PREVENTION OF CHILDHOOD OBESITY

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Relationships with commercial interests:
► Not Applicable

Potential for conflict(s) of interest:
► Not Applicable
Mitigating Potential Bias

- All the recommendations involving clinical medicine are based on evidence that is accepted within the profession.
- All scientific research referred to, reported, or used is in the support or justification of patient care.
- Recommendations conform to the generally accepted standards.
- The presentation will mitigate potential bias by ensuring that data and recommendations are presented in a fair and balanced way.
Objectives

- Be aware of prevalence of childhood obesity in Canada and the long-term health outcomes
- Know the evidence base supporting efforts at obesity prevention relevant to pediatric patients
- Have knowledge on implementation of lifestyle practices that can alter children’s lifestyle behaviours
- Be informed of recent developments regarding pathways that may lead to childhood obesity and related health outcomes.
Obesity classification in childhood: Clinical practice - WHO Curves

BMI - Age / gender

- **Overweight:** 
  - >85th percentile ↓

- **Obesity:** 
  - >97th percentile ↓

- **Severe Obesity:** 
  - >99.9th percentile ↓
Overweight and obesity in Canadian children

2-17 years

1978-79
Overweight 12%
Obese 3%

2004
Overweight 18%
Obese 8%

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McMaster University
Health Outcomes in Childhood Obesity
Cardiometabolic health and childhood obesity severity

30 – 50% of children with obesity have multiple CV risk factors
MS in adolescence predicts adult coronary artery disease

Elevated BMI with Metabolic syndrome

14-FOLD increased risk

Angina or MI

Lipid Research Clinics
AGE 6 - 19 years

Princeton Follow-up
AGE 30 - 48 years

Morrison JA et al, Pediatrics, 2007
Adolescent BMI Trajectory and Risk of Diabetes versus Coronary Disease

Coronary atherosclerosis and adolescent BMI (n=36,794)

Tirosh, NEJM, 2011
Health Outcomes in Childhood Obesity

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Health related quality of life

IWQOL-Kids Total scores from published studies of healthy weight, overweight, obese, severely obese, and Teen-LABS adolescents

Zeller M et al, J Peds, 2015
Obesity treatment - 2016

On a background of mental health therapy

Healthy Balanced Nutrition

Limit sedentary time

Physical activity

Family based behavioural therapy

Pharmacotherapy

SLEEP

SURGERY
OBEISITY CAUSATION

Causes

Prevention
Obesity Causation – SYSTEMS MAP
Understanding causation using a life-course approach

Morrison, KM
Fetal exposures and childhood obesity

- Low birth weight
- Maternal smoking
- High birth weight
- Maternal obesity
- Maternal weight gain during pregnancy
- Maternal diabetes
- OTHER
Early Childhood Development & Cardiometabolic Health

- Infant feeding
- Rapid early postnatal growth
- Sleep disturbance in early childhood
Common nutritional problems

- Sugared drink consumption
- Large portion size
- Fruit and vegetable consumption
Overall Physical Activity

This year’s grade remains a D- for the third year in a row because most children and youth in Canada are not meeting the Canadian Physical Activity Guidelines. The grade reflects the balance between 1 age group that is doing well (3- to 4-year-olds) and 2 age groups that are doing poorly (5- to 11-year-olds and 12- to 17-year-olds).

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Sedentary Behaviour

The Canadian Sedentary Behaviour Guidelines by Age Group


For the early years: 0-4 years

Guidelines

> For healthy growth and development, caregivers should minimize the time infants (aged less than 1 year), toddlers (aged 1-2 years) and preschoolers (aged 3-4 years) spend being sedentary during waking hours. This includes prolonged sitting or being restrained (e.g., stroller, high chair) for more than one hour at a time.

> For those under 2 years, screen time (e.g., TV, computer, electronic games) is not recommended.

> For children 2-4 years, screen time should be limited to under one hour per day; less is better.

For children: 5-11 years

Guidelines

For health benefits, children aged 5-11 years should minimize the time they spend being sedentary each day. This may be achieved by:

> Limiting recreational screen time to no more than 2 hours per day; lower levels are associated with additional health benefits.

> Limiting sedentary (motorized) transport, extended sitting and time spent indoors throughout the day.

For youth: 12-17 years

Guidelines

For health benefits, youth aged 12-17 years should minimize the time they spend being sedentary each day. This may be achieved by:

> Limiting recreational screen time to no more than 2 hours per day; lower levels are associated with additional health benefits.

> Limiting sedentary (motorized) transport, extended sitting and time spent indoors throughout the day.

Source: Canadian Society for Exercise Physiology.
CHILDHOOD OBESITY PREVENTION INTERVENTIONS
Prevention of overweight and obesity in children and youth: a systematic review and meta-analysis

Leslea Peirson PhD, Donna Fitzpatrick-Lewis MSW, Katherine Morrison MD, Donna Ciliska PhD, Meghan Kenny MA, Muhammad Usman Ali MD, Parminder Raina PhD

Abstract

**Background:** One-third of Canadian children are overweight or obese. This problem carries considerable concern for negative impacts on current and future health. Promoting healthy growth and development is critical. This review synthesized evidence on the effectiveness of behavioural interventions for preventing overweight and obesity in children and adolescents.

**Methods:** We updated the search of a previous Cochrane review. Five databases were searched up to August 2013. Randomized trials of primary care–relevant behavioural (diet, exercise and lifestyle) interventions for preventing overweight and obesity in healthy normal- or mixed-weight children or youth aged 0–18 years were included if 12-week postbaseline data were provided for body mass index (BMI), BMI z-score, or prevalence of overweight or obesity. Any study reporting harms was included. Meta-analyses were performed if possible. Features of interventions showing significant benefits were examined.
Systematic review and meta-analysis - 2015

- Update of previous review
- RCTs
- Relevant to primary care
- Questions relevant to BMI, BMI Z-score and obesity prevalence

Found 90 studies:
All with mixed weight populations
All lifestyle behaviours – many in the school environment
Systematic review (Peirson et al, CMAJ Open 2015)

- Very small decrease in BMI
- 16 studies showed efficacy - 14 in schools
- Most were multi-component
- ALL in mixed weight populations
Community based intervention
Current recommendations
Current guidelines

- Growth monitoring in all children at all appropriate primary care visits (CTFPHC)
- Assist families in promoting healthy lifestyle behaviours (CPS)
- Pediatricians should use a longitudinal, developmentally appropriate life-course approach to:
  - Identify children on a path to obesity
  - Base prevention efforts on family dynamics and reduction in high-risk dietary and activity behaviours

- Canadian Task Force on Preventive Health Care, 2015
- CPS Position Statement, 2016
- AAP, 2015
Family based approach

Anticipatory guidance

- Consider families expected to be at high risk based on
  - Family obesity
  - Early exposures

- Monitor BMI from 2 years of age - be aware of trajectory
Focus on key behaviours

- **NUTRITION**
  - Sugared drink intake
  - Breakfast daily
  - Family meals
  - Healthy snacking

- **PHYSICAL ACTIVITY**

- **SEDENTARY TIME**

- **SLEEP**
SUMMARY

- Overweight and obesity prevalence has been stable – approximately 1/3 of Canadian children
- Obesity causation is multi-factorial and approaches to prevention also need to be
- Primary care interventions have been shown to impact family behaviours
- Monitoring and anticipatory guidance importance for EVERY family