

## The spread of the childhood obesity epidemic

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There is an old Chinese proverb that states “A journey of a thousand miles begins with one step.” It is time for physicians and health care professionals to embark on the journey to reduce levels of obesity in children and adolescents. In this issue (page 1429) Mark Tremblay and Douglas Willms report that Canadian children are becoming progressively more overweight.<sup>1</sup> Alarming, they report that from 1981 to 1996 the prevalence of overweight increased by 92% in boys and by 57% in girls. Moreover, during that same time frame, the prevalence of obesity has more than doubled in both boys and girls. These data mirror recent reports from the United States,<sup>2,3</sup> Europe,<sup>4</sup> China<sup>5</sup> and several developing countries.<sup>6</sup>

In the United States alone the estimated annual number of deaths attributable to obesity is about 280 000.<sup>7</sup> A major concern regarding childhood obesity is that obese children tend to become obese adults, facing an increased risk of diabetes, heart disease, orthopedic problems and many other chronic diseases.<sup>8</sup> Dietz<sup>9</sup> has also cautioned that obese children are much more likely to face both health and psychological challenges related to their obesity during childhood and adolescence than their leaner counterparts. Increasingly, pediatricians are seeing hyperlipidemia, hypertension and diabetes in their obese patients.

The dramatic increases in the prevalence of obesity among both children and adults reflects a population shift toward a positive energy balance. Clearly, we become a fatter society when overall kilojoules consumed exceed kilojoules expended. Dietary intake and energy expenditure represent the 2 modifiable factors of this equation. It is apparent that there is an abundance of high-energy, high-fat foods readily available to children throughout the developed world and increasingly in the developing world, and access to these types of foods should be reduced for overweight children. However, the consumption of high-energy food alone cannot explain completely the exponential increases in the prevalence of overweight seen in recent years. Physical activity is also a key factor in the energy balance equation, and children are increasingly watching television or playing video games in their leisure time.

A sedentary lifestyle has been found to be strongly related to adiposity in children.<sup>10</sup> We have reported that US children (aged 8–16 years) who watch 4 or more hours of television per day had a higher body mass index (BMI), measured in kg/m<sup>2</sup>, and thicker skinfolds than those who

watched fewer than 2 hours per day. Moreover, the fattest children were those who reported low levels of vigorous activity and high levels of television watching.<sup>10</sup> Sixty percent of US children watch at least 2 hours of television per day. We have also recently found that total energy intake is positively associated with hours of television watched in a nationally representative sample of US children.<sup>11</sup> This trend persisted even after adjusting for age, BMI, ethnic origin, family income and weekly bouts of physical activity. Robinson<sup>12</sup> recently examined the effects of a 6-month classroom curriculum aimed at reducing television, videotape and video game use in fourth-grade children. They found that compared with controls, children in the intervention group had statistically significant relative decreases in BMI, triceps skinfold thickness and waist circumference. This underscores the work of Epstein and colleagues<sup>13</sup> who have reported that decreasing sedentary behaviour is a key ingredient in the successful treatment of childhood obesity.

With school budgets tightening across Canada and elsewhere in Western countries, physical education and after-school sport programs have recently been on the chopping block. The Canadian Association for Health, Physical Education, Recreation and Dance (CAHPERD) advocates that all Canadian children participate in 150 minutes of physical education per week (i.e., 30 minutes per day) for every child from kindergarten through grade 12.<sup>14</sup> Moreover, the Canadian Medical Association also passed a resolution 2 years ago echoing CAHPERD's call for 30 minutes per day of compulsory physical education for every child.<sup>15</sup> Unfortunately, few school administrators and educators have implemented this resolution or taken it seriously. From CAHPERD's experience, schools average only 60 minutes of physical education per week. This is particularly troubling since high-quality, school-based physical education can help promote healthier living and encourage a lifetime of active living.

Clearly, the dramatic increase in the prevalence of obesity in Canadian children represents a serious threat to public health. The etiology of obesity represents a complex interaction of genetics, diet, metabolism and physical activity levels. Physicians also need to address and discuss weight loss strategies with both obese children and their families. Community leaders, school boards and the entire health care community also need to engage actively in strategies to prevent obesity in children and adolescents. By

encouraging *all* children to consume healthier diets and to remain physically active, we can take the first step in our journey to reduce levels of childhood obesity.

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