The epidemic of childhood obesity

It is paradoxical that children in South Africa are at risk of developing one of two diametrically opposed diseases, either undernutrition or overnutrition. The scourge of undernutrition has been well described, but health care authorities have only recently acknowledged the imminent health threat posed by overnutrition. Obesity is now recognised as a chronic disease, with approximately half of the world's adult population being affected by either overweight or obesity (i.e. body mass index (BMI) > 25).[1] Of particular concern is the rising incidence of obesity among children under 5 years of age. The World Health Organisation (WHO) recently issued a warning statement that immediate action is required to stem the escalating pandemic of overweight and obesity. With 1.5 billion people overweight worldwide, millions of people are at risk of developing obesity-associated co-morbid diseases.[2]

It is evident that a passive approach towards the obesity epidemic can no longer be tolerated, but to lobby adequately for the introduction of interventions aimed at reducing childhood overweight and obesity, we first need to acknowledge the magnitude of the local epidemic. The 1999 National Food Health Consumption Survey revealed that the national prevalence of overweight (weight/height > 2 standard deviations (SDs)) among children aged 1 - 9 years was 6%, with the province of Mpumalanga having the highest figure (17%). In contrast, only 5% of children were 'wasted' and approximately 25% 'stunted'.[3] Risk factors for the development of obesity include low birth weight, urbanisation and poverty, conditions not uncommonly experienced by many South African children.[4] The presence of increased body fat, especially when occurring in patients with a low birth weight and/or childhood stunting background, has been shown to compound failing beta-cell reserve, worsen relative insulinopenia and add to the development of glucose intolerance.[5] Recent studies revealed that the increase in childhood obesity is associated with an escalation in the incidence of type 2 diabetes by a factor of 10, hence the new term 'diabesity'.[6,7] Childhood obesity is also directly linked to abnormalities in blood pressure and lipid profile, which when combined with aberrant glucose homeostasis, substantially increases the risk of coronary artery disease in adulthood.[8,9] Overweight and obese children are also at risk of developing the psychological and mechanical effects of obesity, and although not life-threatening, these complications impact heavily on their quality of life.

To date, the prevention of childhood obesity has eluded our grasp. The primary causes of the acceleration in obesity worldwide include sedentary lifestyle and the increased consumption of high-fat energy-dense diets (the 'nutrition transition'). Although it is possible to treat obesity, it is extremely difficult to maintain weight loss. Effective long-term strategies require both large financial resources and highly motivated children, supported by a compliant and knowledgeable family.[10,11]

One possible interventionist strategy aimed at reducing the high incidence of obesity and its co-morbid medical conditions is the central manipulation of food consumption patterns. Policies to influence food prices are not new in South Africa, as health authorities have long recognised the need to reduce undernutrition through subsidy and the fortification of staple foods. The WHO has called for obesity policies to go hand in hand with strategies to prevent undernutrition.[2] However, regulating the nutritional inadequacies of staple foodstuffs to which undernourished children are exposed proves less emotive than addressing the consumption of high-fat energy-dense foodstuffs. A precedent was set by certain countries such as New Zealand and the UK where attempts have been made to introduce 'fiscal food taxes', but these campaigns have been characterised by a large public outcry, and the benefits of such interventions have yet to be seen.[12,13]

Arguments raised against introducing a fiscal food tax include a lack of evidence that this intervention results in dietary change, that this form of taxation is often inequitable, and that it may further erode the individual's personal freedom.[14] In order to strengthen the lobby for the introduction of a fiscal food tax, we still need to answer some questions, many of which are peculiar to developing countries where food security may be compromised. Reliable data concerning the consumption of energy-dense foods across all economic groups are required, as foodstuffs that are considered a luxury to some may be essential to others. An informed approach is therefore needed when targeting specific food groups, as we are not yet certain if targeting high-fat food groups will be safe or effective.[15-17] In addition, the availability of appropriate and affordable alternatives is imperative if the nutritionally vulnerable are not to be compromised further. Cow's milk, for example, is high in fat but an affordable foodstuff, and an important source of calcium for children.

Another strategy aimed at reducing the intake of high-fat energy-dense foodstuffs involves the regulation of food marketing, as children are vulnerable consumers and susceptible to the marketing strategies employed by the food industry. This is superbly demonstrated by the recent marketing ploy of a popular brand of 'crisps' through the use of a collector 'disc' in each packet. When the novelty and sales impact of the initial discs wore off, a sequel was soon launched, only to be replaced by trading cards displaying Soccer World Cup icons. It is a sad irony that in the face of an obesity epidemic, a health-promoting event such as the Soccer World Cup is used to boost the sales of high-fat energy-dense crisps (containing 36 g fat/100 g). Such aggressive marketing is

reminiscent of the ruthless advertising campaigns previously employed by the tobacco industry. Legislation introduced to curtail the tobacco industry marketing campaigns serves as an example of what can be achieved through sustained pressure from concerned health care workers. Such protests seem appropriate when one considers the recent statement of the American Surgeon General, which says 'overweight and obesity may soon cause as much preventable disease and death as cigarette smoking'.[18]

With clearer data to highlight the direct impact of high-fat energy-dense food consumption on the health of South African children, we will be better able to address the modern scourge of obesity. The South African Society for the Study of Obesity (SASSO) is of the belief that these interventions may indeed be effective, and should form part of a broader campaign aimed at the primary prevention of obesity. In addition to controlling the sale and marketing of energy-dense high-fat foodstuffs, we also need to lobby for the creation and maintenance of child-friendly exercise facilities, and all schools should offer physical education as part of the curriculum. Basic lifestyle changes are most successful if implemented at a young age.[19] These lifestyle changes should include an increase in daily activity, regular exercise, altering high-risk eating habits and reducing time spent watching television.[20-22] Although these interventions have not yet had a significant impact on the obesity epidemic (partly due to the lack of aggressive promotion thereof), they are, at the very least, healthy goals to strive for and unlikely to do harm. While it seems reasonable to suggest that we concentrate on these strategies, the conduct of well-designed studies to gather information on parenting practices, the school environment and global demographic factors leading to childhood obesity should remain a priority.

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1. James PT, Leach R, Kalamara E, Shayeghi M. The worldwide obesity epidemic. *Obes Res* 2001; **9:** suppl 4, 228S-233S.
2. Press Release World Health Authority WHO/46 12 June 1997. Obesity epidemic puts millions at risk from related diseases. **http://www.who.int/archives/inf-pr-1997/en/pr97-46.html** (accessed 22 Oct 2002).
3. Labadarios D, ed. National Food Health Consumption Survey in Children Aged 1 - 9 years: South Africa 1999. **http://www.sahealthinfo.org/nutrition/foodtitle.htm** (accessed 22 Oct 2002).
4. van Lenthe FJ, Mackenbach JP. Neighbourhood deprivation and overweight: the GLOBE study. *Int J Obes Relat Metab Disord* 2002; **26:** 234-240.
5. Gray P, Crowther N. Implications of the thrifty phenotype hypothesis for the health of societies undergoing acculturation — lessons for South African health planning. *S Afr Med J* 2001; **91:** 325-328.
6. Sinha R, Fisch G, Teague B, *et al*. The prevalence of impaired glucose tolerance among markedly obese children. *N Engl J Med* 2002; **346:** 802-810.
7. Pinhas-Hamiel O, Dolan LM, Daniels SR, Standiford D, Khoury PR, Zeitler P. Increased incidence of non-insulin-dependent diabetes mellitus among adolescents. *J Pediatr* 1996; **128:** 608-615.
8. Freedman DS, Khan LK, Dietz WH, Srinivasan SR, Bereson GS. Relationship of childhood obesity to coronary heart disease risk factors in adulthood: the Bogalusa Heart Study. *Pediatrics* 2001; **108:** 712-718.
9. Little P, Byrne CD. Abdominal obesity and the 'hypertriglyceridaemic waist' phenotype. *BMJ* 2001; **322:** 687-689.
10. Deckelbaum RJ, Williams CL. Childhood obesity; the health issue. *Obes Res* 2001; **9:** suppl 4, 239S-243S.
11. St Jeor ST, Perumean-Chaney S, Sigman-Grant M, Williams C, Foreyt J. Family-based interventions for the treatment of childhood obesity. *J Am Diet Assoc* 2002; **102:** 640-644.
12. Wilson N, Mansoor O. Getting the fat tax on the table. *N Z Med J* 2000; **113:** 311-315.
13. Marshall T. Exploring a fiscal food policy: the case of diet and ischaemic heart disease. *BMJ* 2000; **320:** 301-305.
14 The 'twinkie' tax. Opponents are angry, advocates believe it can curb obesity. *Health Care Food Nutr Focus* 1998; **15:** 3-4.
15. Ravnskov U. VAT and fat. Evidence is contradictory. *BMJ* 2000; **320:** 1470.
16. Stanley JC. VAT and fat. Taxing single nutrient is dangerous. *BMJ* 2000; **320:** 1469.
17. O'Rourke A. VAT and fat. Will sales tax influence consumption? *BMJ* 2000; **320:** 1469.
18. US Department of Health and Human Services. 13 December 2001. Overweight and obesity threaten US health gains. **http://www.surgeongeneral.gov/topics/obesity/** (accessed 22 Oct 2002).
19. Dietz WH. Critical periods in childhood for the development of obesity. *Am J Clin Nutr* 1994; **59:** 955-959.
20. Chamberlin L, Sherman SN, Jain A, Powers SW, Whitaker RC. The challenge of preventing and treating obesity in low-income, preschool children. Perceptions of WIC health care professionals. *Arch Pediatr Adolesc Med* 2002; **156:** 662-668.
21. Campbell K, Walters E, O'Meara SO, Summerbell C. Interventions for preventing obesity in childhood. A systematic review. *Obes Rev* 2001; **2:** 149-157.
22. Dennison BA, Erb TA, Jenkins PL. Television viewing and television in bedroom associated with overweight risk among low-income preschool children. *Pediatrics* 2002; **109:** 1028-1035.