Population health approaches to prevent type II diabetes: Evidence and implications for public health

Review on which this evidence summary is based:

Review Focus

**P**
- General population

**I**
- Population health interventions focused on preventing Type II diabetes or its related risk factors through policy or changes in the social or physical environment

**C**
- Usual care

**O**
- Primary Outcomes: prevention of type II diabetes or reducing the associated risk factors (i.e. unhealthy weight, inadequate physical activity, and poor nutrition)

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

Considerations for Public Health Practice

**Conclusions from Health Evidence**

This well done review includes primary studies ranging from strong to weak methodological quality. This evidence summary only presents the evidence for strong and moderate studies.

School-based interventions compared to usual care led to:
- no statistically significant effects on physical activity, nutrition, BMI, fruit and vegetable intake, energy from fat, total serum cholesterol, and VO₂ Max ([among the most rigorous studies](#))
- statistically significant improvements in triglycerides, physical activity, systolic and diastolic blood pressure, percentage body fat, smaller increase in BMI, and waist circumference among boys

Community-based interventions compared to usual care led to:
- statistically significant increase in self-reported physical activity

Worksite-based interventions compared to controls led to:
- statistically significant increase in smoking cessation rates

**General Implications**

The most current, rigorous evidence does not support school-based interventions to reduce Type II diabetes or its risk factors. Findings from less rigorous studies do support the use of school-based interventions to reduce Type II diabetes risk factors.

Community-based interventions are currently recommended for increasing physical activity.

Worksite-based interventions are recommended for increasing smoking cessation rates.

There is limited, good quality evidence, therefore results should be applied cautiously to public health practice, and any associated public health programs need to evaluate the impact of these interventions.

Evidence and Implications

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<th>What’s the evidence?</th>
<th>Implications for practice and policy</th>
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<td>1. School based interventions (5 RCTs of high quality, 6 quasi-experimental of moderate quality) Among studies of moderate methodological quality, a statistically significant impact was observed on</td>
<td>1. School-based Interventions Given evidence is mixed (rigorous studies generally report no effect, lower quality studies report significant effects), school-based interventions may</td>
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2. Community-based Interventions (1 study of moderate quality)
- One studies of moderate methodological quality observed statistically significant impact on self-reported physical activity.

3. Worksite-based Intervention (1 study of moderate quality)
- One study of moderate methodological quality found a statistically significant increase in smoking cessation rate (OR 1.38; 95% CI 1.05-1.81).

Why this issue is of interest to public health in Canada
Type II diabetes is a significant public health problem in Canada. Excess blood glucose levels can lead to the dysfunction of organs, such as the kidneys, eyes, nerves, heart and blood vessels, which may result in death.\(^1\) Type II diabetes represents about 90-95% of the total diabetic population.\(^2\) In Canada, approximately 2 million Canadians aged 1 and older (1 in 16 people) are living with diabetes.\(^2\) Projections indicate that by 2012 almost 2.8 million Canadians will be living with diabetes—an estimated annual percent increase of about 6% per year with an overall increase of about 25% from 2007.\(^2\) The risk of type II diabetes increases with age, obesity, and physical inactivity.\(^2\) In higher income countries minority ethnic groups often suffer a higher prevalence of type II diabetes compared to the local population.\(^3\)


Other quality reviews on this topic are available on [www.healthevidence.org](http://www.healthevidence.org)

Suggested citation

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 healthevidence.org internet users. Healthevidence.org does not endorse nor accept any responsibility for the content found at these sites.