



## **The challenge of paediatric obesity: more rhetoric than action**

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### **Abstract**

A growing body of knowledge clearly shows a rapid increase in the prevalence of childhood obesity. But in spite of the many empirically-driven research projects and more laissez-faire initiatives intent on finding ways to ensure the healthy development of our young people, translating what we know into appropriate behaviour in the home, school, and community is more difficult than it sounds. It is, therefore, not surprising this concern is attracting the attention of politicians, health professionals, and educators. This article reflects on the paediatric obesity research and argues for a more coordinated effort in addressing what could (but need not) become a major public health issue.

### **Paediatric obesity: its cause and increasing incidence**

One of the benefits of living in a consumer-oriented society is having easy access to an endless variety of goods and services from which to live an advantaged lifestyle. There can, however, be a hidden personal and societal cost paid in morbidity and mortality. The ingenuity of new gadgets ensures life is more comfortable than ever before, and subsequently requires less expenditure of energy to satisfy our basic living needs.

In Western societies, machines, electronics, and other technological advances have supplanted virtually every physical activity that had been required by humans for daily living. Indeed, the tendency to minimise human energy expenditure is pervasive. Meanwhile, there is a never-ending array of easily available caloric-dense food products that stimulate and overwhelm our taste buds, although this is often referred to as the 'less' healthy option. This is spurred on by some sectors of the food industry that encourages caloric consumption beyond those required for daily living. So, in essence, it becomes easier to participate in a sedentary lifestyle accompanied by a high caloric diet.

Despite many children and their parents acknowledging the desirability of maintaining an energy balance through habitual physical activity and consuming lower caloric-dense healthier foods, this does not translate easily into desirable behaviour.<sup>1</sup> Indeed, for many young people and their families, this potentially hazardous lifestyle offers a more convenient way of living. Is this desirable? NO. Is this easy to modify or eradicate? NO. Does the concern warrant more attention? YES.

The obesity epidemic was noted by The Royal College of Physicians when warning of the dire state of Britain's health and, specifically, the rising tide of obesity—unless coordinated action is taken by Government, the food industries, the medical

profession, and schools.<sup>2</sup> Similar messages have also emerged from Professor Jim Mann and colleagues at the University of Otago, but is anyone listening?

As we move into the 21<sup>st</sup> century, there is a growing body of knowledge that clearly shows a rapid increase in the prevalence of chronic 'lifestyle' diseases, in particular childhood obesity. The government has recognised this situation is occurring in New Zealand and in 2006 announced a 4-year \$67m campaign called *Mission On*. The campaign is aimed solely at improving the nutrition and increasing physical activity of people less than 24 years of age and is cross government sectors, school-based, as well as being community and family oriented.

When launching *Mission On*, Prime Minister Helen Clark said there is a need to improve nutrition intake and reverse the declining levels of physical activity. It was suggested that unless something changes in our living environment and the way we approach the modern lifestyle, it is possible the current generation of young New Zealanders may be the first generation to die younger than their parents. This contribution to the debate focuses on the increasing concern about the prevalence of overweight and obesity in children, and considers whether schools and the medical community have a role as partners in developing strategies in addressing what is essentially a public health issue.

In 2003, the World Health Organization (WHO) estimated that more than 1 billion adults and 17.6 million children are overweight, and the numbers are increasing.<sup>3</sup> Furthermore, over 3000 New Zealanders died between 1996 and 1998 from complications resulting from having a high body mass index (BMI).<sup>4</sup>

The majority of people who are overweight are a consequence of an obesogenic (obesity-promoting) environment that encourages behaviours that ultimately contribute to obesity.<sup>5</sup> New Zealand is experiencing what some refer to as a problem with paediatric obesity. The Ministry of Health suggests that the obesity levels amongst New Zealand children are high, similar to other countries, with estimates varying between 20% and 30%.<sup>6</sup> However, being more specific about the prevalence of paediatric obesity is complicated. Indeed, the controversy surrounding how this condition is determined—and the variation in body size across different ages, socioeconomic status, and ethnic groups—presents diagnostic, intervention, and research challenges.<sup>7-9</sup>

Many 'experts' have called for immediate action with regards to the increasing numbers of young people who are overweight and the high persistence of obesity into adulthood.<sup>10</sup> If the concern is not addressed, the consequences could impact on an individual's quality of life and the monetary costs for society to treat people with obesity-related illnesses.

In the United States, for example, the cost of diagnostic, preventative, and treatment-related healthcare services, plus indirect costs from income lost because of missed work due to illness and disability related to obesity, was estimated to be US\$117 billion in 2000.<sup>11</sup>

One could speculate that the same story might be told in New Zealand although with a proportional price tag. As mentioned by New Zealand surgeons, "...we can't afford any more obese children. We can't deal with the ones we've got at the moment".<sup>12</sup> In spite of this rather emotive plea, there is a need for a better understanding of the problem to reduce the burden on the health system. But more importantly, there is a need to find ways that ensure the healthy development of our young people.

Over the past 20 years there has been a glut of clinical-based research on obesity-related health problems. For example, overweight youth may have an elevated risk of developing asthma<sup>13</sup>—and obesity is often associated with a reduction in deep breathing, narrowing of airways, shortness of breath, and increased wheezing.<sup>14</sup>

Another health-related problem positively correlated with excessive weight is an increase in the incidence of Type 2 diabetes in young people. In fact it is possible that that within the next 10 years more children will have Type 2 diabetes than Type 1 diabetes.<sup>15</sup> Of youth diagnosed with diabetes in the United States, 29% have Type 2 and many overweight youth are exhibiting pre-diabetic symptoms without fully developing diabetes.<sup>16</sup> The juvenile pre-diabetic symptoms (including abdominal obesity, high blood pressure, insulin insensitivity, and impaired glucose tolerance)<sup>17</sup> are part of the development of a metabolic syndrome often linked to insulin resistance and an elevated risk of heart disease, diabetes, or stroke.<sup>18</sup>

Excess weight is also believed to promote the development of hypertension, diabetes, sleep apnoea and elevated lipids, all factors related to cardiovascular disease (CVD). It can also cause insulin resistance with consequent hyperinsulinaemia and elevated insulin levels seemed to be linked to increased inflammatory factors of vascular disease, although this point is controversial. However, what is not contested are the numbers of children who are developing diabetes and metabolic syndrome at ever-younger ages ultimately leading to a group of younger adults with CVD.

In the United States, a sizeable number of overweight youth are currently diagnosed with metabolic syndrome.<sup>19</sup> Some consider this to be caused by the effect on target organs of biochemical factors secreted or regulated by visceral fat.<sup>20</sup> The criteria for determining metabolic syndrome in adolescents have been adapted from the American National Cholesterol Education Programme. It usually requires the identification of at least three of the following symptoms: a BMI (Body Mass Index—weight in kilograms divided by height in metres squared) based on age and gender in the 95<sup>th</sup> percentile or higher; elevated triglycerides; low high-density lipoprotein (HDL) cholesterol; hypertension; and impaired glucose metabolism.<sup>21</sup> The syndrome emerges because of our metabolic mechanism to store and defend the fat depot when energy intake is high relative to expenditure of energy.

The anticipated switch in energy balance (i.e. food scarcity and increased energy expenditure associated with thermoregulation, migration, or foraging) never materialises for many of today's children and teenagers. Lacking sufficient exercise, obesity worsens, derangements in hormonal regulation of growth and energy metabolism are exacerbated, and insulin resistance increases.

Genetically-susceptible children, adolescents, and adults' pancreatic insulin responses become inadequate and some form of diabetes ensues. The severity of insulin resistance is elevated by obesity. As a result, the prevalence of metabolic syndrome in American youth has risen from 910,000 to nearly 2 million, in less than a decade.<sup>17</sup>

Moreover, approximately 3 million, or 11% of American teens have impaired glucose tolerance.<sup>16</sup> While metabolic syndrome is very concerning, perhaps the greatest health consequence of paediatric obesity is an estimated 75% of obese youth will remain obese as adults.<sup>15</sup>

This could mean that even if adverse health affects are not experienced as part of being overweight in youth it is probable that some of these previously mentioned medical conditions will emerge later in life.

Critics of the claim that there is a paediatric obesity crisis argue the use of the term *crisis* is a result of society's tendency to sensationalise health issues, particularly those concerning children. This also reinforces a stigma that overweight youth often attach to themselves, which, critics argue, contributes to the problem. There is also a need to better define the terms obese and overweight that are often used interchangeably.<sup>22</sup>

The mechanism most commonly used for identifying obesity is BMI. Although useful, this method of assessment is not a gold standard for measuring fatness or obesity, particularly with children.<sup>9</sup> It ignores the high proportion of the variance between subjects and does not take into account other important factors such as physique, developmental stage, lifestyle, or family history.<sup>22,23</sup> Nor does it account for very physically active children with large muscles who are overweight but still active on a regular basis.<sup>22</sup>

Despite some of these flaws, researchers and health professionals are attracted by the simplicity of the BMI index, so it remains the most commonly used screening device for identifying overweight and obese children in research studies. One advantage of using BMI is that larger numbers of children can be screened and included in studies. Because its simplicity provides an easy (although not highly reliable) cross-study and clinical comparison, it should be used with caution as a diagnostic measurement. This particularly applies when determining global and national trends, developing gender-specific age-for-weight percentiles as well as tracking individual progress via aerobic capacity or circumference measurements with various interventions.

Although central adiposity (i.e. waist circumference) is a sensitive measure for determining the risk factors of metabolic syndrome, it is important to develop standard uniform measures of obesity that are easily understood by the public. Such information could also be used in a public health campaign.

As predicted by global trends, the distribution of obesity varies with ethnic and socioeconomic factors. It is expected that a greater proportion of children from more deprived communities in Western society will be overweight, as compared to their privileged peers.<sup>24</sup> Living in disadvantaged environments can discourage young people from participating in outdoor physical activities outside of school time. But irrespective of living locale, many young people are experiencing decreasing levels of incidental physical activity thus lowering energy expenditure.

For example, increasing numbers of children are being driven to school and spend their after-school hours on the computer or in front of the television. This by itself, however, is not always a reliable indicator of levels of physical activity or health status.

For many children, being overweight is sometimes interpreted as being lazy and a sign of self neglect. In addition to self-consciousness, this can result in a lack of enthusiasm to voluntarily participate in physical activity. However, this is a complex phenomenon to unravel, and it is argued that the psychosocial effects typically associated with obesity can be both a cause as well as a result of obesity.<sup>25</sup>

To address the decline in levels of physical activity, young people need to see the opportunities to engage in a variety of both structured (e.g. sport) and unstructured (e.g. playgrounds) exercise as inviting and attractive.

The increasing levels of (and consequences associated with) paediatric obesity have attracted the attention of governments throughout the Western world as well as a

variety of health groups. Some critics are intent on defending institutions, like the teaching of health and physical education in schools against being seen as the solution to the obesity epidemic.<sup>26</sup> Their cause is justified for we need to look both at and beyond the school to ensure all children have access to a healthy lifestyle.

If educators and health professionals together work towards better understanding and reducing this problem, then there is a chance to contribute to the overall wellbeing of the individual and community. However, if no action is taken, many of today's young people may become a liability to society and themselves because of the negative consequences they might suffer as a result of their body weight.<sup>27</sup>

## **Where to from here?**

Over the past decade there have been numerous debates about the proportion of the younger population who are considered to be 'overweight' but as the conversations continue, the problem steadily worsens. Furthermore, there seems to be no easy short-term solution to what is a complex situation. Thus it is time to turn the rhetoric into action. But where does the responsibility lie and who is in a position to influence behaviour, identify, and/or screen for the potential onset of what has been described as a chronic condition in many young people?

"The epidemic of overweight and obesity in children and adults in this country provides the most obvious evidence that simple education messages are insufficient," says Professor Jim Mann, Director of the WHO Collaborating Centre for Human Nutrition, University of Otago.<sup>27</sup>

What role, if any, should government, the food industry, various health professions, and/or schools play in addressing this worsening scenario? Beyond advocating for legislative controls on such things as the marketing and sale of some foods and drinks, the international health community calls for schools to take a much more active role in helping fight paediatric obesity. Indeed, when children are mentioned in the obesity-crisis discourse, schools (particularly particular health and physical education) are sometimes seen as a possible solution to the problem.

However, while results from the plethora of school-based studies usually report some positive short-term health outcomes, the worsening statistics of obesity suggest that the schools' efforts have limited long-term success on modifying health related behaviour.<sup>28</sup>

In many countries, including New Zealand, there has been a call for more time be devoted to physical activity and learning about good nutrition practices.<sup>3,22,27</sup>

Although the intention may seem like a logical way to address discerning patterns of the increasing numbers of children who are overweight, it assumes teachers have both the knowledge and expertise to take on such a responsibility. Even if they were able to fulfil such a role, there is an assumption all children will become confident, competent, and comfortable with and in control of their bodies.<sup>29</sup>

The reality, however, is that schools by themselves cannot prevent the rise of obesity, particularly in a consumer society that expects young people to simultaneously consume and abstain with respect to numerous lifestyle choices.<sup>27</sup> Furthermore, a young person's lifestyle is complicated by the many conflicting and contradictory messages received within and beyond school, as well as from friends and family.

Recently there has been a call for a more integrated and comprehensive community-wide approach in addressing what is often labelled as a health risk.<sup>1,28</sup> This recognises it is the environmental determinants rather than genetics that have changed. There are no validated instruments available at present for assessing the obesogenic state of the New Zealand school environments.<sup>29</sup> Nevertheless, there are numerous school-based efforts attempting to modify what occurs in schools (e.g. *Project Energize* in Waikato) as well as a number of national initiatives (e.g. *Health Promoting Schools*, *Active Schools*) aimed at improving the health of young people.

In spite of a crowded timetable, it is evident that schools are under pressure to take responsibility for the health of young people while maintaining academic excellence. Reasons for this include the fact that children are a “captured market” and schools are well placed to work in conjunction with the public and private sector.

Before launching into any large-scale preventive campaigns, we need to remember that ameliorating a major health issue is not just the role of the school. Nor can this concern be solved by the implementation of a simple cause and effect model where teachers are seen as the front line soldiers with little say in the strategies and tactics of engagement.<sup>7</sup>

As John Evans, a leading physical education researcher, recently stated: “...if nothing else, we need a fundamental critique of any discourse that reduces the practice of education to the trivium of diet, exercise and weight, or generates social practices in which the child is reduced to a ‘body’ rather than a person whose circumstances need to be understood if the health and educational requirements are to be met.”<sup>30</sup>

In 2006 the New Zealand Government appointed a Committee for the purpose of conducting an Inquiry into Obesity and Type 2 Diabetes. A submission from Physical Education New Zealand encouraged the scientific community and policymakers to rethink ways of addressing the ‘problem’.

While the benefits of a healthy lifestyle have been widely published, and the New Zealand *Healthy Eating, Healthy Action* statement is intended to form the basis of government policy to reduce the risk of chronic diseases, Professor Mann is adamant that “much remains to be done to ensure that the knowledge is translated into action”.<sup>27</sup> Amongst other matters, this means recognising young people are vulnerable to forces more powerful than school policies, and the school health and physical education curriculum.

Schools may be an ideal place to educate for behaviour change but we need to learn from the past and move beyond what have been primarily prescriptive practices where the body is treated as an object. Furthermore, it is imperative that any future endeavours aimed at addressing health-related policies and practices within and outside school engage alternative strategies and involve a range of organisations.

As noted in a lead article in a 2006 December issue of the *New Zealand Listener*, there is a potential crisis looming and the time has come for making a bold move.<sup>31</sup> Irrespective of who initiates the move, any long-term effect will require a more committed and coordinated effort, as well as effective use of resources than in the past.

Surely this is not too much to ask—as the potential human and economic costs emerging from a not-so-healthy lifestyle are daunting. Indeed, decisive action is necessary as the consequences of failing to act more insightfully are dire.

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