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Association of free sugar intake estimated using a newly-developed food composition database with lifestyles and parental characteristics among Japanese children aged 3–6 years: DONGuRI study

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The lack of comprehensive food composition databases for sugar contents in Japanese foods has led to the lack of nutritional epidemiologic studies on sugar intake in Japanese population. This cross-sectional study aimed to investigate the association of free sugar intake estimated using a newly developed food composition database with the characteristics and lifestyles of Japanese children aged 3–6 years.

The food composition database contained information on sugars in 2222 commonly consumed Japanese foods. Total sugar content in each food was determined using a seven-step method including a stepwise strategy in data gathering⁽¹⁾. Free and added sugar contents were assigned using a published stepwise method⁽²⁾. Using this database, we estimated the sugar (total, added, and free sugars) intakes derived from a 3-day weighed dietary record conducted in 2015 among 166 boys and 166 girls aged 3–6 years living in 24 of 47 prefectures in Japan.

The mean free sugar intake was 26.8 g/d (standard deviation (SD), 12.3 g/d), while the mean % of energy intake from free sugar was 7.8 % (SD, 3.2 %). The prevalence of excessive free sugar intake (≥ 10 % of energy intake) was 21.7 %. Among the characteristics and lifestyles examined, screen time was most strongly associated with the prevalence of excessive free sugar intake: multivariate adjusted odds ratios (95 % confidence intervals) for screen time < 0.5 , ≥ 0.5 to < 1 , and ≥ 1 h/d were 1.0 (reference), 3.81 (1.04, 13.98), and 4.36 (1.16, 16.35), respectively. Additionally, younger age, shorter sleep, and mothers with office work and service and sales jobs (compared with those with professional and managerial jobs) were significantly associated with a higher prevalence of excessive free sugar intake.

In conclusion, this study showed the sugar intakes and the prevalence of excessive free sugar intake of Japanese children aged 3–6 years and identified several lifestyles and characteristics associated with excessive sugar intake. Although the mean free sugar intake and the prevalence of excessive intake in this Japanese population were lower than those in the UK (14.7 % of energy and 82 %)⁽³⁾ and Australia (13.2 % of energy and 70.8 %)⁽⁴⁾, the prevalence of excessive free sugar intake was relatively high (21.7 %). The next step is to clarify the association of free sugar intake with nutrient intake and health status in Japanese children.

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