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Gestational weight gain generally does not influence child cognitive development

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A child's cognitive development is not generally impacted by how much weight his or her mother gained during pregnancy, according to a study from Nationwide Children's Hospital. This is the first study to use methods controlling for the widest range of confounding factors when directly examining the association between gestational weight gain and childhood cognition.

Insufficient or excessive weight gain in pregnancy can have negative consequences for fetuses and children including infant mortality. The Institute of Medicine recently revised gestational weight gain guidelines, recommending that women gain weight within specific weight gain ranges for their Body Mass Index category. Yet little is known about the association between extremes of gestational weight gain and child cognition.

"One challenge for studies examining gestational weight gain and child outcomes is separating the effect of gestational weight gain from confounders," said Sarah A. Keim, PhD, principal investigator in the Center for Biobehavioral Health at The Research Institute at Nationwide Children's Hospital. "Confounders such as maternal intelligence, whether the family environment promotes cognitive development, family diet and exercise and some genetic factors can influence neurodevelopment postnatal and also gestational weight gain."

To address these gaps in data, Dr. Keim led a study to assess the association between gestational weight gain and the cognitive

performance of children at 4 and 7 years of age. The study appears in the *International Journal of Epidemiology*.

Using data from the U.S. Collaborative Perinatal Project, Dr. Keim's team employed two statistical approaches. The more traditional approach adjusted for factors like the mother's weight before pregnancy, her race and the baby's sex. The other used a fixed-effects approach to control for all potential confounding factors that are shared among siblings, such as a proportion of genetic factors and parenting practices.

Findings showed that any observed detrimental influence of extremes of gestational weight gain on cognition can be explained by familial or shared genetic factors rather than gestational weight gain itself. Dr. Keim cautions that these results do not apply to preterm children and don't account for all possible confounding factors. "Strength of our approach is the potential for reduced bias in our estimates," said Dr. Keim. "However, this does not eliminate the possibility of residual confounding from factors siblings do not share. Our findings suggest that gestational weight gain is generally unassociated with child cognitive development."

More information: Keim SA, Pruitt NT. Gestational weight gain and child cognitive development. *Int J Epidemiol.* 2012 Feb 7. [Epub ahead of print]

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