

Baby's obesity risk: What's the mother's influence?

March 15 2010

Aspiring moms may be advised to achieve a healthy weight before they become pregnant, and to gain only the recommended amount of weight during their pregnancy. Now ongoing studies by Agricultural Research Service (ARS)-funded investigator Kartik Shankar and colleagues could provide new insights into those recommendations.

Shankar is taking a new, closer look at how influences that occur in the womb-and perhaps during the first few months of life-might affect development of a child's ability to regulate his or her weight later in life.

In fact, the child's body-weight-regulating mechanisms might be permanently altered by maternal signals associated with the mother's own overweight, according to Shankar. Such maternal programming of the unborn child could increase the risk that the child would become an overweight or obese adult and would have a higher risk of obesity-related afflictions.

A preliminary study that Shankar and his group published in the *American Journal of Physiology--Regulatory, Integrative and Comparative Physiology* several years ago has led to follow-up investigations now under way in his laboratory. He is based at the ARS Arkansas Children's Nutrition Center in Little Rock, Ark., where he is also an assistant professor of pediatrics at the University of Arkansas for Medical Sciences.

Shankar looked at weight gains among rat pups whose dads were lean

and whose [mothers](#), called "dams," were either lean or overweight (from overfeeding) before conception and throughout pregnancy.

All [offspring](#) were of normal weight at birth and at weaning. However, when the weaned offspring were given free access to an unlimited amount of high-fat rations, the offspring of overweight dams showed remarkable sensitivity to the high-fat rations. They gained significantly more weight, and more of that weight as fat mass, than did the offspring of lean dams.

The study strongly suggests that exposure to the mother's [obesity](#) while in the [womb](#) results in programming of the offspring's metabolism and body-weight-control mechanisms. The dams' obesity alone was sufficient to significantly increase the pups' susceptibility to obesity.

More information: Read more about this research in the March 2010 issue of Agricultural Research magazine, available online at: www.ars.usda.gov/is/AR/archive/mar10/baby0310.htm .

Provided by United States Department of Agriculture

Citation: Baby's obesity risk: What's the mother's influence? (2010, March 15) retrieved 9 April 2024 from <https://medicalxpress.com/news/2010-03-baby-obesity-mother.html>

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