Poor Nutrition in Pregnancy May mean Obese Kids

by Dan Childs

(ABC) - If you're pregnant, what you eat or don't eat may determine whether or not your baby faces a lifetime of obesity.

A new study conducted on rats suggests that a pregnant mother's quality of nutrition may affect her offspring's risk of obesity.

If you happen to be a rat, that is.

Whether or not the data can be applied to humans is a matter of debate. Still, the findings, which appeared online this week on the Web site of the Proceedings of the National Academy of Sciences, offer further evidence of a possible link between an unhealthy pregnancy diet and obesity.

"This is the first suggestion that this fundamental biological process operates in mammals, and has major implications for addressing issues, such as [obesity]," said lead study researcher Peter Gluckman in a statement issued Tuesday.

"It changes the way we should think about tackling the obesity epidemic."

In the study, Gluckman and his colleagues at Auckland University's Liggins Institute in New Zealand looked at two groups of female rats one group whose mothers had been malnourished during pregnancy, and another whose mothers received normal nutrition.

The researchers reported that rats born to the mothers that received inadequate nutrition reacted differently in adulthood to leptin, a hormone believed to signal the body when it has consumed enough.

What this suggests, researchers said, is that if a mother has a poor diet during pregnancy, her offspring may have metabolisms preprogrammed to store and conserve fat a potentially useful trait if you happen to be born into a life in which food is scarce.

But in a world of cheap, calorie-laden foods, such programming could result in a predilection toward obesity, and the constellation of health problems it entails.

Keith Ayoob, a pediatric nutritionist at the Albert Einstein School of Medicine in New York said that while it is difficult to generalize the findings of the rat study to humans, the research suggests some interesting ideas when it comes to a pregnant woman's diet.

"We always hear about what Mom eats during pregnancy, and how important that is for the baby," Ayoob said. "Now, it appears that ... what mom eats and how much of it she eats may determine how her child will handle nutrients and calories in the future."

Connie Diekman, director of university nutrition at Washington University in St. Louis and president of the American Dietetic Association, agreed.

"It is always difficult to assume that animal studies will translate to humans," she said. "But the fact that neonatal diet can pre-program future actions is not a surprise when you consider how important diet is to growth."

A Moment on the Lips, a Lifetime for Your Kids

The major implications of the research that a mother's poor diet can affect her future offspring suggest that a healthy measure of dietary planning may be a prudent choice when it comes to women who decide to try to have children.

"The key message regarding human health that I take away from this study is that environment matters, a lot," said Dr. Thomas Robinson, associate professor of pediatrics at the Stanford University School of Medicine. "That includes the environment in the womb as well as the environment after birth."

"The time to eat a healthy diet may be before you get pregnant," Ayoob said. "If you're undernourished, becoming better nourished not fatter, per se, unless you're at an unhealthy low weight takes time.

"That time is worth taking before you get pregnant, so that by the time the young fetus begins laying down DNA, that genetic programming will be coming from a woman in peak condition, nutritionally."

Equally, or more important is ensuring that infants learn healthy eating habits throughout their early development.

"Childhood obesity is multifactoral, with the family playing a large role in food choices, activity and overall health care," Diekman said.

"Role modeling and conditioning are a huge part of developing healthy eating habits," Ayoob said. "Good habits are learned, and the infant needs good teachers; so, good role modeling by parents is important, even during infancy as well as throughout childhood."

Health Begins in the Womb

The study is not the first to suggest that conditions in the womb can influence particular aspects of a baby's health.

In an August 2006 study published in the journal Obesity, Harvard researchers examined data that spanned 22 years and incorporated more than 120,000 children. What they found was that the percentage of overweight infants born between 1980 and 2001 increased 74 percent data that seem to suggest that certain prebirth factors could influence the weight of children.

"Our results show that efforts to prevent obesity must start at the earliest stages of development, even before birth," said study researcher Matthew Gillman, associate professor at the Harvard School of Public Health's department of nutrition, in a press statement at the time of this study's release.

These researchers, however, focused on the potential effects of smoking and excessive weight gain during pregnancy, as well as gestational diabetes and breast-feeding factors vastly different from the malnutrition effects covered in the new study.

And Ayoob said the current research on rats may be more valuable as a steppingstone to future research than as a solid clue for nutrition counselors.

However, the Liggins Institute study adds weight to the message for mothers that adhering to a balanced diet during pregnancy and putting diet plans on hold when pregnant offers the best chance of having a healthy child.

"The best start for a healthy weight is what happens [in the womb]," Diekman said.