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Intake of sugar-containing beverages during early-pregnancy and offspring's birth weight and body composition at 6 years

Abstract

High intake of sugar-containing beverages (SCBs) has been linked to increased body weight in both children and adults. However, little is known about the effects of SCB intake during pregnancy on the offspring, whereas this period may be important for early programming of the offspring towards obesity. Therefore, we studied the associations of SCB intake during early pregnancy with offspring's birth weight and body composition at 6 years.

We examined 2,689 mother-child pairs participating in a prospective cohort. SCB intake (syrup, soda and fruit juice) was assessed using a food-frequency questionnaire in early-pregnancy, and was analyzed both with and without adjustment for energy intake. Offspring's birth weight was obtained from registries. We measured anthropometrics and body composition (with DXA-scan) of the 6-year-old offspring to calculate body mass index (BMI) and fat mass index (FMI). All outcomes were standardized for sex and age. Multivariable regression analyses were performed, adjusted for socio-demographic and lifestyle factors. We additionally adjusted for potential intermediates.

Pregnant women's intake of fruit juice, but not soda or syrup, was associated with a higher BMI (0.03 SD (95% CI 0.01, 0.06) per serving) and FMI (0.04 SD (95% CI 0.02, 0.06) per serving) in their 6-year-old offspring. These associations were independent from maternal BMI at enrollment, gestational weight gain, energy intake, and offspring's birth weight. No associations were found for maternal juice intake in relation to birth weight.

This study suggest that higher intake of fruit juice during pregnancy is associated with a higher offspring's BMI and FMI in early childhood, but not with weight at birth. Intake of soda and syrup may have been too low in our study population to detect potential effects. Future studies should further explore the association of SCB intake during pregnancy with offspring's body composition, and what the underlying mechanisms are.

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