

Gene makes people fat, raises Alzheimer's risk



By Julie Steenhuisen

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CHICAGO (Reuters) – A variant of an obesity gene carried by more than a third of the U.S. population also reduces brain volume, raising carriers' risk of Alzheimer's disease, U.S. researchers said on Monday.

People with a specific variant of the fat mass and obesity gene, or FTO gene, have brain deficits that could make them more vulnerable to the mind-robbing disease.

"The basic result is that this very prevalent gene not only adds an inch to your waistline, but makes your brain look 16 years older," said Paul Thompson, a professor of neurology at the University of California Los Angeles, who worked on the study published in Proceedings of the National Academy of Sciences.

Brains generally shrink with age.

The study compared brain scans of more than 200 people and found consistently less tissue in the brains of people who carry the "bad" version of the FTO gene compared to non-carriers.

On average, people with the obesity variant of the FTO gene had 8 percent less tissue in their frontal lobes -- sometimes referred to as the brain's "command center." They also had 12 percent less tissue in their occipital lobes, which is the part of the brain that processes vision and other perceptions.

Thompson said reduced brain volume raises a person's risk for Alzheimer's disease by reducing the amount of brain reserve a person has to compensate if the brain plaques linked to Alzheimer's form. Stroke can also reduce brain tissue, depleting the brain's reserve.

DIET AND EXERCISE

The added brain risk means it is more important for people who carry the FTO gene to eat a low-fat diet and exercise regularly, he said.

A 2008 study of Amish people who had the FTO risk gene but were physically active found they weighed about the same as non-carriers, suggesting that physical activity can overcome a genetic predisposition to obesity.

People with two copies of the FTO gene variant on average weigh nearly 7 pounds (3 kg) more and are about 70 percent more likely to be obese than those who do not have the gene.

"In all the maelstrom of activities you do, exercise and a low-fat diet are genuinely saving your brain from both stroke and Alzheimer's," Thompson said.

For the study, Thompson's team compared magnetic resonance images taken of the brains of 206 healthy people between age 55 and 90 at 58 centers. The centers were taking part in the five-year Alzheimer's Disease Neuroimaging Initiative, which is examining the factors that help aging brains resist disease.

Because so many people carry the obesity version of the FTO gene, Thompson said the findings may drive research into new drug compounds to alter the effects on the brain.

Short of that, he said the findings should lead carriers to eat less and exercise more.

There is no cure for Alzheimer's disease, the most common form of dementia affecting 26 million people globally.

Current treatments help with some symptoms, but cannot reverse the course of the disease, leading many scientific teams to look for ways to prevent it.

The study is available at

<http://www.pnas.org/cgi/doi/10.1073/pnas.0910878107>

(Editing by Andrew Stern and Eric Walsh)
