

## PedsCases Podcast Scripts

This is a text version of a podcast from PedsCases.com on “**School Nutrition.**” These podcasts are designed to give medical students an overview of key topics in pediatrics. The audio versions are accessible on iTunes or at [www.pedscases.com/podcasts](http://www.pedscases.com/podcasts).

### **School Nutrition**

Developed by Dr. Jean-Baptiste Roberge and Dr. Jeff Critch for PedsCases.com.  
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#### **Introduction:**

Hello, my name is Jean-Baptiste Roberge and I am a second-year resident in pediatrics at Sainte-Justine University Hospital Centre in Montréal. This podcast will review key elements of school nutrition policies with specific focus on nutrition standards. It was developed in conjunction with PedsCases and Dr. Jeff Critch. It is based on the Canadian Paediatric Society (CPS) position statement “School nutrition: Support for providing healthy food choices in schools”. For additional information and to view the complete CPS Statement, please visit [www.cps.ca](http://www.cps.ca). The script for this podcast can be viewed at [www.pedscases.com](http://www.pedscases.com).

#### **Objectives:**

- 1) Understand that child and youth obesity is a complex and important public health problem.
- 2) Recognize schools as unique environments to improve nutrition in children and youth.
- 3) Understand the goals and impacts of school nutrition policies.

#### **Liam’s Case**

Liam is a 14-year-old boy in grade-9. He plays on his school’s soccer team. He always keeps himself busy. This morning, Liam woke up late. He had just enough time to catch his bus. Since he had no time to eat breakfast at home, he purchased a chocolate pastry and an orange juice from a vending machine at school. At lunch time, he realized that he had forgotten to take the lunchbox his mother had prepared. Today, burgers were being served in the cafeteria. His best friend Emma nonetheless bought a salad. Even though Liam thought the salad looked tasty, he decided to purchase the burger. After school, Liam went to soccer practice. Hearing his father cheering him on, Liam looked up at the bleachers and noticed a billboard advertising the opening of a new fast-food restaurant. After practice Liam’s father invited Liam and a few of his teammates to supper at the new restaurant. While eating a jumbo poutine and talking to his friends about their upcoming game, Liam thought to himself “What a nice day I had today!”

Liam’s story illustrates that children and youth consume a significant proportion of their daily energy intake while in schools<sup>1</sup>. As such, the school environment presents many

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opportunities to improve school nutrition. Why did Liam have access to a vending machine at his school? Why was the calorie-dense, nutrient-poor burger the main and cheapest meal that day? Why was there a fast food advertisement near the school's ground? And for that matter, why was there a fast food restaurant within walking distance from that school?

### **A Public Health Challenge**

Child and youth overweight and obesity are major health issues in Canada. In 2015, 31% of Canadian 5- to 17-year-olds were overweight (19%) or obese (12%)<sup>2</sup>. These rates had doubled over the preceding 40 years<sup>3</sup>. Obese children and youth have an increased lifetime risk of developing type 2 diabetes mellitus, dyslipidemia, hypertension, coronary artery disease and nonalcoholic steatohepatitis. While we know that youth obesity is the result of multiple interacting genetic and environmental factors, our understanding of the natural history and the physical and social determinants of youth obesity remains limited. Many observational studies have nonetheless shown that increased consumption of calorie-dense, nutrient-poor foods is a major contributor<sup>4, 5</sup>. Since excess weight places children and youth at increased risk of significant health problems over their lifetime<sup>6</sup>, effective interventions to increase primary prevention through promoting healthy nutrition and lifestyles are of paramount importance.

### **The School Environment**

Schools provide a unique environment where children and youth may have access to food partially independently from their parents' influence and choices. First, as previously mentioned, youth consume a significant proportion of their daily energy intake while in schools<sup>1</sup>. Second, food and beverages are made available in schools through a wide variety of avenues, including: organized school meal programs, vending machines, cafeteria services, packed meals or snacks from home, special events, fund raising events, bring-and-share lunches, and even nearby restaurants. As such, schools provide important opportunities to ensure that children and youth have access to healthy and nutrient-rich foods and beverages, to limit their consumption of calorie-dense foods high in saturated fats, sugar and sodium, and to promote healthier dietary choices and lifestyle behaviours.

### **School Nutrition Policies**

School nutrition policy is a framework through which schools can plan, implement and evaluate healthy nutrition strategies. The fundamental goal is to have the nutritional quality of food provided (served and/or sold) reflect the school's mission to promote healthy, productive learners<sup>7</sup>. Each Canadian province/territory has or is developing a school nutrition policy<sup>8</sup>, although variations exist between them. School nutrition policy should encompass cultural variation and be sensitive to individual social and economic circumstances. Through focusing on balanced and healthy food and beverage choices and not weight reduction<sup>9, 10</sup>, at a minimum school nutrition policy should aim to achieve the following:

- 1) Improve the quality of food and beverage intake and choices
- 2) Help students make healthier nutritional choices
- 3) Build skills that enhance healthy dietary behaviours

#### 4) Reduce risk for overweight, obesity and eating- or nutrition-related disorders

Implementing a successful school nutrition policy requires sufficient resources, including healthy food availability, staff engagement and knowledgeable food service personnel. Financial support is also important; fortunately, implementing and maintaining a school nutrition policy in Canada was associated with only modest public costs<sup>11</sup>.

Let's review some of the literature on the impacts of school nutrition policies on the areas of: access to nutritious foods and beverages, skills that enhance healthy dietary behaviours, body mass index and academic performance.

##### 1) Increasing access to nutritious foods and beverages

Implementing a school nutrition policy has been shown to improve the nutritional quality of in-school foods and beverages and the dietary intake of students<sup>12</sup>, although some studies only showed modest improvements<sup>13</sup>. One example from an American state-wide initiative observed that, following the implementation of a school nutrition policy, schools were more likely to require that healthy food options be provided to students, ban food or beverages advertising, offer skim milk alternatives, limit vending machine access, and limit access to sugar-sweetened beverages<sup>14</sup>. Notably, another study showed that, while students are more likely to consume healthy food items if they are served to them, they also consume unhealthy items when made available to them<sup>15</sup>. Taken together, this data suggests that both increasing access to nutritious foods and beverages and limiting access to unhealthy energy-dense, low-nutrient items are necessary.

##### 2) Building skills that enhance healthy dietary behaviours

In Canadian and European studies, implementing school nutrition policies as multicomponent school-based interventions were associated with improved self-reported dietary behaviours in the school environment<sup>16, 17</sup> and possibly even outside of schools<sup>18</sup>. Including nutrition education in school curriculums also seemed to be an important factor to enhance healthy dietary behaviours<sup>19</sup>. School nutrition policies should align with Canada's food guide<sup>20</sup> and encourage consumption of fruits and vegetables<sup>21-23</sup> and water, while reducing the presence of nutrients of public health concern, namely saturated fats, sugars and sodium<sup>24, 25</sup>. Multiple studies have demonstrated evidence to support banning or at least restricting access to sugar sweetened beverages in schools<sup>26-28</sup>. Other recommendations that should be promoted in school nutrition policies include avoiding skipping meals, not eating while doing other activities such as watching TV or using a tablet, and avoiding fast food<sup>29</sup>.

##### 3) Reducing risk for overweight, obesity and eating- or nutrition-related disorders

The body mass index (BMI) is a common measure used to identify and follow children and youth with overweight and obesity<sup>21, 22, 29</sup>. BMI is associated with other measures of body fatness<sup>30, 31</sup>, with cardiovascular disease risk factors<sup>32-35</sup>, and with long-term mortality risk<sup>36, 37</sup>. Many studies support the beneficial impacts of in-school programs and school nutrition policies on decreasing BMI and decreasing the rates of overweight and obesity<sup>38-40</sup>, including one survey of 5,200 5<sup>th</sup> grader Nova Scotia students<sup>41</sup>.

#### 4) Improving academic performance and achievement

A positive association between poor diet and poor academic performance has been shown by multiple studies. One example is the Avon Longitudinal Study of Parents and Children, a British birth cohort study, which showed that a diet high in fat and sugar at 3 years of age was negatively associated with IQ at 8.5 years of age<sup>42</sup>. It would hence make sense that implementing a school nutrition policy might be associated with improvement in academic performance and achievement. However, studies report mixed results. Although some studies have concluded that eating breakfast was beneficial in terms of cognitive performance<sup>43</sup> and that school breakfast programs improved attendance, decreased lateness rates<sup>44</sup> and improved academic performance<sup>45</sup>, other studies have shown little or no effect<sup>46-48</sup>.

#### **A Multifaceted Approach**

We need to acknowledge that healthy nutrition and weight reduction can be difficult and that many factors influence eating behaviours, including socio-economic status, cultural and family context, and nutrition knowledge. The approach towards promoting health must be multifaceted. Improving the school environment is one aspect available to promote healthy eating and lifestyle behaviours.

If we go back to Liam's case, it is easy to point fingers and identify inadequacies in this teenager's food environment. It is also easy to think of downstream changes that could address these, such as changing the contents of the vending machines or the advertising on the billboards. However, we also need to act upstream. We should aim at creating a supportive environment that helps students make healthier nutritional choices and have healthier dietary behaviours.

Let us conclude this PedsCases podcast with a few key learning points:

- 1) Effective interventions are urgently needed to increase primary prevention of nutrition-related chronic disease in Canadian children and youth.
- 2) School nutrition policy has the potential for improving the quality of food and beverage intake and choices, enhancing healthy dietary behaviours, improving health outcomes, and possibly improving academic performance and achievement.
- 3) School nutrition policies should align with Canada's food guide, promote consumption of healthy and nutrient-rich foods, and limit consumption of calorie-dense foods rich in saturated fat, sugar and sodium.

That concludes our PedsCases podcast on school nutrition policies with specific focus on nutrition standards, brought to you by PedsCases and the Canadian Pediatric Society. Thanks for listening to PedsCases podcasts!

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