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Programming obesity in childhood

Since the introduction of the first children's programmes in the 1950s, television has become the dominant pastime of youth throughout the industrialised world. A typical child in the USA watches television for 2.5 h each day,¹ exceeding time spent in vigorous physical activity by more than a factor of 10.² The fundamental transformation of children's lifestyle caused by television during the past half-century has long raised concern among mental-health experts, particularly with regard to violence.³ More recently, the adverse effect of television viewing on physical wellbeing has been much discussed.

The first national study linking television viewing to childhood obesity was published in 1985.⁴ There are now over 50 published articles on the topic in the medical literature. Cross-sectional epidemiological analyses have generally, although not always, shown direct independent associations between television viewing and measures of obesity;⁵ sometimes, these associations were stronger than for any other obesity risk factor. Regional and nationally representative longitudinal studies suggest a causal relation.^{4,6–8} Further evidence for causality comes from intervention studies; arguably, the only successful school-based obesity interventions have incorporated a focus on reducing television viewing.^{9,10}

Television viewing has been proposed to cause weight gain through three main effects: by displacing physical activity, by

depressing metabolic rate while watching television, or by adverse effects on diet quality, either while watching television or at other times, primarily due to food advertisements. Of these possibilities, the strongest evidence relates to diet. Each year, the food industry spends enormous sums of money advertising high-calorie poor-quality foods to children. Cartoons and other shows targeted at children broadcast food advertisements once every 5 min.¹¹ The behavioural effects of these advertisements have been extensively studied. As recently reviewed,¹¹ exposure of children to food advertisements increases the likelihood that they will choose the advertised products, that they will request those products from their parents, and that their parents will purchase those products. Exposure to food advertisements increases children's total energy intake significantly. Food advertisements have also been linked to overconsumption of fast food, sugar-sweetened soft drinks, and sweet and salty snacks, and to underconsumption of fruits and vegetables.

One question that has received little attention is whether television viewing in childhood affects adult health. A study by Robert Hancox and colleagues in this week's *Lancet* aims to address this issue. The investigators prospectively examined about 1000 individuals in New Zealand from birth until age 26 years. They found that television viewing during childhood was independently associated with increased body-mass index, higher serum cholesterol, lower cardiopulmonary fitness, and cigarette smoking. Interestingly, child and adolescent television viewing remained a significant predictor of these adult endpoints even after adjustment for television viewing at age 21 years. A likely explanation for these findings is that dietary¹² and other lifestyle habits learned in childhood and influenced by television continue into adulthood.¹³ Hancox and colleagues recognise two methodological issues: the possibility of residual confounding cannot be excluded and the validity of television measurements over time may differ. These limitations notwithstanding, the data indicate that television viewing in childhood has serious long-term consequences.

Ultimately, parents must reclaim from television the responsibility for educating and entertaining their young children. Admittedly, a parent working long hours, with inadequate daycare, and living in an unsafe neighbourhood may find it difficult to limit television time or deny requests for advertised junk foods. Fundamental socioeconomic changes may be needed before television viewing can be effectively reduced on a population basis.

In the meantime, the data presented by Hancox and colleagues strengthen the case for a ban on food advertisements

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aimed at children. The argument for action is based not only on strong scientific evidence,^{1,11} but also on common sense. In an era when childhood obesity has reached crisis proportions, the commercial food industry has no business telling toddlers to consume fast food,¹⁴ soft drinks,¹⁵ and high-calorie low-quality snacks,¹⁶ all products linked to excessive weight gain. Indeed, the American Academy of Pediatrics has stated that advertising directed to young children is inherently deceptive and exploitative.¹⁷ A precedent for restrictions on the marketing of products deemed harmful to children already exists—tobacco.

Clearly, obesity is a complex condition with numerous genetic, environmental, and psychosocial contributing factors. However, the multifactorial nature of the problem should not be an excuse for inaction. Measures to limit television viewing in childhood and ban food advertisements aimed at children are warranted, before another generation is programmed to become obese.

*David S Ludwig, Steven L Gortmaker

Department of Medicine, Children's Hospital; and Department of Pediatrics, Harvard Medical School, Boston, MA 02115, USA (DSL); and Department of Society, Human Development and Health, Harvard School of Public Health, Boston, Massachusetts, USA (SLG) david.ludwig@childrens.harvard.edu

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Willing oneself better on placebo—effective in its own right

Recent years have been witness to growing recognition that the comprehensive assessment of treatment interventions must include some measure of impact on quality of life. The reasons for this are clear. While there must of necessity be a loose correlation between more objective measures of disability and quality of life, the strength of this relation is often poor. There seems to be little point in buying patients a few points on a measure of clinical disability or a related biomarker unless this translates into a better quality of life. This is probably true even for disease-modifying or life-extending treatments.

Recently, Cynthia McRae and colleagues¹ highlighted another reason to carefully examine quality-of-life measures. These investigators did a planned evaluation of the impact of human fetal mesencephalic transplantation for the management of Parkinson's disease, in a double-blind sham-surgery design. The key findings of the original study (in which McRae now reports on quality of life),² and those of another major placebo-controlled double-blind study of transplantation,³ have been reported. The effect of transplantation on clinical signs has been disappointing, although the original study² did report a modest but statistically significant effect. The importance of the McRae¹ report is that it examined the effect of perceived assignment of treatment, instead of the usual approach of looking at actual assignment. Interestingly, but perhaps not surprisingly,

perceived assignment had a greater impact on both quality of life and motor function than did the actual treatment. Thus it did not really matter whether patients actually had the active transplant or the sham procedure—what mattered more was whether they thought they were getting a transplant. Patients who thought they had undergone the active treatment had significant improvements in perceived physical function and perceived social support compared with those who thought they had been assigned to the placebo group. In those patients who

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