

## Is frequency of sugary food consumption associated with body mass index?

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### Abstract

Relatively convincing evidence suggests that diets with large amounts of added sugar, especially from sugar-sweetened beverages, are associated with excess weight in children. Less is known about the association of consumption frequency of sugary foods with body mass index (BMI). We evaluated frequency of sugary food consumption in children ( $n = 8,990$ , mean age 11.1,  $\pm 0.9$ ) from the Finnish Health in Teens (Fin-HIT) cohort study. They answered a questionnaire including a 16-item food frequency questionnaire (FFQ) and lifestyle-related questions, e.g. sleep duration and leisure time physical activity. Their measured BMI was categorized as underweight, normal-weight, and overweight. Based on the FFQ with six sugary food items (chocolate/sweets, biscuits/cookies, ice cream, sweet pastry, sugary juice drinks and sugary soft drinks), a sugary food index (SFI) was derived to indicate a mean frequency of weekly sugary food consumption. Frequency was estimated with a range of 0–14 times a week. Based on quartiles (Q) of SFI, children were categorized as low (Q1, cut-off  $< 0.7$ ), medium (Q2 + Q3, cut-off 0.7–1.8), and high (Q4, cut-off  $> 1.8$ ) consumers. Multinomial logistic regression analysis was conducted to obtain odds ratios (OR) with 95% confidence intervals. Compared with normal-weight children, high consumers had a higher risk for underweight (OR 1.22 [1.04; 1.43]) and a lower risk for overweight (OR 0.86 [0.72; 0.97]), and low consumers had a higher risk for overweight (OR 1.32 [1.14; 1.52]). We further stratified the analysis by sleep duration since we found an interaction between sleep duration and SFI ( $p < 0.001$ ). In children with recommended sleep duration ( $n = 8070$ ), we yielded similar results as in the whole group. In children who slept more than recommended ( $n = 191$ ), high consumers had a higher risk for overweight (OR 3.31 [1.30; 8.42]) compared with normal-weight children. Our results suggest that consuming sugary foods with high frequency is not associated with overweight, except in those sleeping more than recommended. Association between low consumption frequency and overweight may imply that overweight children's consumption frequency of sugary foods is controlled, restricted, or under-reported because of social desirability.

### Conflict of Interest

There is no conflict of interest.