More obesity blues: Obese people are at greater risk for developing Alzheimer's

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Obesity is on a rampage, with the World Health Organization pegging the numbers at more than 300 million worldwide, with a billion more overweight. With obesity comes the increased risk for cardiovascular disease, Type II diabetes, and hypertension.

Now comes more discouraging news. In the current online edition of the journal Human Brain Mapping, Paul Thompson, senior author and a UCLA professor of neurology, and lead author Cyrus A. Raji, a medical student at the University of Pittsburgh School of Medicine, and colleagues compared the brains of people who were obese, overweight, and of normal weight, to see if they had differences in brain structure; that is, did their brains look equally healthy.

They found that obese people had 8 percent less brain tissue than people with normal weight, while overweight people had 4 percent less tissue. According to Thompson, who is also a member of UCLA's Laboratory of Neuro Imaging, this is the first time anyone has established a link between being overweight and having what he describes as "severe brain degeneration."

"That's a big loss of tissue and it depletes your cognitive reserves, putting you at much greater risk of Alzheimer's and other diseases that attack the brain," said Thompson. "But you can greatly reduce your risk for Alzheimer's, if you can eat healthily and keep your weight under control."

The researchers used brain images from an earlier study called the Cardiovascular Health Study Cognition Study. Scans were selected of 94 elderly people in their 70s who were healthy not cognitively impaired—five years after the scan was taken. To define the weight categories, they used the Body Mass Index (BMI), the most widely used measurement for obesity. Normal weight people were defined as having a BMI between 18.5-25; overweight people between 25-30, and obese people greater than 30. The researchers then converted the scans into detailed three-dimensional images using tensor-based morphometry, a neuroimaging method that offers high resolution mapping of anatomical differences in the brain.

In looking at both grey matter and white matter of the brain, they found that the people defined as obese had lost brain tissue in the frontal and temporal lobes, areas of the brain critical for planning and memory, and in the anterior cingulate gyrus (attention and executive functions), hippocampus (long term memory) and basal ganglia (movement). Overweight people showed brain loss in the basal ganglia, the corona radiata, white matter comprised of axons, and the parietal lobe (sensory lobe).

"The brains of obese people looked 16 years older than the brains of those who were lean, and in overweight people looked eight years older," says Thompson.

"It seems that along with increased risk for health problems such as type 2 diabetes and heart disease, obesity is bad for your brain: we have linked it to shrinkage of brain areas that are also targeted by Alzheimer's," said Pittsburgh's Raji. "But that could mean exercising, eating right and keeping weight under control can maintain brain health with aging and potentially lower the risk for Alzheimer's and other dementias."

Source: University of California - Los Angeles