

# Mom's Own Weight May Determine Baby's Size, Overall Health

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Video games and snack food have taken the brunt of the blame for the rising childhood obesity epidemic.

But while active lifestyles and healthy diets are key to long-term good health, the risks of a child becoming overweight and suffering from obesity-related conditions later in life may be determined long before its first soda or video game system.

Moms and doctors alike have long thought heavier babies to be healthier babies. But obesity hasn't always been considered the problem it is today, and scientists are learning that there is a fine line between optimal baby weight and a larger size that could point to future health problems.

Because babies obviously have no control over their own weight, newborn size has to be determined in the womb, and is most likely directed by the mother through both genetic and environmental factors.

Understanding how a mom's weight and diet contribute to baby's size and long-term health is the goal of one University of Cincinnati (UC) research team.

“Studies have found that heavier moms have heavier babies,” says Debra Krummel, PhD, endowed associate professor of nutritional sciences in the College of Allied Health Sciences, “We’re trying to figure out why—and ultimately come up with some guidelines for women so that their babies will be healthy at birth and through adulthood.”

Krummel is teaming with Theresa Powell, PhD, associate professor in the College of Medicine's obstetrics and gynecology department, on this multifaceted study with hopes of drawing conclusions about which baby weights are "normal," which lead to metabolic disorders, and what moms can do before or during pregnancy to set up their babies for a healthy adulthood.

Krummel will follow a group of women through pregnancy, taking body composition measurements, nutrition surveys and blood samples during the first and third trimesters. Her team will then follow up with the women's babies when they are three months old—gathering the same data as they did in each mother.

Powell's lab will look at the data collected from the mothers and babies and will also take samples of each participant's placenta at birth. The team has already studied placental tissue and found that heavy women have higher levels of metabolic hormones and inflammatory mediators called cytokines—all of which stimulate the placenta to work overtime, transporting more nutrients to the baby.

The researchers hypothesize that the mother's metabolic status—including her hormone and cytokine levels, body composition, metabolic rate and other dietary factors—controls the function of the placenta, which in larger women then passes more nutrients on to the developing fetus, leading to heavier babies.

"The placenta is an organ that's not very well understood," says Powell. "But we do know from laboratory studies that the function of the placenta changes before the baby's weight does. We're trying to figure out what triggers placenta to be such an active 'transporter' in larger women compared with women of a normal weight."

The results of their study, Krummel says, could lead to some

straightforward recommendations for women that may lead to positive benefits for babies.

“We may find that simple dietary changes before or during pregnancy could have a huge effect on a baby’s health,” says Krummel. “Ultimately, moms want what’s best for their babies and are guided by recommendations from their physicians. If we can add to that body of knowledge, we’re helping to creating an environment that leads to better health.”

Source: University of Cincinnati

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