ECHO
Environmental influences on Child Health Outcomes
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Study Summary

A Diet High in Refined Grains and Low in Whole Grains in Pregnancy Linked to Lower Birthweights and Pre-term Births

Analyzing Diets Based on Racial and Ethnic Groups May Better Predict Outcomes

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Who sponsored this study?

The Environmental influences on Child Health Outcomes (ECHO) Program, Office of the Director, National Institutes of Health supported this research.

Why was this study needed?

Researchers wanted to understand how a pregnant person's diet, especially in relation to their blood sugar levels (fasting blood glucose), affects birth outcomes—like the baby's weight and whether the baby is born early. Higher fasting blood glucose during pregnancy is known to increase the risk of adverse birth outcomes. However, little is known about whether culturally influenced combinations of foods and beverages play a meaningful role across different racial and ethnic groups. This question is important because, in the U.S., Hispanic pregnant women are disproportionately affected by adverse birth outcomes, such as preterm birth and low birthweight (under 5.5 pounds). By examining dietary patterns within racial and ethnic groups, the researchers aimed to uncover more precise links between diet and birth outcomes. These links might be overlooked when analyzing the population as a whole, since average diets often reflect the eating patterns of the most represented groups in the study.

What were the study results?

Refined grains, such as white bread or white rice, showed the strongest association with higher fasting blood sugar levels among Hispanic and non-Hispanic White women. People who ate diets high in refined grains and low in whole grains were more likely to have babies born with low birthweight, smaller for gestational age, or born preterm.

When dietary patterns were analyzed by racial and ethnic group, the associations between diet, blood sugar, and birth outcomes were stronger than when using a single pattern for the full population. In the group that included non-Hispanic White and Hispanic participants, nuts, seeds, and solid fats such as butter and lard were linked to lower blood sugar. Among non-Hispanic White participants, whole grains and solid fats had the strongest association with improved blood sugar control. In contrast, among Hispanic participants, higher fruit consumption was associated with elevated blood sugar levels. These food-specific associations should be considered within the overall dietary pattern, as individual foods can influence blood sugar – beneficially or adversely – within the broader diet.

What was the study's impact?

The results of this study show the importance of looking at dietary patterns within racial and ethnic groups, particularly in studies with varying representation of different racial and ethnic populations. Analyzing a single, combined group may mask group-specific associations between diet and birth outcomes, as the effects of diet can differ across racial and ethnic backgrounds.

Who was involved?

The study included 420 Hispanic and 564 non-Hispanic White pregnant participants from two ECHO Cohort study sites.

What happened during the study?

During the study, participants shared details about what they ate over a 24-hour period. The researchers analyzed the diets, along with the mother's blood sugar, to help determine which combinations of foods eaten together in an overall diet are most closely linked to changes in blood sugar levels. They then tested whether the links between diet and birth outcomes were different across racial and ethnic groups by comparing findings from diets derived using group-specific versus combined fasting blood glucose, which have also been previously shown to vary by racial and ethnic population.

Footnote: Results reported here are for a single study. Other or future studies may provide new information or different results. You should not make changes to your health without first consulting your healthcare professional.

What happens next?

Future research could continue exploring how dietary patterns affect birth outcomes in diverse populations, especially by identifying patterns that are specific to different racial and ethnic groups.

Where can I learn more?

Access the full journal article, titled "Racial/Ethnic-Derived Maternal Diets Predict Birth Outcomes Better than a Diet Derived from a Combined Sample among Hispanic/Latina and non-Hispanic White Pregnant Individuals in the ECHO Cohort," in *Nutrition*.