

Obesity and Diabetes and the Risk of Alzheimer's Disease

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Obesity is an important risk factor for developing type II diabetes mellitus, which is caused by insulin resistance in conjunction with inadequate pancreatic β -cell function. This results in a relative deficiency of insulin, the hormone which lowers blood sugar levels. Individuals with diabetes are at increased risk of having a heart attack or stroke at an early age, but that's not the only concern. Diabetes appears to dramatically increase a person's risk of developing Alzheimer's disease or other types of dementia later in life.

Four studies published in 2009 in the Archives of Neurology suggested that metabolic disorders such as obesity and diabetes may share risk factors that affected the development of Alzheimer's disease, other forms of dementia and cognitive decline. The individual studies found that:

1. The more components of metabolic syndrome a woman has, the more likely she is to develop cognitive impairment. In a study of nearly 5,000 women of average age 66 with no cognitive impairment followed over four years, of the ten percent who had metabolic syndrome (obesity, mild glucose abnormalities, high blood pressure, and adverse changes in blood fats), seven percent developed cognitive impairment compared with four percent who did not have metabolic syndrome. The risk of developing cognitive impairment went up for each additional metabolic syndrome component present.
2. A man who is obese in old age is more likely to have worse cognitive function. In a study of over 3,000 elderly people enrolled in the Health ABC Study assessing their overall body fat (adiposity) from their body mass index, waist size, saggital diameter (from highest point of abdomen to the back), total fat, subcutaneous fat (under the skin) and visceral fat (between internal organs), men with higher levels of body fat performed worse in cognitive function tests taken at the beginning of the study and after three, five and eight years.
3. Being obese in middle age puts a person at greater risk of dementia. Two thousand seven hundred adults of average age 75 without dementia were followed over five years and reported their weight in midlife (age 50) and had their height and weight measured in late life (age 65 and over). Researchers found that those people who were obese in midlife (body mass index, BMI, over 30) were more likely to develop dementia than those of normal weight.
4. A person with Alzheimer's disease who had a history of diabetes and higher levels of total and "bad" (LDL) cholesterol were more likely to have a faster rate of cognitive decline. In a study at Columbia University Medical Center, New York, of 156 patients who were diagnosed with Alzheimer's at average age 83 were followed for an average of 3.5 years. Over this time, those with diabetes before diagnosis showed a faster decline on tests of cognitive function compared to those whose cholesterol was normal.

In a further study in 2011, which included more than 1,000 men and women over age 60, researchers found that people with diabetes were twice as likely as the other study participants to develop Alzheimer's disease within 15 years. They were also 1.75 times more likely to develop dementia of any kind.

Diabetes could contribute to dementia in several ways, which is still being sorted out by researchers. Insulin resistance, which causes high blood sugar and in some cases leads to type II diabetes, may interfere with the body's ability to break down a protein (amyloid) that forms brain plaques that have been linked to Alzheimer's. High blood sugar (glucose) also produces certain oxygen-containing molecules that can damage cells, in a process known as oxidative stress. In addition, high blood sugar --

along with high cholesterol -- plays a role in the hardening and narrowing of arteries in the brain. This condition, known as atherosclerosis, can bring about vascular dementia, which occurs when artery blockages (including strokes) kill brain tissue.

Researchers continue to work to understand the underlying mechanisms connecting obesity, diabetes and dementia. However, the take home point is take good care of your body through the years and it may serve you well!