

Studying a hormone that may drive obesity in postmenopausal women

August 10 2022, by David J. Hill



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For women approaching menopause, a number of changes begin to occur. One of the most common is an increase in obesity, which, in turn, raises the risk for breast cancer after menopause.

That much is known. What science hasn't quite figured out yet is the bodily mechanism that causes this [obesity](#), also known as adiposity, to develop during the menopause transition.

Researchers from the University at Buffalo and the University of Arizona have teamed up to find out. The project is homing in on the role follicle stimulating hormone (FSH) plays during menopause and how it contributes to the development of postmenopausal obesity and breast cancer. It is the largest study of its kind in [older women](#).

"Our hypothesis is that follicle stimulating hormone is driving [weight gain](#), and the weight gain increases the risk of breast cancer," says Heather Ochs-Balcom, Ph.D., associate professor of epidemiology and [environmental health](#) in UB's School of Public Health and Health Professions and a principal investigator on the study with Jennifer W. Bea, Ph.D., at the University of Arizona Cancer Center. Jean Wactawski-Wende, Ph.D., SUNY Distinguished Professor and dean of UB's School of Public Health and Health Professions, is a co-investigator.

A hormone released by the [pituitary gland](#), FSH plays an important role in female development and reproduction by stimulating growth of the ovarian follicle before ovulation, Ochs-Balcom explains.

"Interestingly, later in life, in the years before menopause and before the drop in estrogen occurs, FSH levels start to rise," she said. "It is during this time that women notice changes in their body, such as abdominal obesity. Previously, the drop in estrogen has been blamed, but there may be an independent, or separate, role for FSH."

Ochs-Balcom and Bea became interested in investigating the role of FSH after seeing the results of a study that showed that blocking follicle stimulating hormone can reduce obesity in mice.

"We are excited to see how this work translates to humans, and extending it further to include breast cancer since we know that obesity increases postmenopausal breast cancer risk," said Ochs-Balcom, an expert on genetic and environmental risk factors for [cancer](#).

The study will leverage the large amount of data compiled through the Women's Health Initiative, a long-term national health study funded by the National Heart, Lung, and Blood Institute that continues to yield important contributions to scientists' understanding of the major causes of death, disability and frailty in older women.

The researchers will study [hormone levels](#) from samples stored in a WHI biobank, as well as detailed measures of abdominal obesity in the years before [breast cancer](#) was diagnosed.

"Our team is thrilled to be able to shed light onto this largely ignored hormone during this critical part of a woman's life," says Ochs-Balcom.

The current study also builds on preliminary work led by Ochs-Balcom and funded by the New York State Peter T. Rowley program. UB epidemiology Ph.D. student Lindsey Mattick received a fellowship from the National Institutes of Health to investigate FSH and bone mineral density.

"We hope that our work can help us understand why women develop abdominal obesity and then in the longer term, how to prevent it," Ochs-Balcom said. "Preventing obesity is the ultimate goal and may in turn prevent cardiovascular disease, diabetes, and other obesity-related cancers."

Provided by University at Buffalo

Citation: Studying a hormone that may drive obesity in postmenopausal women (2022, August 10) retrieved 24 April 2024 from <https://medicalxpress.com/news/2022-08-hormone-obesity-postmenopausal-women.html>

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