



Mother's Intake of Sugar-Containing Beverages During Pregnancy and Body Composition of their Children during Childhood: The Generation R Study

Background

Sugar-containing beverages (SCB) are consumed in exceptionally high amounts worldwide. Therefore, people of all ages are encountering a variety of health conditions linked to sugar, such as diabetes, cardiovascular disease, and obesity. Childhood obesity is the main topic of concern as it has been increasing dramatically, and is associated with an increase in Type II diabetes in children.

Purpose

To explore the link between pregnant mothers consuming SCB and their children's BMI (body mass index), fat mass, and fat-free mass. Furthermore, the study assessed any differences between the types of beverages (soda, fruit juice, concentrate).

Population

The study restricted the research to 4545 women of Dutch origin, 3558 of these individuals provided valid dietary data. 3478 of the women had singleton live births. 3312 children had available information on BMI for one or more time points, and more detailed body-composition measures were available for 2660 children at six years of age.

Procedure

In this study, participants were recruited into an ongoing population-based cohort study on the dietary intake in pregnant women with the median being 13.4 wk of gestation; 95% CI: 9.9, 22.8 wk of gestation. Food frequency questionnaires (FFQ) were used to assess and covered 293 food items, consumption frequencies, and portion sizes that were consumed in the previous 3 months. Information was gathered on 3 types of SCB: soda (soft drinks, sports drinks, and energy drinks), fruit juice (fresh and boxed; 100% fruit juice only), and concentrate (juice and lemonades concentrates with added sugars). Anthropometric measures and body compositions of the children were assessed every month after they were born and at 6, 11, 14, 16, 18, 25, 31, 37, and 46 months, and then at 6 years old by a well-trained staff at a research center of Sophia Children's Hospital in Rotterdam. Height, weight, fat mass, lean mass, and bone mass of the children.

Limitations

Dietary intakes were estimated by self-report. All mothers were of Dutch origin and, on average, highly educated. Therefore, the generalizability of the findings may be limited. There was only assessment of SCB intake during the first trimester. Information on total SCB intake, not the different types of SCB intake, was collected for the children at six years of age. Although the study adjusted the analyses for multiple socio-demographic and lifestyle factors related to the mothers and children, slight confusion was still possible. Intakes of concentrate and soda may have been too low to detect associations with body composition outcomes in the children.

Higher intake of sugar-containing beverages during pregnancy is associated with higher BMI in children.

Results

This study found that SCB intake during pregnancy was positively associated with child BMI during early childhood. The median intake of total SCB during pregnancy was 1.9 servings per day with the highest intake of fruit juices of 1 serving per day and concentrate and soda both at 0.1 servings per day.

Conclusion

In this prospective cohort study, higher intake of SCB during pregnancy was found to be associated with higher BMI in children six years of age and younger. Higher intakes of total SCB and fruit juice (not soda or concentrate) were associated with higher fat mass of children six years of age. These associations were found to be stronger in girls than in boys.

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Rutgers University-New Brunswick
11:709:498 (Dr. Shapses)
Written by: Diana Said & Nicole Kim
Edited by: Neeka Tabatabaei

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