# Health Evidence

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# Interventions for preventing obesity in children: Evidence and implications for public health

Review on which this evidence summary is based:

Waters, E., de Silva-Sanigorski, A., Hall, B.J., Brown, T., Campbell, K.J., Gao, Y., Armstrong, R., Prosser, L., Summerbell, C.D. (2011). Interventions for preventing obesity in children. Cochrane Database of Systematic Reviews, Issue 12, Art. No. CD001871.

Note: The Cochrane review that this evidence summary is based on has been updated. This evidence summary summarizes the above-cited version of this review, not the updated version. An updated evidence summary will be provided as soon as possible.

## **Review Focus**

- Ρ Individuals < 18 years of age
- L Programmes (min. duration of 12 weeks) – based in the community, school, home, day care, or preschool - involving diet and nutrition, exercise and physical activity, lifestyle and social support.
- С Usual care or another active intervention
- 0 Primary Outcomes: percent body fat, BMI; ponderal index, skin-fold thickness, and prevalence of overweight and obesity

Secondary Outcomes: activity levels; dietary intake; change in knowledge; environment change (such as food provision service); stakeholders views of the intervention and other evaluation findings; measures of self-esteem, health status and well being, quality of life; unintended harms; and cost effectiveness/costs of the intervention.

**Review Quality Rating:** 9 (strong) Details on the methodological quality are available here.

Considerations for Public Health Practice	
Conclusions from Health Evidence	General Implications
<ul> <li>This is a review of strong methodological quality of primary studies of weak to moderate quality.</li> <li>For BMI, a statistically significant effect was observed among children aged 6-12 years only.</li> <li>Statistically significant improvements in BMI were observed for physical activity and dietary interventions combined, for physical activity interventions alone, but not dietary interventions alone.</li> <li>Statistically significant improvements in BMI were observed only when the intervention was delivered in the education system, except for young children (less than 5 years), where interventions outside the education setting were also effective.</li> <li>Significant variation in results across studies could not be explained, thus findings need to be interpreted with caution.</li> </ul>	<ul> <li>Public health should promote and/or support: <ul> <li>obesity prevention to reduce BMI among children aged 6-12 years;</li> <li>combined physical activity and dietary interventions, provided within the educational system over the short- (&lt;12 months) OR long-term (&gt;12 months).</li> </ul> </li> <li>Different approaches, however, are needed to impact BMI among those aged 0-5 and 13-18, as the evidence suggests that current interventions are not effective in significantly improving BMI in these age groups.</li> <li>Additional efforts to determine the long term effect of these interventions on BMI are needed.</li> </ul>
Evidence and Implications	
What's the evidence?	Implications for practice and policy
<ol> <li>BMI (37 studies, 27,946 children)         <ul> <li>A statistically significant effect on BMI was observed overall (SMD15, 95% CI21 to -0.09).</li> <li>However, subgroup analysis illustrated a statistically significant effect on children aged 6-12 years only (SMD15, 95% CI -0.23 to -0.08) (31 studies).</li> <li><u>No impact</u> on BMI among those 0-5 years of age or</li> </ul> </li> </ol>	<ol> <li>BMI         <ul> <li>Public health decision makers should support obesity prevention interventions as an effective strategy for reducing BMI among children aged 6-12.</li> <li>It remains unclear as to what interventions are needed to significantly influence BMI among children aged 0-5 and adolescents aged 13-18.</li> </ul> </li> </ol>

adolescents 13-18 years of age.	
<ul> <li>adolescents 13-18 years of age.</li> <li>Intervention Type <ul> <li>Physical activity and dietary interventions combined led to a reduction in BMI (SMD -0.18, 95% CI -0.27 to -0.09), whereas the impact of physical activity interventions alone was very minimal (SMD -0.11, 95% CI -0.19 to -0.02).</li> <li>No impact with nutrition-alone interventions.</li> </ul> </li> <li>Intervention Setting <ul> <li>Overall interventions delivered only in the education setting led to statistically significant improvements in BMI, (SMD -0.14, 95% CI -0.21 to -0.08).</li> <li>No impact overall with education + other settings, or in non-education settings</li> <li>However, among children aged 0-5 statistically significant</li> </ul> </li> </ul>	<ul> <li>2. Intervention Type <ul> <li>Public health interventions should focus on changing physical activity and healthy eating behaviours among 6-12 year olds.</li> <li>Public health interventions should focus on creating environments and culture that support children to eat healthier and to engage in more physical activity throughout each day.</li> </ul> </li> <li>3. Intervention Setting <ul> <li>Public health should encourage and support the development of curriculum in education settings focused on healthy eating and physical activity. As well as increased sessions on physical activity and the development of fundamental movement skills.</li> <li>Public health professionals should work</li> </ul> </li> </ul>
improvements in BMI were observed when the intervention was delivered outside of the education setting.	<ul> <li>collaboratively with the education sector to improve the nutritional quality of foods available in schools.</li> <li>Public health should be an active partner in providing professional development and capacity building activities to teachers and other education staff to implement health promotion interventions.</li> <li>Public health should actively engage with parents of young children to support activities in the home to encourage children to be more active, eat healthier foods and spend less time in sedentary behaviours</li> </ul>
4. Intervention Length	4. Intervention Length
<ul> <li>Interventions &lt; 12 months (SMD -0.17, 95% CI -0.25 to -0.09) and those of &gt; 12 months (SMD -0.12, 95% CI -0.21 to -0.03) both led to improvements in BMI.</li> </ul>	<ul> <li>Public health decision makers should support either short-term or long-term interventions, as per the specific needs and preferences of the educational setting.</li> </ul>
5. Randomization	5. Randomization
<ul> <li>Statistically significant improvements in BMI were</li> </ul>	<ul> <li>Additional studies testing innovative new</li> </ul>
observed whether or not studies were adequately	approaches among children aged 0-5 and
randomized.	adolescents aged 13-18 are needed.
<b>Legend:</b> P – Population; I – Intervention; C – Comparison group; O – Outcomes; CI – Confidence Interval; OR – Odds Ratio; RR – Relative Risk; Standardized Mean Difference - SMD	

\*\*For definitions see the healthevidence.org glossary <u>http://www.healthevidence.org/glossary.aspx</u>

## Why this issue is of interest to public health in Canada

Obesity is recognized as a widespread public health problem in Canada. Of particular concern is that, over the last 25 years, obesity rates among children and youth in Canada have nearly tripled.<sup>1,2</sup> Measured obesity is 8.6% among children and youth aged 6 to 17, and earlier estimates suggest that 6.3% of children aged 2 to 5 are obese.<sup>1</sup> With excessive weight gain, children are at higher risk of developing a range of health problems in childhood and in their later years, including hypertension, Type-2 diabetes, bone and joint problems, and negative body image. Moreover, weight problems in childhood are likely to persist into their adult years; teenagers who are obese have an 80% chance of remaining obese as adults.<sup>2</sup> Beyond the personal costs, the economic costs of obesity are estimated at \$4.6 billion in 2008, up about 19% from \$3.9 billion in 2000, based on costs associated with the eight chronic diseases most consistently linked to obesity. Estimates rise to close to \$7.1 billion when based on the costs associated with 18 chronic diseases linked to obesity.<sup>1</sup>

- 1. Canadian Institute for Health Information & Public Health Agency of Canada. (2011). Obesity in Canada: A joint report from the Public Health Agency of Canada and the Canadian Institute of Health Information. Retrieved from http://www.phac-aspc.gc.ca/hp-ps/hl-mys/oic-oac/assets/pdf/oic-oac-eng.pdf
- Government of Canada. (2011). Kids' health and safety: Childhood obesity, protecting your children from the risk of childhood obesity. Retrieved from <a href="http://www.healthycanadians.gc.ca/init/kids-enfants/obesit/index-eng.php">http://www.healthycanadians.gc.ca/init/kids-enfants/obesit/index-eng.php</a>

#### Other quality reviews on this topic are available on www.healthevidence.org

#### Suggested citation

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This evidence summary was written to condense the work of the authors of the review referenced on page one. 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. The opinion and ideas contained in this document are those of the evidence summary author(s) and healthevidence.org. 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

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