

# Kids born small should get moving

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Female mice who were growth restricted in the womb were born at a lower birth weight, but were less active and prone to obesity as adults, said researchers from Baylor College of Medicine and the USDA/ARS Children's Nutrition Research Center (CNRC) at BCM and Texas Children's Hospital in a report that appears online in the *International Journal of Obesity*.

"Given that human studies also show female-specific obesity following early growth restriction," said Dr. Robert Waterland, associate professor of pediatrics – nutrition at BCM, and a member of the CNRC faculty, "it may be prudent to encourage parents of a [low birth weight](#) child to promote healthy physical activity – particularly if that child is a girl."

"These findings were a bit of a surprise," said Waterland, corresponding author of the report.

He had already shown that genetically normal female offspring of obese [female mice](#) of a specific type (prone to obesity and marked with a yellow coat) were themselves prone to obesity and inactivity. However, he realized he also had data on the mice's weight at birth. The [birth weight](#) data showed that the offspring of these overweight females were growth restricted in the uterus.

This was surprising because babies born to obese human women tend to be larger at birth, although there is a slightly elevated risk of low birth weight as well, said Waterland. When he looked at historical reports of people who had been born in famine conditions, he found that women –

but not men – who had been growth-restricted in early life were more likely to be obese.

These included women born during the Dutch Hunger Winter near the end of World War II, the great famine in China from 1959 to 1961 and the Biafran famine during the Nigerian civil war (1967-1970).

Once it was considered important to help infants born small to "catch up and achieve a normal weight for their age," said Waterland.

"Increasingly, these and other epidemiologic data show that it might not be a good thing. It might set you up for bad outcomes in the long term."

Their studies of the growth-restricted mice show definitively that they are not prone to overeat but become obese because they are less active. (Similar changes were not seen in male mice that were growth restricted in utero.)

That could make evolutionary sense, said Waterland. In times of food scarcity, it might be more important for females to be developmentally 'programmed' to conserve their energy for future bearing of offspring.

"Millions of low birth weight babies are born every year, so this could be an important factor in the worldwide [obesity](#) epidemic," said Waterland.

Others who took part in this research include Dr. Maria S. Baker, Dr. Ge Li, and John J. Kohorst, all of BCM. Kohorst is now with the Mayo Clinic in Rochester, Minn.

Provided by Baylor College of Medicine

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