Childhood obesity in New Zealand: time to look at stronger measures?

The recently released report entitled *Tackling Obesity* by the New Zealand Medical Association\(^1\) has focused our attention on the disturbing problem of obesity in this country.

The prevalence of obesity in New Zealand continues to rise, and a recent international comparative study ranked New Zealand the fourth-worst OECD country behind the United States, Mexico and Hungary.\(^2\) In New Zealand, 1 in 10 boys (10.4%) aged 5–14 years are obese with girls showing a similar prevalence (11.0%).\(^3\)

Māori children are almost twice as likely to be obese as non-Māori, while Pacific children are approximately 4 times more likely to be obese as non-Pacific children.\(^3\)

Obesity is a multisystem condition associated with a clustering of complications, including hypercholesterolemia, type 2 diabetes, and cardiovascular diseases, even in children and adolescents.\(^4\)

A major concern is the knowledge that obese children tend to become obese adults, and therefore carry with them the increased risk of chronic diseases, and health care costs, into later life.

An increased prevalence of obesity and overweightness in children represents a shift to a positive energy balance. A disparity between energy intake (through diet) and energy expenditure results in an accumulation of energy which is stored as fat.

Contemporary society allows relatively free access to high-energy, high-fat foods for children which is undoubtedly part of the problem. However, physical activity is also a key factor in the energy balance equation and in our opinion requires more attention. Indeed our forbearers recognised the importance of physical activity in children’s lives (probably for physical development rather than health) and introduced specified time requirements for teaching physical education which incorporated at least 3 separate 30-minute periods per week, excluding organised games in primary school and a total of 2 hours per week up to Form 5 (Year 11) in secondary school.\(^5\) However in 1987, under the instruction of the Minister of Education a new syllabus was introduced which emphasised the need for frequent physical activity and daily physical education, but removed the directive statements regarding time allocation for physical activity.

The latest curriculum statement, the New Zealand Curriculum (2007) combines health and physical education (with some home economics) as a learning area and while continuing to advocate for regular physical activity has also removed any time allocation contingency for physical education in schools. The absence of time allocation regulations has seen a reduction in the quantity of physical education and related subjects being timetabled into schools in New Zealand.\(^6\)

Low physical activity levels, poor fitness and obesity during childhood have strong negative effects on adult health outcomes. Therefore, one obvious place to start would
be to mandate more physical education in schools. Just how much time spent in physical activity would be required to make inroads into the body mass problems of New Zealand school children?

In a previous study we found that New Zealand children (aged 10–14 years) were increasing body mass at a rate of approximately 375 and 325 grams per year (for boys and girls respectively), or about 1 gram per day.\(^7\) If we assume that all of this increase in body mass is fat, which has an energy value of about 7 kcal.g\(^{-1}\), then New Zealand 10–14 year olds are storing approximately 49 kcal of fat per week.

Using Ridley and co-workers compendium of energy expenditure for youth,\(^8\) we find that most moderate-intensity physical activities likely to be used in physical education classes (ball games, athletics, tag, and unstructured play) conservatively expend approximately 5 METS of energy (1 MET is the energy required to sustain resting metabolism). By estimating the resting metabolic rate in children using an equation from Schofield (1984),\(^9\) we can then calculate the total energy expenditure of a typical physical education class. A 30-minute physical education class at moderate-intensity would expend approximately 168.75 kcal (= 5 [METS] × 0.025 [resting metabolic rate as estimated by Schofield’s equation in kcal.kg\(^{-1}\).min\(^{-1}\)] × 45 (average body weight of 10–14 year olds in kg,\(^7\) × 30 [minutes active].

Incorporating at least 3 such classes in every school each week would not only reduce the burden of obesogenic disease but would increase the declining fitness\(^7\) and skill levels,\(^{10}\) of New Zealand children.

Michael J Hamlin  
Associate Professor  
Department of Social Science, Parks, Recreation, Tourism & Sport  
Lincoln University  
Christchurch, New Zealand  

Lee Stoner  
Senior Lecturer  
School of Sport and Exercise  
Massey University  
Wellington, New Zealand

References: