

Overeating during breastfeeding may affect the health of offspring

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Mothers who overeat during the period when they are breastfeeding may have children who are at increased risk of becoming obese and going through early puberty, a new study of mice suggests. Early puberty may lead to increased risk of diabetes or reproductive problems later in life, according to the research, which will be presented Sunday, March 18 at

ENDO 2018, the Endocrine Society's 100th annual meeting in Chicago, Ill.

"Formula feeding is well known to increase the risk of obesity in children. Our findings suggest, however, that when breastfeeding mothers do not eat a moderate and healthy diet, there can also be increased risks of various health problems in the offspring, including obesity, diabetes, advanced puberty and reduced fertility," said lead researcher Mengjie Wang, M.D., M.S., a graduate research assistant at the University of Toledo College of Medicine and Life Sciences in Toledo, Ohio. "This idea must be tested in humans to know whether it applies to our species."

Wang noted that all over the world, puberty is starting earlier than it did in the past. "Childhood obesity, a common health issue, is one of the [risk](#) factors for early puberty," she said. "Previous evidence from animals has revealed that post-weaning overeating advances the timing of puberty, but we lack knowledge of how nutrition before weaning influences metabolism and reproduction."

To determine how [excess body weight](#) alters the timing of puberty, Wang gave [mice](#) a high-fat-diet from the date they gave birth and started breastfeeding until they weaned their pups. A second group of new mother mice was given a regular diet for the same amount of time.

Wang found that overfeeding the mothers during breastfeeding can cause obesity in the pups and significantly advance the start of their puberty. "These results show that the breast-feeding phase is a critical window that influences when puberty happens," Wang said.

Fertility tests of the mice in adulthood showed that those whose mothers had been fed a high-fat diet while breastfeeding had decreased litter size, longer duration from mating to date of birth and impaired pregnancy

rate in both female and male mice. The researchers also found these mice suffered from glucose intolerance and insulin insensitivity—signs of an [increased risk](#) of developing diabetes during adulthood.

"Our results reinforce the findings of previous studies that [childhood obesity](#) causes advanced puberty and metabolic disorders in adulthood," Wang said. "Correct treatment and follow-up are both important for patients with early [puberty](#). Patients with [early puberty](#) should be aware that other health problems may arise after they become adults."

Provided by The Endocrine Society

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