

An overfed fetus may become an overweight adolescent

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Higher levels of blood markers in the umbilical cord indicate that the baby has more fat and may continue having more fat into late childhood and adolescence, new research suggests. The results will be presented in a poster Friday, April 1, at ENDO 2016, the annual meeting of the Endocrine Society in Boston.

The cord blood markers leptin and adiponectin indicate the degree of fat in the child at birth, but the relationships between these markers and the offspring's risk of obesity in later life is not clear.

"Birthweight was positively associated with fat mass, [waist circumference](#) and body mass index at age 9 and 17," said lead author Joy Simpson, MBChB, clinical research fellow in maternal and reproductive health at the University of Glasgow, United Kingdom. "Fetal overnutrition may facilitate fetal growth and fat accretion, as determined by cord leptin and birthweight, and may program greater adiposity in the child that extends into childhood and adolescence."

To examine the association of cord-blood leptin, adiponectin and birthweight with childhood and adolescent fat, Simpson and her colleagues measured blood taken from the [umbilical cord](#) at birth in 5,011 mothers and children who were part of an existing study in the United Kingdom.

Higher levels of cord-blood leptin and adiponectin at birth were associated with greater fat in the child at ages 9 and 17, and these effects

remained even after [pregnancy](#) and lifestyle influences such as the mother's weight in pregnancy were accounted for. Greater birthweight also corresponded to the child's increased fat mass at ages 9 and 17.

The researchers found that cord-blood leptin was positively associated with fat mass, waist circumference and [body mass](#) index at age 9, but that the effect was diminished when they adjusted for pregnancy characteristics.

They found a similar but weaker pattern at age 17, when cord leptin was significantly associated with fat mass, waist circumference and [body mass index](#), but these associations faded after they adjusted for maternal and pregnancy characteristics.

Cord-blood adiponectin was not associated with any measures at age 9, but at age 17, adiponectin was positively associated with fat mass and waist circumference. Also at age 17, the effect size after adjusting for maternal and pregnancy characteristics was strengthened.

"This work highlights the importance of optimizing maternal health before and during pregnancy to improve offspring health and limit the translation of greater adiposity onto future generations," Simpson advised.

Provided by The Endocrine Society

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