

Lack of exercise key to increased BMI in children

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A new independent study of scientific research has revealed that, contrary to the widely held hypothesis, dietary sugars are not the driving factor behind rising body mass index (BMI) levels in children in Great Britain.

The research paper, 'Trends in energy and sugar intakes and [body mass index](#) between 1983 and 1997 among children in Great Britain', which was conducted by independent consultant nutritionist Sigrid Gibson MA MSc RPHNutr, highlights that increased BMIs recorded in children are most likely due to reduced [energy expenditure](#), rather than dietary factors, reinforcing the link between [obesity](#) and lack of [physical exercise](#).

The paper directly compared findings from two separate studies: 'The Diets of British Schoolchildren' conducted by the Department of health (DH) in 1983 (Department of Health 1989); and the National Diet and Nutrition Survey (NDNS) from 1997 (Gregory & Lowe, 2000).

Gibson's analysis found that total sugar intake averaged at 115g/day in 1983, compared with 113g/day in 1997. Allowing for exclusions of low and high energy reporters, intake levels were 122g/day (1983) and 127g/day (1997), showing a marginal and insignificant increase over the study period. Contrastingly, mean body weight increased significantly during the period of the DH and NDNS surveys, showing a rise of 1.9kg for 10-11 year olds and 3.4kg among 14-15 year olds. BMI increased from 17.9 to 18.6 units in the younger group, and 20.2 to 21.3 units in

the older group. According to these calculations, the prevalence of being overweight (plus obesity), as defined by the International Obesity Taskforce (IOTF) cut-offs (91st percentile) rose from 13% to 21-22% between surveys. Gibson concluded that the slight increase in consumption of total sugars did not account for the significant increase in BMI, equivalent to 2-3 kg over the review period.

During the same period, Gibson found that mean energy intake (EI) was 3% lower in 1997 than in 1983, mainly as a result of lower fat intake. This change in overall energy consumption meant that sugars represented a higher proportion of daily energy intake in 1997 (23.6% versus 22.3%), despite total sugar consumption remaining relatively static in comparison. The review surmises that the most likely cause for the increased BMI is a decline in energy expenditure.

In addition, Gibson's paper found that basal metabolic rate (BMR) increased by approximately 3% between surveys as a result of higher body weights, and it is estimated that EI in relation to basal requirements was even lower at 6%. Gibson found that the paradox of rising BMI, despite a 2-3% rise in BMR and an EI that is static or falling, pointed to declining energy expenditure as an important factor in the change.

The Gibson analysis showed that the key sources of sugars in the diet have changed with a marked shift away from table sugar and smaller falls in consumption of sugars through milk, biscuits and cakes, counterbalanced by a significant increase in sugars consumed in soft drinks and, to a lesser extent, fruit juice and breakfast cereals.

A conclusion of Gibson's reanalysis of data from the DH and NDNS studies, that consumption of total sugars remained relatively static during the period, providing an estimated 22% of energy, is supported by findings from a repeated cross sectional study of children's food and drink intake, conducted in Northumberland in 1989, 1990 and 2000

which looked at trends in children's food and drink intake.

Sigrid Gibson, the paper's author, said: "There are very few studies that have assessed trends in sugar intake over time and particularly over such an extended period. The findings of the reanalysis strongly contradict widespread assumptions that sugar levels in the diet are responsible for rising obesity levels. With dietary sugar intakes relatively static, and overall energy consumption showing decline, increased BMI levels cannot be attributed to sugar consumption."

Provided by The Sugar Bureau

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