

Born to run? Study suggests love of exercise starts in the womb

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Pregnancy test. Credit: public domain

Baylor College of Medicine researchers have discovered that female mice that voluntarily exercise during pregnancy have offspring that are more physically active as adults. The research appears in *The FASEB Journal*.

Dr. Robert A. Waterland, associate professor of pediatrics - nutrition and of molecular and human genetics at the USDA/ARS Children's Nutrition Research Center at Baylor and Texas Children's Hospital and senior author of this work, noted that although their research studied mice, "several human studies have reported results consistent with ours."



For example, observational studies have found that women who are physically active when they are pregnant have children who tend to be more physically active. But these results could be attributed to the <u>mothers'</u> influence on the children after they were born. Or, mothers could pass to their offspring a genetic predisposition to be physically active.

"Our study in a mouse model is important because we can take all those effects out of the equation. We studied genetically identical mice and carefully controlled the amount of <u>physical activity</u> of the mothers before pregnancy," said Waterland.

The Baylor team selected <u>female mice</u> that all enjoyed running. Then they divided them into two groups. One was allowed access to running wheels before and during pregnancy, and the other was not.

During early pregnancy, the females with running wheels ran an average of 10 kilometers a night. They ran less as pregnancy progressed, but even by the beginning of the third trimester they ran (or walked) about 3 kilometers each night.

The researchers found that the mice born to mothers that exercised during pregnancy were about 50 percent more physically active than those born to mothers who did not exercise. Importantly, their increased activity persisted into later adulthood, and even improved their ability to lose fat during a three-week voluntary exercise program.

This study supports the idea that movement during <u>pregnancy</u> influences fetal brain development, making the offspring tend to be more <u>physically</u> <u>active</u> throughout life. "Although most people assume that an individual's tendency to be physical active is determined by genetics, our results clearly show that the environment can play an important role during fetal development," Waterland said.



If a similar effect can be confirmed in people, it could represent an effective strategy to counteract the current worldwide epidemic of physical inactivity and obesity.

Increasing physical activity has major health implications. According to the World Health Organization, insufficient physical activity is one of the 10 leading risk factors for death worldwide.

Several expert groups including the American College of Obstetricians and Gynecologists already recommend that, in the absence of complications, pregnant women get 30 minutes or more of moderate exercise a day. "I think our results offer a very positive message," said Waterland. "If expectant mothers know that exercise is not only good for them but also may offer lifelong benefits for their babies, I think they will be more motivated to get moving."

More information: *The FASEB Journal*, <u>dx.doi.org/10.1096/fj.201500018R</u>

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