centers for Disease Control and Prevention</td>
<td>Prevalence and policy ---- Racial/ethnic differences have not changed substantially during 1988–1994 and 2007–2008. Among the majority of sex-age groups, the prevalence of obesity is lower among whites than among blacks and Mexican-Americans. • Among females, the prevalence of obesity is highest among blacks, whereas the prevalence among males aged ≤20 years is highest among Mexican-Americans. • Differences are limited regarding obesity prevalence across racial/ethnic groups among men aged ≥40 years. • An inverse association exists between family income and obesity prevalence among white females (all ages) and white males (aged 2–19 years), but the association is weak or positive (black men aged ≥20 years) among other groups. • Racial/ethnic differences in obesity prevalence persist after controlling for differences in family income. Recommends: ---- 1. Increase community awareness of disparities as persistent problems that represent some of the most pressing health challenges ---- 2. Set priorities among disparities to be addressed at the federal, state, tribal, and local levels --- - 3. Articulate valid reasons to expend resources to reduce and ultimately eliminate priority disparities ---- 4. Implement the dual strategy of universal and targeted intervention strategies based on lessons learned (e.g., the virtual elimination of disparities in certain vaccination rates among children) ---- 5. Aim to achieve a faster rate of improvement among vulnerable groups by allocating resources in proportion to need and a commitment to closing gaps in health, longevity, and quality of life.</td>
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**CDC Health Disparities and Inequalities Report — United States, 2011**

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<th>Year</th>
<th>Organization</th>
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<tr>
<td>2011</td>
<td>U.S. Centers for Disease Control and Prevention, MMWR 60</td>
<td>Prevalence tables (detailed statistical tables for the report above)</td>
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**Addressing the social determinants of health: the urban dimension and the role of local government**

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<tr>
<td>2011</td>
<td>WHO Regional Office for Europe</td>
<td>Policy ---- “This report has identified six implementation factors of particular importance: ---- • multiagency, multidisciplinary partnerships and collaboration ---- • policy alignment and convergence ---- • the robustness of the evidence base ---- • developing capability and capacity ---- • managing the political environment ---- • transferring knowledge.”</td>
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**Healthy balance - A review of public health performance and spending**

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<tr>
<td>2010</td>
<td>Audit Commission: Health Briefing March 2010</td>
<td>Policy implementation – analyses the number of local authorities with child obesity priorities.</td>
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**The economic burden of obesity**

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<tr>
<td>2010</td>
<td>National Obesity Observatory (now Public Health England).</td>
<td>Estimates of the direct NHS costs of treating overweight and obesity, and related morbidity in England have ranged from £479.3 million in 1998 to £4.2 billion in 2007. Estimates of the indirect costs (those costs arising from the impact of obesity on the wider economy such as loss of productivity) from these studies ranged between £2.6 billion and £15.8 billion. Reports by the National Audit Office, the House of Commons Health Committee and Foresight still underpin the majority of publications which have been published about the NHS and wider cost of obesity in the UK.</td>
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**Solving the problem of childhood obesity within a**

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<tr>
<td>2010</td>
<td>Executive Office of the</td>
<td>Policy ---- Includes derivative data from other surveys, and makes 70 recommendations for action, from interventions during pregnancy to urban design. Recognises SES differentials in prevalence and environments, and urges monitoring of the impact</td>
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<td>Reference</td>
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<td>President of the United States</td>
<td>2010</td>
<td>OECD</td>
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<td>Healthy Choices - OECD Health Ministerial Meeting.</td>
<td>2010</td>
<td>OECD</td>
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<tr>
<td>Regional health inequalities in England (A Ellis, R Fry)</td>
<td>2010</td>
<td>ONS, Regional Trends 42</td>
</tr>
<tr>
<td>The training of health professionals for the prevention and treatment of overweight and obesity</td>
<td>2010</td>
<td>Royal College of Physicians</td>
</tr>
<tr>
<td>Growing Up in Scotland: Health inequalities in the early years (C Bromley, S Cunningham-Burley)</td>
<td>2010</td>
<td>The Scottish Government</td>
</tr>
<tr>
<td>Preventing Overweight and Obesity in Scotland: A Route Map Towards Healthy Weight</td>
<td>2010</td>
<td>The Scottish Government</td>
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<tr>
<td>Fair Society, Healthy Lives: A Strategic Review</td>
<td>2010</td>
<td>University College London</td>
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<td>Title</td>
<td>Author</td>
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<td>of Health Inequalities in England Post-2010 (M Marmot)</td>
<td></td>
<td>Taking spectrum of health inequalities, makes series of recommendations, especially: 1. Give every child the best start in life ---- 2. Enable all children, young people and adults to maximise their capabilities and have control over their lives ---- 3. Create fair employment and good work for all ---- 4. Ensure healthy standard of living for all ---- 5. Create and develop healthy and sustainable places and communities ---- 6. Strengthen the role and impact of ill-health prevention.</td>
</tr>
<tr>
<td>Population-based prevention strategies for childhood obesity: report</td>
<td>2010 WHO</td>
<td>Policy —— “It is generally accepted that comprehensive and coordinated interventions which support and facilitate physical activity and healthy diets in the context of a social-determinants-of-health approach represent the best way forward for obesity prevention in childhood. It is essential that such interventions occur across the whole population – in a variety of settings and through multiple strategies. Action must span policy, programmes and advocacy. Guiding principles for interventions to support behaviour change include policy support, equity, inclusivity, multisectoral engagement, transparency and environmental change. Surveillance, monitoring and evaluation are also critical to support effective action.”</td>
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<td>of a WHO forum and technical meeting.</td>
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### Annex 10. Scientific papers (one) and grey literature documents (one) considering SES differentials in the costs of obesity

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<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Source</th>
<th>Abstract</th>
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<tbody>
<tr>
<td>Excess direct medical costs of severe obesity by socioeconomic status in German adults.</td>
<td>von Lengerke T, John J, Mielck A; KORA Study Group.</td>
<td>Psychosoc Med. 2010 Apr 20;7:Doc01.</td>
<td>Objective: Excess direct medical costs of severe obesity are by far higher than of moderate obesity. At the same time, severely obese adults with low socioeconomic status (SES) may be expected to have higher excess costs than those with higher SES, e.g. due to more comorbidities. This study compares excess costs of severe obesity among German adults across different SES groups. Methods: In a subsample (N=947) of the KORA-Survey S4 1999/2001 (a cross-sectional health survey in the Augsburg region, Germany; age group: 25-74 years), visits to physicians, inpatient days in hospital, and received and purchased medication were assessed via computer-assisted telephone interviews (CATI) over half a year. Body mass index (BMI in kg/m(2)) was measured anthropometrically. SES was determined via reports of education, income, and occupational status from computer-assisted personal interviews (CAPI) (used both as single indicators, and as indexed by the Helmert algorithm); due to small subsample sizes all were median-split. Data of respondents in normal weight (18.5 ≤ BMI &lt; 25), preobese (25 ≤ BMI &lt; 30), moderately (class 1:30 ≤ BMI &lt; 35) and severely obese (classes 2-3: BMI ≥ 35) range were analysed by generalized linear models with mixed poisson-gamma (Tweedie) distributions. Physician visits and inpatient days were valued as recommended by the Working Group Methods in Health Economic Evaluation (AG MEG), and drugs were valued by actual costs. Sex, age, kind of sickness fund (statutory/private) and place of residence (urban/rural) were adjusted for, and comorbidities were considered by the Physical Functional Comorbidity Index (PFCI). Results: Excess costs of severe obesity were higher in respondents with high SES, regardless of the SES indicator used. For instance, annual excess costs were almost three times higher in those with an above-median SES-Index as compared with those with a median or lower SES-Index (plus euro 2,966 vs. plus euro 1,012; contrast significant at p&lt;.001). Mediation of excess costs of severe obesity by physical comorbidities pertained to the low SES-Index and the low occupational status groups: differences in costs between severe obesity and normal weight were still positive, but statistically insignificant, in the lower status groups after adjusting for the PFCI, but still positive and significant given higher SES. For example, severe obesity's excess costs were euro 2,406 after PFCI-adjustment in the high SES-Index group (p&lt;.001), but euro 539 in the lower status group (p=.17). At the same time, physical comorbidities as defined by the PCFI increased with BMI and decreased with SES, however the factors BMI and SES did not significantly interact in this context. Conclusions: To our knowledge, this is the first study to show in Germany that excess direct medical costs of severe obesity are not distributed equitably across different SES groups, do not reflect comorbidity status, and are significantly higher in those with high SES than in those with lower SES. Thus, allocation of health care resources spent on severely obese adults seems to be in need of readjustment towards an equitable utilization across all socioeconomic groups.</td>
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<th>Year</th>
<th>Source</th>
<th>Notes</th>
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<tr>
<td>An economic costing of obesity in First Nations communities in Canada</td>
<td>2011</td>
<td>Atlantic Centre of Excellence for Women’s Health</td>
<td>An analysis of the direct costs attributable to obesity and related co-morbidities among the First national communities. Costs for each chronic illness identified were based on the Economic Burden of Illness in Canada (EBIC), a standard measure developed and utilized by the Public Health Agency of Canada, and the National Health Expenditure Database published by the Canadian Institute for Health Information. The analysis demonstrated that the direct costs of obesity due to chronic illness among First Nations surveyed in the RHS to be at least $100 million for 2003, the year the first health survey was conducted.</td>
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## Annex 11. Scientific papers showing SES differentials in the effectiveness of interventions

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<tr>
<th>Authors</th>
<th>Title</th>
<th>Source</th>
<th>Abstract</th>
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<tbody>
<tr>
<td>Black MM, Hager ER, Le K, et al</td>
<td>Challenge! Health promotion/obesity prevention mentorship model among urban, black adolescents.</td>
<td>Pediatrics. 2010 Aug;126(2):280-8.</td>
<td>OBJECTIVES: The objective of this study was to evaluate a 12-session home/community-based health promotion/obesity prevention program (Challenge!) on changes in BMI status, body composition, physical activity, and diet. METHODS: A total of 235 black adolescents (aged 11–16 years; 38% overweight/obese) were recruited from low-income urban communities. Baseline measures included weight, height, body composition, physical activity (PA), and diet. PA was measured by 7-day play-equivalent physical activity (&gt; or =1800 activity counts per minute). Participants were randomly assigned to health promotion/obesity prevention that is anchored in social cognitive theory and motivational interviewing and was delivered by college-aged black mentors or to control. Postintervention (11 months) and delayed follow-up (24 months) evaluations were conducted. Longitudinal analyses used multilevel models with random intercepts and generalizability estimating equations, controlling for baseline age/gender. Stratified analyses examined baseline BMI category. RESULTS: Retention was 76% over 2 years; overweight/obese status declined 5% among intervention adolescents and increased 11% among control adolescents. Among overweight/obese youth, the intervention reduced total percentage of body fat and fat mass and increased fat-free mass at delayed follow-up and increased play-equivalent physical activity at postintervention but not at delayed follow-up. Intervention adolescents declined significantly more in snack/dessert consumption than control adolescents at both follow-up evaluations. CONCLUSIONS: At postintervention, there were intervention effects on diet and PA but not BMI category or body composition. At delayed follow-up, dietary changes were sustained and the intervention prevented an increase in BMI category. Body composition was improved for overweight/obese youth. Changes in body composition follow changes in diet and PA and may not be detected immediately after intervention.</td>
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<tr>
<td>Cameron AJ, Ball K, Hesketh KD, et al</td>
<td>Variation in outcomes of the Melbourne Infant, Feeding, Activity and Nutrition Trial (InFANT) Program according to maternal education and age.</td>
<td>Prev Med. 2014 Jan;58:58-63.</td>
<td>OBJECTIVE: To assess the effectiveness of the Melbourne Infant Feeding, Activity and Nutrition Trial (InFANT) Program according to maternal education and age. METHODS: A cluster-randomised controlled trial involving 542 mother/infant pairs from 62 existing first-time parent groups was conducted in 2008 in Melbourne, Australia. The intervention involved 6 × 2-hour dietitian-delivered sessions, DVD and written resources from infant age 4-15 months. Outcomes included infant diet (3 × 24 h diet recalls), physical activity (accelerometry), television viewing and body mass index. We tested for moderation by maternal education (with/without a University degree) and age (&lt; 32 and ≥ 32 years). The trial was registered with the ISRCTN Register (identifier 81847050). RESULTS: Interaction effects with the treatment arm were observed for maternal education and age. The intervention effects on vegetable (positive effect) and sweet snack consumption (negative effect) were greater in children with higher educated mothers while intervention effects on water consumption (positive effect) were greater in infants with lower educated mothers. The intervention was also more effective in increasing both vegetable and water consumption in infants with mothers aged &lt; 32 years. CONCLUSIONS: Child obesity prevention interventions may be differentially effective according to maternal education and age. Evidence of differential effects is important for informing more sensitively targeted/tailored approaches.</td>
</tr>
<tr>
<td>Chang MW, Nitzke S, Brown R.</td>
<td>Design and outcomes of a Mothers In Motion behavioral intervention pilot study.</td>
<td>J Nutr Educ Behav 2010; 42:S11–S21</td>
<td>OBJECTIVE: This paper describes the design and findings of a pilot Mothers In Motion (P-MIM) program. DESIGN: A randomized controlled trial that collected data via telephone interviews and finger stick at 3 time points: baseline and 2 and 8 months post-intervention. SETTING: Three Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) sites in southern Michigan. PARTICIPANTS: One hundred and twenty nine overweight and obese African-American and white mothers, 18-34 years old. INTERVENTION: The 10-week, theory-based, culturally sensitive intervention messages were delivered via a series of 5 chapters on a DVD and complemented by 5 peer support group teleconferences. MAIN OUTCOME MEASURES: Dietary fat, fruit, and vegetable intake; physical activity; stress; feelings; body weight; and blood glucose. ANALYSIS: General linear mixed model was applied to assess treatment effects across 2 and 8 months post-intervention. RESULTS: No significant effect sizes were found in primary and secondary outcome variables at 2 and 8 months post-intervention. However, changes in body weight and blood glucose showed apparent trends consistent with the study's hypotheses. CONCLUSIONS AND</td>
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<tr>
<td>De Coen V, De Bourdeaudhuij I, Vereecken C, Verbestel V, Haerens L, Huybrechts I, Van Lippevelde W, Maes L.</td>
<td>Cluster-randomised trial to evaluate the 'Change for Life' mass media/social marketing campaign in the UK.</td>
<td>BMC Public Health. 2012 Jun 6;12:404.</td>
<td>BACKGROUND: Social marketing campaigns offer a promising approach to the prevention of childhood obesity. Change4Life (C4L) is a national obesity prevention campaign in England. It included mass media coverage aiming to reframe obesity into a health issue relevant to all and provided the opportunity for parents to complete a brief questionnaire (How are the Kids') and receive personalised feedback about their children's eating and activity. Print and online C4L resources were available with guidance about healthy eating and physical activity. The study aims were to examine the impact of personalised feedback and print material from the C4L campaign on parents' attitudes and behaviours about their children's eating and activity in a community-based cluster-randomised controlled trial. METHODS: Parents of 5-11 year old children were recruited from 40 primary schools across England. Schools were randomised to intervention or control ('usual care'). Basic demographic data and brief information about their attitudes to their children's health were collected. Families in intervention schools were mailed the C4L print materials and the 'How are the Kids' questionnaire; those returning the questionnaire were sent personalised feedback and others received generic materials. Outcomes included awareness of C4L, attitudes to the behaviours recommended in C4L, parenting behaviours (monitoring and modelling), and child health behaviours (diet, physical activity and television viewing). Follow-up data were collected from parents by postal questionnaire after six months. Qualitative interviews were carried out with a subset of parents (n=12). RESULTS: 3,774 families completed baseline questionnaires and follow-up data were obtained from 1,419 families (37.6%). Awareness was high in both groups at baseline (75%), but increased significantly in the intervention group by follow-up (96% vs. 87%). Few parents (5.2% of the intervention group) returned the questionnaire to get personalised feedback. There were few significant group differences in parental attitudes or parenting and child health behaviours at follow-up. Physical activity was rated as less important in the intervention group, but a significant group-by-socioeconomic status (SES) interaction indicated that this effect was confined to higher SES families. Similar interactions were also seen for physical activity monitoring and child television time; with adverse effects in higher SES families and no change in the lower SES families. Effects were little better in families that completed the questionnaire and received personalised feedback. At interview, acceptability of the intervention was modest, although higher in lower SES families. CONCLUSIONS: The C4L campaign materials achieved increases in awareness of obesity and the 'How are the Kids' questionnaire; those returning the questionnaire were sent personalised feedback and others received generic materials. Outcomes included awareness of C4L, attitudes to the behaviours recommended in C4L, parenting behaviours (monitoring and modelling), and child health behaviours (diet, physical activity and television viewing). Follow-up data were collected from parents by postal questionnaire after six months. Qualitative interviews were carried out with a subset of parents (n=12). RESULTS: 3,774 families completed baseline questionnaires and follow-up data were obtained from 1,419 families (37.6%). Awareness was high in both groups at baseline (75%), but increased significantly in the intervention group by follow-up (96% vs. 87%). Few parents (5.2% of the intervention group) returned the questionnaire to get personalised feedback. There were few significant group differences in parental attitudes or parenting and child health behaviours at follow-up. Physical activity was rated as less important in the intervention group, but a significant group-by-socioeconomic status (SES) interaction indicated that this effect was confined to higher SES families. Similar interactions were also seen for physical activity monitoring and child television time; with adverse effects in higher SES families and no change in the lower SES families. Effects were little better in families that completed the questionnaire and received personalised feedback. At interview, acceptability of the intervention was modest, although higher in lower SES families. CONCLUSIONS: The C4L campaign materials achieved increases in awareness of the campaign, but in this sample had little impact on attitudes or behaviour. Low engagement with the intervention appeared a key issue.</td>
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<p>| Dewar DL, Morgan PJ, Plotnikoff | The nutrition and enjoyable activity for teen girls study: | Am J Prev Med. 2013 Sep;45(3):3 | BACKGROUND: Obesity prevention among youth of low SES is a public health priority given the higher prevalence of youth obesity in this population subgroup. PURPOSE: To evaluate the 24-month impact of a school-based obesity prevention program among adolescent girls living in low-income communities. DESIGN: The study was a school- |</p>
<table>
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<tr>
<th>Study</th>
<th>Title</th>
<th>Design</th>
<th>Setting/Participants</th>
<th>Outcome Measures</th>
<th>Objectives/Findings</th>
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<tr>
<td>RC, et al</td>
<td>a cluster randomized controlled trial.</td>
<td>13-7.</td>
<td>Setting/PARTICIPANTS: The study involved 12 secondary schools located in low-income communities in New South Wales, Australia. Participants were 357 adolescent girls (aged 13.2 ± 0.5 years). INTERVENTION: The 12-month multicomponent intervention was guided by social cognitive theory and involved strategies to promote physical activity, reduce sedentary behaviors, and improve dietary outcomes. MAIN OUTCOME MEASURES: The primary outcome was BMI, and secondary outcomes were BMI z-score; percentage body fat (bioelectrical impedance analysis); physical activity (accelerometers); dietary intake; and recreational screen-time (self-report). Data were collected in 2010-2012 and analyzed in 2012. RESULTS: After 24 months, there were no intervention effects on BMI (adjusted mean difference -0.33, 95% CI = -0.97, 0.28, p=0.353) and BMI z-score (-0.12, 95% CI = -0.27, 0.04, p=0.178). However, there was a group-by-time interaction for percentage body fat (-1.96%, 95% CI = -3.02, -0.89, p=0.006). Intervention effects for physical activity, screen time, and dietary intake were not significant. CONCLUSIONS: The NEAT Girls intervention did not result in effects on the primary outcome. Further study of youth who are &quot;at risk&quot; of obesity should focus on strategies to improve retention and adherence in prevention programs.</td>
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<tr>
<td>Elbel B, Gyamfi J, Kersh R.</td>
<td>Child and adolescent fast-food choice and the influence of calorie labeling: a natural experiment.</td>
<td>Int J Obes (Lond). 2011 Apr;35(4):493-500.</td>
<td>OBJECTIVE: Obesity is an enormous public health problem and children have been particularly highlighted for intervention. Of notable concern is the fast-food consumption of children. However, we know very little about how children or their parents make fast-food choices, including how they respond to mandatory calorie labeling. We examined children's and adolescents' fast-food choice and the influence of calorie labels in low-income communities in New York City (NYC) and in a comparison city (Newark, NJ). DESIGN: Natural experiment: Survey and receipt data were collected from low-income areas in NYC, and Newark, NJ (as a comparison city), before and after mandatory labeling began in NYC. Study restaurants included four of the largest chains located in NYC and Newark: McDonald's, Burger King, Wendy's and Kentucky Fried Chicken. SUBJECTS: A total of 349 children and adolescents aged 1-17 years, who visited the restaurants with their parents (69%) or alone (31%) before or after labeling was introduced. In total, 90% were from racial or ethnic minority groups. RESULTS: We found no statistically significant differences in calories purchased before and after labeling; many adolescents reported noticing calorie labels after their introduction (57% in NYC) and a few considered the information when ordering (9%). Approximately 35% of adolescents ate fast food six or more times per week and 72% of adolescents reported that taste was the most important factor in their meal selection. Adolescents in our sample reported that parents have some influence on their meal selection. CONCLUSIONS: Adolescents in low-income communities notice calorie information at similar rates as adults, although they report being slightly less responsive to it than adults. We did not find evidence that labeling influenced adolescent food choice or parental food choices for children in this population.</td>
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| Fairclough SJ, Hackett AF, Davies IG, Gobbi R, Mackintosh KA, Warburton GL, Stratton G, van Sluijs | Promoting healthy weight in primary school children through physical activity and nutrition education: a pragmatic evaluation of the CHANGE! randomised | BMC Public Health. 2013 Jul 2;13:626. | BACKGROUND: This pragmatic evaluation investigated the effectiveness of the Children's Health, Activity and Nutrition: Get Educated! (CHANGE!) Project, a cluster randomised intervention to promote healthy weight using an educational focus on physical activity and healthy eating. METHODS: Participants (n = 318, aged 10-11 years) from 6 Intervention and 6 Comparison schools took part in the 20 weeks intervention between November 2010 and March/April 2011. This consisted of a teacher-led curriculum, learning resources, and homework tasks. Primary outcome measures were waist circumference, body mass index (BMI), and BMI z-scores. Secondary outcomes were objectively-assessed physical activity and sedentary time, and food intake. Outcomes were assessed at baseline, at post-intervention (20 weeks), and at follow-up (30 weeks). Data were analysed using 2-level multi-level modelling (levels: school, student) and adjusted for baseline values of the outcomes and potential confounders. Differences in intervention effect by subgroup (sex, weight status, socio-economic status) were explored using statistical interaction. RESULTS: Significant between-group effects were observed for waist circumference at post-intervention (β for intervention effect = -1.63 (95% CI = -2.20, -1.07) cm, p<0.001) and for BMI z-score at follow-up (β=-0.24 (95% CI = -0.48, -
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<th>Authors</th>
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<td>EM, Boddy LM</td>
<td>intervention study.</td>
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by height in meters squared). RESULTS: Compared with control subjects, intervention participants had increased sleep duration (0.75 hours/d; 95% CI, 0.06 to 1.44; P = .03), greater decreases in TV viewing on weekend days (-1.06 hours/d; 95% CI, -1.97 to -0.15; P = .02), and decreased body mass index (-0.40; 95% CI, -0.79 to 0.00; P = .05). No significant intervention effect was found for the presence of a TV in the room where the child slept or family meal frequency. CONCLUSIONS AND RELEVANCE: Our results suggest that promoting household routines, particularly increasing sleep duration and reducing TV viewing, may be an effective approach to reduce body mass index among low-income, racial/ethnic minority children. Longer-term studies are needed to determine maintenance of behavior change.

**Hawthorne A, Shaibi G, Gance-Cleveland B, McFall S.**

Grand Canyon Trekkers: school-based lunchtime walking program.  

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<th>Study</th>
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<th>Results</th>
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OBJECTIVE: The incidence of childhood overweight is especially troubling among low income Latino youth. Grand Canyon Trekkers (GCT) was implemented as a quasi-experimental study in 10 Title I elementary schools with a large Latino population to examine the effects of a 16-week structured walking program on components of health-related physical fitness: Body Mass Index (BMI), waist circumference, and cardio-respiratory. Data on 1,074 research participants revealed no significance changes in BMI or waist circumference (p > .05); however, cardio-respiratory fitness increased by 37.1% over baseline. Cardiovascular fitness is an independent determinant of long-term health; therefore, the GCT program may have significantly improved the future health profile of the participants and decreased their risk of metabolic diseases.

**HEALTHY Study Group, Foster GD, Linder B, Baranowski T, et al**

A school-based intervention for diabetes risk reduction.  

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<th>Study</th>
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<th>Results</th>
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BACKGROUND: We examined the effects of a multicomponent, school-based program addressing risk factors for diabetes among children whose race or ethnic group and socioeconomic status placed them at high risk for obesity and type 2 diabetes. METHODS: Using a cluster design, we randomly assigned 42 schools to either a multicomponent school-based intervention (21 schools) or assessment only (control, 21 schools). A total of 4603 students participated (mean +/- SD age, 11.3 +/- 0.6 years; 54.2% Hispanic and 18.0% black; 52.7% girls). At the beginning of 6th grade and the end of 8th grade, students underwent measurements of body-mass index (BMI), waist circumference, and fasting glucose and insulin levels. RESULTS: There was a decrease in the primary outcome--the combined prevalence of overweight and obesity--in both the intervention and control schools, with no significant difference between the school groups. The intervention schools had greater reductions in the secondary outcomes of BMI z score, percentage of students with waist circumference at or above the 90th percentile, fasting insulin levels (P=0.04 for all comparisons), and prevalence of obesity (P=0.05). Similar findings were observed among students who were at or above the 85th percentile for BMI at baseline. Less than 5% of the students who were screened had an adverse event; the proportions were nearly equivalent in the intervention and control schools. CONCLUSIONS: Our comprehensive school-based program did not result in greater decreases in the combined prevalence of overweight and obesity than those that occurred in control schools. However, the intervention did result in significantly greater reductions in various indexes of adiposity. These changes may reduce the risk of childhood-onset type 2 diabetes.

**Hollar D, Lombardo M, Lopez-Mitnik G, Hollar TL, Almon M, Agatston AS, Messiah SE.**

Effective multilevel, multi-sector, school-based obesity prevention programming improves weight, blood pressure, and academic performance, especially among low-income, minority children.  

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<th>Study</th>
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<td>J Health Care Poor Underserved 2010 May;21(2 Suppl):93-108.</td>
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INTRODUCTION: Successfully addressing childhood onset obesity requires multilevel (individual, community, and governmental), multi-agency collaboration. METHODS: The Healthier Options for Public Schoolchildren (HOPS)/OrganWise Guys (OWG) quasi-experimental controlled pilot study (four intervention schools, one control school, total N=3,769; 50.2% Hispanic) was an elementary school-based obesity prevention intervention designed to keep children at a normal, healthy weight, and improve health status and academic achievement. The HOPS/OWG included the following replicable, holistic components: (1) modified dietary offerings, (2) nutrition/lifestyle educational curricula; (3) physical activity component; and (4) wellness projects. Demographic, anthropometric (body mass index [BMI]), blood pressure, and academic data were collected during the two-year study period (2004-6). RESULTS: Statistically significant improvements in BMI, blood pressure, and academic scores, among low-income Hispanic and White children in particular, were seen in the intervention versus controls. CONCLUSION: Holistic school-based obesity prevention interventions can improve health outcomes and academic performance, in particular among high-risk populations.
| Hollar D, Messiah SE, Lopez-Mitnik G, et al. | Effect of a Two-Year Obesity Prevention Intervention on Percentile Changes in Body Mass Index and Academic Performance in Low-Income Elementary School Children. | American Journal of Public Health: April 2010, Vol. 100:4, pp. 646-653. | Objectives. We assessed the effects of a school-based obesity prevention intervention that included dietary, curricula, and physical activity components on body mass index (BMI) percentiles and academic performance among low-income elementary school children. Methods. The study had a quasi-experimental design (4 intervention schools and 1 control school; 4588 schoolchildren; 48% Hispanic) and was conducted over a 2-year period. Data are presented for the subset of the cohort who qualified for free or reduced-price school lunches (68% Hispanic; n = 1197). Demographic and anthropometric data were collected in the fall and spring of each year, and academic data were collected at the end of each year. Results. Significantly more intervention than control children stayed within normal BMI percentile ranges both years (P = .02). Although not significantly so, more obese children in the intervention (4.4%) than in the control (2.5%) decreased their BMI percentiles. Overall, intervention schoolchildren had significantly higher math scores both years (P < .001). Hispanic and White intervention schoolchildren were significantly more likely to have higher math scores (P < .001). Although not significantly so, intervention schoolchildren had higher reading scores both years. Conclusions. School-based interventions can improve health and academic performance among low-income schoolchildren. |
| Jansen W., G. Borsboom, A. Meima et al. | Effectiveness of a primary school-based intervention to reduce overweight | Int J Pediatr Obes. 6 (2011), pp. e70–e71 | OBJECTIVE: The purpose of this study was to evaluate the effect of a school-based intervention program to reduce overweight and improve fitness in primary school children. METHODS: A cluster randomized controlled design was used over one school year with schools as unit of randomization. In total 20 schools and 2,622 children aged 6-12 years (grades 3-8) from multi-ethnic, low income inner-city neighbourhoods in Rotterdam, Netherlands, participated. The intervention, named Lekker Fit! (Enjoy being fit!) was a multi-component intervention based on behavioural and ecological models. Main components of the intervention are the implementation of three physical education (PE) sessions a week by a professional PE teacher, additional sport and play activities outside school hours and an educational program. Main primary outcome measures were weight status, body mass index (BMI), waist circumference and fitness (20 m shuttle run). RESULTS: Significant positive intervention effects were found for percentage overweight children (OR 0.53; 95% CI 0.36-0.78), waist circumference (-1.29 cm; 95% CI -2.16 to -0.42 cm) and 20 m shuttle run (0.57 laps; 95% CI 0.13-1.01 laps) among pupils of grades 3-5 (6-9-year olds). The prevalence of overweight in grades 3-5 increased by 4.3% in the control group and by 1.3% in the intervention group. No significant effects were found for BMI or for grades 6-8 (9-12-year olds). CONCLUSIONS: Our results provide evidence for the effectiveness of the multi-component intervention Lekker Fit! among pupils of grades 3-5 and adds to the growing body of evidence that school-based programs with a focus on PA are most effective in reducing childhood obesity. |
| Jouret B, Ahluwalia N, Dupuy M, Cristini C, Nègre-Pages L, Grandjean H, Tauber M. | Prevention of overweight in preschool children: results of kindergarten-based interventions. | Int J Obes (Lond). 2009 Oct;33(10):1075-83. | OBJECTIVE: Given the increasing prevalence of pediatric obesity, we evaluated two kindergarten-based strategies for reducing overweight in preschool children in the Haute-Garonne Department in France. METHODS: Kindergartens (n=79) were randomly assigned to one of the two strategies and followed for 2 years. In the first group (Épidémiologie et prévention de l'obésité infantile, EPIPOI-1), parents and teachers received basic information on overweight and health, and children underwent screening to identify those with overweight (body mass index (BMI) > or = 90th percentile) or at risk for overweight (BMI between 75 and 90th percentile), who were then followed up by their physicians. EPIPOI-2 children, in addition, received kindergarten-based education to promote healthy practices related to nutrition, physical activity and sedentary behaviors. Data on control children from non-intervention kindergartens (n=40) were retrieved from medical records at the Division of School Health. RESULTS: At baseline, groups differed significantly on age and school area (underprivileged/not). Owing to a significant interaction between school area and group, analyses were stratified by school area. At baseline, groups did not differ on overweight prevalence and BMI z-scores for any school area. After intervention, prevalence of overweight, BMI z-score and change in BMI z-score were significantly lower in intervention groups compared with controls in underprivileged areas. Using multilevel analysis adjusted for potential confounders, a significant effect on overweight prevalence at the end of the study was noted for EPIPOI-1 in underprivileged areas only (odds ratio and 95% confidence interval: 0.18 (0.07-0.51). In non-underprivileged areas, the gain in BMI z-score was lower in EPIPOI-2 group compared with control and EPIPOI-1. CONCLUSION: Our results suggest that simple measures involving |
increasing awareness on overweight and health, and periodic monitoring of weight and height with follow-up care when indicated, could be useful to reduce overweight in young children from underprivileged areas. A reinforced strategy with an education component, in addition, may be indicated in children in non-underprivileged areas.

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BACKGROUND: Effective strategies are needed to address obesity, particularly among minority and low-income individuals. PURPOSE: To test whether a two-phase point-of-purchase intervention improved food choices across racial, socioeconomic (job type) groups. DESIGN: A 9-month longitudinal study from 2009 to 2010 assessing person-level changes in purchases of healthy and unhealthy foods following sequentially introduced interventions. Data were analyzed in 2011. SETTING/PARTICIPANTS: Participants were 4642 employees of a large hospital in Boston MA who were regular cafeteria patrons. INTERVENTIONS: The first intervention was a traffic light-style color-coded labeling system encouraging patrons to purchase healthy items (labeled green) and avoid unhealthy items (labeled red). The second intervention manipulated "choice architecture" by physically rearranging certain cafeteria items, making green-labeled items more accessible and red-labeled items less accessible. MAIN OUTCOME MEASURES: Proportion of green- (or red-) labeled items purchased by an employee. Subanalyses tracked beverage purchases, including calories and price per beverage. RESULTS: Employees self-identified as white (73%); black (10%); Latino (7%); and Asian (10%). Compared to white employees, Latino and black employees purchased a higher percentage of red items at baseline (18%, 28%, and 33%, respectively, p<0.001) and a lower percentage of green (48%, 38%, and 33%, p<0.001). Labeling decreased all employees' red item purchases (-11.2%, 95% CI= -13.6%, -8.9%) and increased green purchases (6.6%, 95% CI=5.2%, 7.9%). Red beverage purchases decreased most (-23.8%, 95% CI= -28.1%, -19.6%). The choice architecture intervention further decreased red purchases after the labeling. Intervention effects were similar across all race/ethnicity and job types (p>0.05 for interaction between race or job type and intervention). Mean calories per beverage decreased similarly over the study period for all racial groups and job types, with no increase in per-beverage spending. CONCLUSIONS: Despite baseline differences in healthy food purchases, a simple color-coded labeling and choice architecture intervention improved food and beverage choices among employees from all racial and socioeconomic backgrounds.

Lubans DR, Morgan PJ, Okely AD, Dewar D, Collins CE, Batterham M, Callister R, Plotnikoff RC.


OBJECTIVE: To evaluate the impact of a 12-month multicomponent school-based obesity prevention program, Nutrition and Enjoyable Activity for Teen Girls among adolescent girls. DESIGN: Group randomized controlled trial with 12-month follow-up. SETTING: Twelve secondary schools in low-income communities in the Hunter and Central Coast regions of New South Wales, Australia. PARTICIPANTS: Three hundred fifty-seven adolescent girls aged 12 to 14 years. INTERVENTION: A multicomponent school-based intervention program tailored for adolescent girls. The intervention was based on social cognitive theory and included teacher professional development, enhanced school sport sessions, interactive seminars, nutrition workshops, lunch-time physical activity sessions, handbooks and pedometers for self-monitoring, parent newsletters, and text messaging for social support. MAIN OUTCOME MEASURES: Body mass index (BMI, calculated as weight in kilograms divided by height in meters squared), BMI z score, body fat percentage, physical activity, screen time, dietary intake, and self-esteem. RESULTS: After 12 months, changes in BMI (adjusted mean difference, -0.19; 95% CI= -0.70 to 0.33), BMI z score (mean, -0.08; 95% CI= -0.20 to 0.04), and body fat percentage (mean, -1.09; 95% CI, -2.88 to 0.70) were in favor of the intervention, but they were not statistically different from those in the control group. Changes in screen time were statistically significant (mean, -30.67 min/7; 95% CI, -62.43 to -1.06), but there were no group by time effects for physical activity, dietary behavior, or self-esteem. CONCLUSIONS: A school-based intervention tailored for adolescent girls from schools located in low-income communities did not significantly reduce BMI gain. However, changes in body composition were of a magnitude similar to previous studies and may be associated with clinically important health outcomes.

McGeary KA.

Currently, there is insufficient evidence regarding which policies will improve nutrition, reduce BMI levels and the prevalence of obesity and overweight nationwide. This preliminary study investigates the impact of a nutrition-education policy relative to price policy as a means to reduce BMI in the United States (US). Model estimations use pooled cross-sectional data at the individual-level from the Centers for Disease Control's (CDC), Behavioral Risk Factor Surveillance System (BRFSS), state-level food prices from the American Chamber of Commerce Research Association (ACCRA) and funding for state-specific nutrition-education.
on BMI: evidence from the behavioral risk factor surveillance system. Programs from the United States Department of Agriculture (USDA) from 1992 to 2006. The total number of observations for the study is 2,249,713 over 15 years. During this period, federal funding for state-specific nutrition–education programs rose from approximately $660 thousand for seven states to nearly $248 million for all fifty-two states. In 2011, federal funding for nutrition–education programs reached $375 million. After controlling for state-fixed effects, year effects and state specific linear and quadratic time trends, we find that nutrition education spending has the intended effect on BMI, obese and overweight in aggregate. However, we find heterogeneity as individuals from certain, but not all, income and education levels respond to nutrition-education funding. The results regarding nutrition-education programs suggest that large scale funding of nutrition-education programs may improve BMI levels and reduce obesity and overweight. However, more study is required to determine if these funds are able make the requisite dietary improvements that may ultimately improve BMI for individuals from low income and education–levels.

Muckelbaue r R, Libuda L, Clausen K, Toschke AM, Reimehr T, Kersting M. 

Immigrational background affects the effectiveness of a school-based overweight prevention program promoting water consumption. Obesity (Silver Spring). 2010 Mar;18(3):5 28-34. OBJECTIVE: We tested whether a simple overweight prevention program promoting water consumption in elementary schools is equally effective in children with an immigrational background (MIG) and in those without (non-MIG). Thus, a secondary analysis of a controlled cluster trial, lasting one school year, was conducted. Thirty-two elementary schools located in low socioeconomic districts in two German cities were included. Of the 2,950 school children analyzed, 1,306 were MIG children. Water fountains were installed in the schools of the intervention group (IG) and teachers held lessons to promote water consumption. Control schools (control group (CG)) did not receive any intervention. Before and after intervention, body weight and height was measured. Overweight was defined by age- and sex-specific BMI cutoffs that are linked to an adult BMI of 25 kg/m(2). Beverage consumption was assessed in questionnaires. Modification of intervention effects by immigrational background was tested by interaction terms. The immigrational background modified the intervention effect on prevalence and remission of overweight (interaction term: \( P = 0.03 \) and \( P = 0.02 \)), but not on the incidence of overweight (\( P = 0.06 \). After intervention, the risk of being overweight was reduced in the IG compared to the CG among non-MIG (odds ratio = 0.51, 95% confidence interval (CI): 0.31-0.83), but not among MIG children (odds ratio = 1.02, 95% CI: 0.63-1.65). After intervention, water consumption significantly increased in the IG equally among both, non-MIG and MIG, by ~1 glass/day. A simple school-based intervention promoting water consumption prevented overweight in non-MIG children, but failed in MIG children. Different beverage consumption, among other lifestyle factors, may account for this effect but scientific discussion remains open.

Nemet D, Geva D, Eliakim A. 

Health promotion intervention in low socioeconomic kindergarten children. J Pediatr. 2011 May;158(5): 796-801.e1. OBJECTIVE: To prospectively examine the effects of a randomized school-based intervention on nutrition and physical activity knowledge and preferences, anthropometric measures, and fitness in low socioeconomic kindergarten children. STUDY DESIGN: A total of 376 children completed a school-year combined dietary-behavioral-physical activity intervention and were compared with 349 control subjects (age 3.8 to 6.8 years). RESULTS: The prevalence of overweight and obesity among the kindergarten children was 27.7%. Even though the intervention was not associated with between group differences in body mass index changes, it was associated with significantly (\( P < .05 \)) greater increase in nutrition knowledge and preferences, physical activity knowledge and preferences, and improvement in fitness. There was a greater (\( P < .05 \)) decrease in the number of overweight children in the intervention group (-31.9%) compared with the controls (-17.5%). CONCLUSIONS: A kindergarten dietary-physical activity intervention applied by the kindergarten teachers, had no effect on body mass index changes between the groups, but improved nutrition and physical activity knowledge and preferences, improved fitness, and decreased the percent of overweight children. This intervention may play an important role in health promotion, prevention and treatment of childhood obesity.

Olvera N, Bush JA, Sharma SV, Knox BB, Scherer RL, Butte NF. 

BOUNCE: a community-based mother-daughter healthy lifestyle intervention for low-income Latino families. Obesity (Silver Spring) 2010; 18(Suppl. 1): S102–S104 OBJECTIVE: The primary purpose of this study was to assess the efficacy of a family-based exploratory community study titled BOUNCE (Behavior Opportunities Uniting Nutrition, Counseling, and Exercise) to increase physical fitness and activity in low-income Latino mothers and daughters. The BOUNCE study consisted of a 12-week exercise (e.g., Latin dance), nutrition education, and counseling intervention. The design included a two-arm parallel group assignment to an experimental group (EG; included 26 mother-daughter dyads) and comparison group (CG; included 20 mother-daughter dyads). Pre- and postintervention 20-Meter Endurance Shuttle Run Test and accelerometer were used to measure children's aerobic capacity and physical activity, respectively. For the mothers, the Rockport Walk test and Non-Exercise Physical Activity Rating test were employed to assess aerobic fitness and physical activity. Anthropometric, demographic, and dietary assessments were also collected pre- and postintervention.
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<th>Author(s)</th>
<th>Study Title</th>
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<td>Polinder S, Robroek SJ, Marshall JA, Scarbro S, Crane L, Puma J, Seiberl J, Lange D, Landsberg Danielzik S, Plachta Langnäse K, Müller MJ</td>
<td>Differences in outcome measures between groups were tested using repeated measures analysis of covariance. The BOUNCE intervention had a significant effect on EG Latino daughters’ aerobic capacity (P = 0.044). Although not statistically significant, EG daughters reported a higher reduction of high fat food and sweetened beverages and an increase in fruit and vegetable consumption compared to CG daughters. Similarly, EG mothers reported more strategies to increase fruit/vegetable consumption and reduce fat intake compared to CG mothers. No changes in physical activity or BMI were observed between EG and CG mother-daughter dyads.</td>
<td>15 years of the Kiel Obesity Prevention Study (KOPS). Results and its importance for obesity prevention in children and adolescents. Bundesgesundheitsbl Gesundheitsforsch Gesundheitsprophylaxe 2011 Mar;54(3):304-12. OBJECTIVE: The Kiel Obesity Prevention Study (KOPS) has been performed since 1996 and aims to characterize determinants and to prevent overweight. A total of 15,251 children and adolescents aged 5-16 years were recruited, of whom 780 and 92, respectively, underwent school-based and family-based interventions. Long-term evaluation of the school-based intervention was available over 4 and 8 years, while family-based intervention was evaluated over 1 year. The prevalence of overweight was 18.8% for the whole KOPS cohort. Determinants of overweight were parental overweight and obesity, low socioeconomic status (SES), early life factors, and lifestyle factors. School-based intervention ameliorated the weight status of children of high SES and of normal weight mothers over the long-term. The intervention effect was small but within the expectable range as calculated from analysis of determinants. Alternative outcome variables (e.g., fat mass) and new evaluation approaches (e.g., excess gain in fat mass) gave no detailed information of the intervention success. Family-based intervention showed that even with this individual approach children of low SES could not be reached.</td>
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<td>Plachta-Danielzik S, Landsberg B, Lange D, Langnäse K, Müller MJ</td>
<td>Eight-Year Follow-Up of School-Based Intervention on Childhood Overweight – the Kiel Obesity Prevention Study</td>
<td>Obes Facts 2011;4:35–43 Objective: The aim of this study was to evaluate the 8-year outcome of school-based intervention on weight status, lifestyle and blood pressure (BP) as part of the Kiel Obesity Prevention Study (KOPS). Methods: Within a quasi-randomized controlled trial, 240 intervention (I) and 952 non-intervention (NI) students at age 6 and 14 years were assessed in schools. Six nutrition units followed by 20-min running games were performed within the first year at school. Primary outcome was the 8-year change in body mass index standard deviation score (BMI-SDS) according to German references. Effective intervention was tested using multilevel linear regression analysis. Results: Eight-year changes in BMISDS were +0.18 and +0.22 with increases in prevalence of overweight from 8.3 to 10.4% and 7.0 to 11.2% in I and NI students, respectively. Cumulative 8-year incidence of overweight was 5.9% and 7.1% in I and NI students, respectively. There was no overall effect of intervention, but a significant interaction was shown between the intervention and the socio-economic status (SES), which demonstrated that in high SES, the 8-year change in BMI-SDS was in favour of I (−0.17 in I and +0.17 in NI; p &lt; 0.01). Intervention had no measurable effects on lifestyle and BP. Conclusions: School-based health promotion has some favourable and sustained effects on 8-year changes in BMI-SDS, which are most pronounced in students of high SES families. The data argue in favour of further preventive measures.</td>
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<td>Puma J, Romaniello C, Crane L, Scarbo S, Belansky E, Marshall JA</td>
<td>Long-term student outcomes of the Integrated Nutrition and Physical Activity Program.</td>
<td>J Nutr Educ Behav. 2013 Nov-Dec;45(6):35-42. OBJECTIVE: To examine the long-term effects of the Integrated Nutrition and Physical Activity Program (INPAP), a school-based nutritioneducation program. DESIGN: Quasi-experimental design comparing intervention and comparison cohorts at 3-6 years after delivery of the INPAP intervention on nutrition- and physical activity-related outcomes. SETTING: This study was conducted in 1 school district in a low-income rural county of 15,000 residents in south-central Colorado. PARTICIPANTS: In second grade, intervention and comparison cohorts included 173 (fall 2000) and 190 (fall 1999) students, respectively. Approximately 60% of these students completed assessments in eighth grade. INTERVENTIONS: INPAP is an experiential school-based nutrition education program, grounded in social cognitive theory and Piaget's cognitive development theory and adapted for use in a rural setting. OUTCOMES: Nutrition and physical activity knowledge, self-efficacy, attitudes and behaviors, body mass index. ANALYSIS: Wilcoxon signed rank test, chi-square test for proportions, and t test for means. RESULTS: Long-term effects were observed in nutrition-related knowledge and attitudes but not self-efficacy or behavior change. The effects that did occur were attenuated over time. CONCLUSION AND IMPLICATIONS: This study found that INPAP implemented in elementary school had limited lasting effects by the end of middle school, a time when students have increased autonomy to make food choices.</td>
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<td>Robroek SJ, Polinder S</td>
<td>Cost-effectiveness of a long-term</td>
<td>Health Educ Res. 2012 OBJECTIVE: This study aims to evaluate the cost-effectiveness of a long-term workplace health promotion programme on physical activity (PA) and nutrition. In total, 924 participants enrolled in a 2-year cluster randomized controlled trial, with departments (n = 74) within companies (n = 6) as the unit of randomization. The intervention was compared with a standard</td>
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<td>Bredt FJ, Burdorf A.</td>
<td>Internet-delivered worksite health promotion programme on physical activity and nutrition: a cluster randomized controlled trial.</td>
<td>Jun;27(3):39 9-410.</td>
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<td>Taber DR1, Chriqui JF, Powell L, Chaloupka FJ.</td>
<td>Association between state laws governing school meal nutrition content and student weight status: implications for new USDA school meal standards.</td>
<td>JAMA Pediatr. 2013 Jun;167(6):5 13-9.</td>
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<td>van Stralen, M.M. H. de Vries, C. Bolman, A.N. Muddle, L. Lechner</td>
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<td>Ann Behav Med, 39 (2010), pp. 139–150</td>
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<td>Wang XI, Ghaddar S, Brown C, Pagán JA, Balboa M.</td>
<td>Alliance for a Healthy Border: factors related to weight reduction and glycemic success.</td>
<td>Popul Health Manag. 2012 Apr;15(2):90-100.</td>
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<td>Wilson DK, Lawman HG, Segal M, Chappell S.</td>
<td>Neighborhood and parental supports for physical activity in minority adolescents.</td>
<td>Am J Prev Med. 2011 Oct;41(4):399-406.</td>
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