Summary Statement Title:
Physical activity interventions in the prevention and treatment of paediatric obesity: Evidence and implications for public health

Quality Assessment Rating: 9 (strong)

Review on which this summary statement is based:

Review Author Contact Information:
Dr. John Reilly, University of Glasgow, Department of Human Nutrition, jir2y@clinmed.gla.ac.uk

This is a summary statement written to condense the work of the authors of this systematic review, referenced above. The intent of this summary is to provide an overview of the findings and implications of the full review. For more information on individual studies included in the review, please see the review itself.

Review content summary
This review of high quality randomised controlled trials (RCTs) evaluated the effectiveness of interventions to prevent and treat childhood obesity. It is an update to a previously released systematic review. RCTs that targeted activity or inactivity, that followed up children or adolescents for at least 1 year and that included an objective weight-related outcome measure were included. The original review identified 16 studies, 13 of which were assessed to be of weak methodological quality. A total of four new RCTs were added to this updated review. The results indicate that prevention and treatment interventions have limited long term effectiveness in reducing childhood obesity and there is limited generalizability of results across populations. There was some evidence that physical activity interventions targeted at reducing sedentary behaviour were effective. The authors concluded that large-scale policy initiatives, using an ecological approach are needed to reduce pediatric obesity.

Comments on this review’s methodology
This is a methodologically strong systematic review. A focused, clearly defined research question was identified and a comprehensive search strategy was described. Two reviewers independently screened titles for inclusion, relevance and quality assessment. Assessment of methodological quality was very comprehensive. Of the few studies included it is unclear if the results of individual studies were weighted according to methodological quality.

Why this issue is of interest to public health
The Canadian Population Health Initiative [CPHI] recognized obesity as a widespread public health problem in Canada as well as a major contributing factor to Canada’s burden of disease. Health consequences for youth related to obesity include risks to the cardiovascular, endocrine, pulmonary, orthopaedic and gastroenterological systems and impediments to the development of healthy lifestyles and body image. Morbidity and quality-of-life effects of obesity are similar to those caused by smoking, poverty, and problem drinking. Further, the health care costs associated with obesity-related mortality and morbidity are significant and increasing. CPHI, based on effectiveness evidence related to the prevention of obesity among children and youth, recommended breastfeeding, regular school-based physical education, comprehensive school health programs, reduced television viewing time and community-wide interventions as effective solutions to the problem of obesity.

Evidence and implications

<table>
<thead>
<tr>
<th>What’s the evidence?</th>
<th>Implications for practice and policy:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Obesity Prevention (3 studies)</td>
<td>1. Obesity Prevention</td>
</tr>
<tr>
<td>1.1. Results were mixed regarding the effectiveness of school-based interventions in changing diet, levels of activity and inactivity, and BMI or overweight or obesity prevalence.</td>
<td>1.1. There is very limited high quality evidence evaluating the impact of obesity prevention strategies among children and adolescents. Therefore,</td>
</tr>
<tr>
<td>1.2. The one new study reported no significant effects on BMI and overweight or obesity prevalence, and a negligible impact on the other variables.</td>
<td>1.1.1. Public health decision makers should</td>
</tr>
<tr>
<td>1.3. One multi-component school-based program (Planet Health), reported</td>
<td>1.1.1.1. consider whether these strategies are an effective use of resources at this time.</td>
</tr>
<tr>
<td>1.3.1. A statically significant positive impact on obesity prevalence in girls (odds ratio 0.47, 95%</td>
<td>1.1.1.2. ensure that any program implemented is sufficiently resourced and undergoes high quality process AND outcome evaluation in order to ensure that resources are being spent wisely</td>
</tr>
</tbody>
</table>

Date this summary statement was written: January 2007
confidence interval (CI) 0.24 -0.93). This means girls in the intervention schools were half as likely to be obese at final follow-up compared to girls in the control schools. The true treatment effect ranged from 75% less likely to be obese to only 7% less likely.

1.3.2. A statistically significant impact on remission of pre-existing obesity in girls (odds ratio 2.16%, 95% CI 1.07% to 4.35%). This means that girls in the intervention schools who at baseline were obese were just over two times more likely to not be obese at final follow-up compared to those in the control schools. The true treatment effect can range from almost no difference between the two groups, to girls in the intervention schools being almost 4 ½ times more likely to not be obese at final follow-up.

1.3.3. Gender differences in outcomes as this intervention was not effective in changing BMI, overweight or obesity prevalence in boys.

1.4. Another multi-component study (CATCH) with school- and home-based interventions reported

1.4.1. No impact on BMI, or prevalence of obesity or overweight.

1.4.2. Some evidence of increased intensity of physical activity during physical education classes

1.5. It is likely that some of the studies included in the review did not have sufficient power or dose (intensity, duration, and/or frequency) to detect a statistically significant difference between intervention and control groups.

2. Obesity Treatment (1 study)

2.1. The one treatment program included in this review reported a statistically significant treatment effect (p<0.05) in percentage overweight at 4 and 12 month follow-up. There was a 20% reduction in overweight among the intervention group compared to a 12% reduction in the control group. The group receiving the intervention targeted on reducing sedentary behaviours had the largest reductions in percentage overweight.

2. Obesity Treatment

2.1. There is very limited high quality evidence evaluating the impact of obesity treatment strategies among children. Therefore,

2.1.1. Decision makers should

2.1.1.1. consider whether these strategies are an effective use of resources at this time.

2.1.1.2. ensure that any program implemented is sufficiently resourced and undergoes high quality process AND outcome evaluation in order to ensure that resources are being spent wisely

2.1.1.3. includes interventions aimed at reducing the amount of time spent engaged in sedentary activity

2.1.2. High quality research is needed that involves

2.1.2.1. valid measurement tools

2.1.2.2. the effectiveness of interventions to reduce sedentary activity on obesity related outcomes for obese/overweight and non-obese/overweight children and youth

2.2. Programs are required that focus on effective strategies to achieve and maintain healthy weights

General Implications

- There are few quality studies that address the effectiveness of prevention and treatment interventions related to childhood obesity. Although the number of studies being conducted is increasing, their quality is lacking. Of the studies that met the authors’ inclusion criteria, the best evidence supported interventions that focused on decreasing sedentary behaviour. Additional, quality, long-term research using a large sample size will help determine the efficacy of interventions targeting childhood obesity. Given the importance of high quality studies needed, resources must be made available to ensure quality design and implementation of interventions and evaluations.

Cost benefit or cost-effectiveness information

Not included in the review
References used to outline issue


Other quality reviews on this topic


Related links


Summary statement authors

Christa Costas-Bradstreet, RN, BA, MA (candidate)  
Physical Activity Specialist

Paula Robeson RN, MScN  
Knowledge Broker

health-evidence.ca

The opinion and ideas contained in this document are those of the summary statement author(s) and health-evidence.ca. They do not necessarily reflect or represent the views of the author’s employer or other contracting organizations. Links from this site to other sites are presented as a convenience to health-evidence.ca internet users. Health-evidence.ca does not endorse nor accept any responsibility for the content found at these sites.

Production of this summary statement was funded with support from the Public Health Agency of Canada. The views expressed herein do not necessarily represent the views of the Public Health Agency of Canada.