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Sugar intake in Scottish children (Full4Health Study)

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More than 32 % of children in Scotland aged 7–11yrs, are overweight or obese[(1)]. Elevated dietary sugar intake, especially "free sugars", has been linked to increased risk for obesity in children[(1)]. The recently published Scientific Advisory Committee for Nutrition (SACN) report[(2)] sets out new dietary recommendations for children. It advises on carbohydrate (CHO %), total sugar (g), free sugar (for which non-milk extrinsic sugar (NMES) %, acts as a proxy for free sugar[(3)]) and dietary fibre (g) intake, evidenced by health implications. One focus is the prevention of overweight/obesity. The aim of the present study was to investigate if current and habitual intakes in Scottish children approach the current recommendations. We analysed diet recall data, collected over 2015/2016 (Full4Health, www.full4health.eu), using a 24hour recall method. We analysed children's (8–10yrs) habitual energy, CHO, sugar (total sugar and free sugar) and dietary fibre. This is the same methodology applied in the National Diet and Nutrition Survey for Scotland (2008–12)[(4)] which reports previously that NMES was 14·7 % in 2011/2012[(4)]. This is some way from the <5 % new free sugar intake levels proposed[(2)].

This study was approved by the North of Scotland Research Ethics committee. Participants and their parents gave informed consent. Participants (n = 38, 16 girls average BMI 18·0 kg/m^2 and age 8·7yrs, 22 boys average BMI 16·8 kg/ m^2 and age 8·7yrs) completed four 24 hour diet recalls with estimated food portion size. Energy and nutrient intakes were calculated from food composition tables (NetWisp software, V3·0) and averaged over the four non-consecutive recording days. The AOAC method was applied for dietary fibre assessment[(2)].

Statistical analysis confirmed that, on average, boys consumed more energy, dietary fibre and carbohydrates than girls, however girls consumed more total sugar and NMES than boys.

On average, the children consumed 13·5 % energy as NMES. This was particularly noticeable in the girls, who consumed 3·1 % more NMES than boys (p = 0·02). Adherence to the new recommendations in this small cohort (<5 %) was non-existent, only six participants had a NMES <10 %, all being boys (range 6·0–22·9 %). On average, participants exceeded the 50 % recommendation of total energy coming from carbohydrates. On average, dietary fibre intake, 12·6 g/d and 14·4 g/d for the girls and boys respectively, did not meet the current SACN guidelines of 20 g/d.

	Boys	Girls			
	Mean	Mean	SED	p-value	Recommendations
Energy (kcal)	1772	1693	741·4	0·927	**1800kcal**
Sugar (g)	105·8	108·8	30·14	0·747	**85·0 g**
NMES (%)	12·3	15·4	1·527	**0·018**	**<5 %**
Dietary Fibre (g)	14·4	12·6	6·24	0·9	**20·0 g**
CHO (%)	54·2	52·1	142·5	0·934	**50 %**

Our results reveal the average Scottish child is failing to meet the UK guidelines for dietary fibre. However our data suggests that there is an improvement from the NDNS report[(4)] in 2012 where 4–10 yr olds mean intake of dietary fibre was only 10·5 g. Our data suggests that there is a decline in NMES intake for children in the Grampian region. Mean intakes of NMES decreased from 16·9 % of total energy in 2008[(5)] to 14·8 % in 2012[(4)] and our results now show the average child intake of NMES to be further reduced to 13·5 %.

Our data indicates that Scottish children are failing to meet recommendations in relation to dietary fibre, total sugar and non-milk extrinsic sugars. However, girls in particular are substantially exceeding the recommended intakes of total sugar and non-milk extrinsic sugars. Gender specific interventions may be useful for future research and evaluation to reduce sugar intake in girls and boys.

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