

# Research Suggests Previously Undiscovered Link Between Heart Fat and Cognitive Function in Aging Women

*A new SWAN nationwide study strengthens the case for women to maintain a healthy lifestyle, noting a relation between memory and heart fat quantity and quality*

PITTSBURGH, PENNSYLVANIA, UNITED STATES, January 25, 2024 /EINPresswire.com/ -- New



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*Samar El Khoudary, Ph.D.*

research by the Study of Women’s Health Across the Nation ([SWAN](#)) suggests that fat in and around the heart may play a significant and previously undetected role in cognitive function in midlife women, with the fat potentially contributing to mental decline later in life or possibly helping to maintain brain function based on its quality vs. quantity.

Scientists at the University of Pittsburgh and five other institutions measured the cardiovascular fat of 531 midlife

women and linked the measurement to any changes in cognitive function assessed over a period of 16 years. Mean age of the women at the outset of the study was 51 years.

The cognitive tests found a correlation between working memory and delayed recall and the density and volume of a type of fat known as perivascular adipose tissue (PVAT). A lower volume and higher density of PVAT was associated with reduced cognitive performance. The negative association of PVAT of higher density was more evident at a higher volume of this fat.

The findings supplement long-established links between overall health and fat tissues in other parts of the body, although these results are the first known to the researchers to link heart fat to brain health.

“We know obesity is not good for us and the more weight we have on our body can impact our heart, but it affects more than we thought,” says Samar El Khoudary, Ph.D., University of Pittsburgh epidemiologist and senior study author. “Where we store heart fat and the quality as well as the quantity of this fat can matter to our brain as well.”

The research findings have been published in [Alzheimer’s & Dementia: The Journal of the](#)

[Alzheimer's Association](#) and were presented at the most recent meeting of the [North American Menopause Society](#) as one of the meeting's top-four abstracts.

One striking revelation is the discrimination between different types of cardiovascular fat and their impact on cognition. Brown fat, found to have a higher density and considered beneficial, appears to be good for the brain, while white fat, found to be lower in density and associated with inflammation, may have negative effects on cognitive function.

Brown fat also contains more mitochondria and muscle fibers than white fat, meaning it quickly burns energy and calories, whereas white fat stores energy to use later. Both types of fat are important for necessary bodily functions, but quantity and location are important.

The study's findings raise questions about the overall impact of weight on memory for midlife women. Higher body mass index (BMI) is associated with greater fat deposition around the heart and vasculature, underscoring the importance of maintaining a healthy weight for overall well-being. Fat usually lives under the skin, but as we gain weight it expands and once that storage area becomes full, it moves to other areas like the heart.

"If women are very careful about their health and lifestyle, they can kill two birds with one stone," says El Khoudary. "It has been shown that heart fat is associated with risk of heart disease, and now we can hypothesize that it also contributes to brain health."

El Khoudary calls for further research to confirm the findings and the hypothesis, as well as explore potential interventions for women in general. Meanwhile, she and fellow researchers encourage women to make healthy lifestyle choices, such as exercising and following a balanced diet, to limit extra fat accumulation around body organs, which could protect both heart and brain health.

About SWAN: Study of Women's Health Across the Nation

The Study of Women's Health Across the Nation (SWAN) began in 1994 and is a pioneering longitudinal, multi-site study into the menopause transition and women's health, following more than 3,000 midlife women since its conception. Its wealth of findings propels the development of medical interventions and educational programs for women in their midlife and older, including information about cardiovascular disease, hot flashes, mental health, cognitive function, and more. SWAN is co-sponsored by the National Institute on Aging (NIA), the National Institute of Nursing Research (NINR), the National Institutes of Health (NIH), Office of Research on Women's Health, and the National Center for Complementary and Alternative Medicine. For more information about SWAN, visit [www.swanstudy.org](http://www.swanstudy.org).

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