

High Fat Levels—Lowered Cognitive Function

Metabolic disorders share risk factors for forms of dementia

From the mid-70s onward, there's been a spike in the number of adults aged 20-74 who have become overweight or obese—to the tune of 15% to 32.9%. Even children have joined the ranks: the weight gain prevalence in 2 to 5 year olds went from 5% to 13.9%; 6 to 11 year olds went from 6.5% to 18.8%; 12 to 19 year olds had a jump from 5% to 17.4%. A real public health alert, the obesity/overweight upsurge continually is linked to diseases, from type 2 diabetes and hypertension to heart disease, sleep apnea, some cancers, osteoarthritis and depression.

And now more reasons to drop those excess pounds have come to the forefront. High fat levels may be related to diminished cognitive function and even influence Alzheimer's and other forms of dementia.

Case in point. A March 2009 prospective cohort study called the Health, Aging and Body Composition (ABC) appeared in the *Archives of Neurology*. Researchers investigated "whether total and/or regional adiposity [high fat levels] . . . influences cognitive decline in older adults and whether this association is explained by hormones and inflammatory factors known to be secreted by adipose tissue."



They set the study in two clinical centers to measure adiposity of 3,054 seniors over a seven-year period: body mass index, waist circumference, sagittal diameter, subcutaneous fat/visceral fat (via tomography), total fat mass (via dual-energy x-ray absorptiometry). Investigators examined associations between "baseline body fat measures and change in Modified Mini-Mental State Examination (3MS) score," adjusted for confounding and mediating variables such as comorbid diseases, adipocytokines and sex hormones. Scores from the 3MS were administered at the "first, third, fifth and eighth annual clinical examinations."

Results: alert for men. Worsening cognitive function in men was linked with the highest levels of all adiposity measures. On the flip side, no association existed between adiposity and cognitive change in women, the study says. The research revealed that "total body fat and subcutaneous abdominal fat are the two adiposity measures with the strongest effect on cognitive change in men," which is consistent with outcomes of both the Framingham Heart Study and a large Danish study.

And yet, another study shows issues for women. Females demonstrating more metabolic syndrome components (a group of cardiovascular risk factors such as abdominal obesity, high blood pressure, low HDL cholesterol levels) resulted in a 23% hike in cognitive impairment over a four-year period, per research conducted by University of California's Dr. Kristine Yaffe and the San Francisco Veteran's Affairs Medical Center.

Know The Facts

- Approximately 300,000 deaths each year in the United States may be attributable to obesity.
- Overweight and obesity are associated with heart disease, certain types of cancer, type 2 diabetes, stroke, arthritis, breathing problems and psychological disorders, such as depression.
- Many people live sedentary lives; in fact, 40% of adults in the United States do not participate in any leisure-time physical activity.
- Less than 1/3 of adults engage in the recommended amounts of physical activity (at least 30 minutes most days).

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According to the research, as this obesity/sedentary lifestyle epidemic penetrates the world, identifying the role of “modifiable behaviors in increasing risk for development of deleterious outcomes such as cognitive impairment is critical.”

A June 2009 article appearing in the online *Archives of Neurology* discussed a small study (48 postmenopausal women)—a subset from the Pittsburgh Healthy Women Study—who were followed for 15 years and participated in brain imaging research.

The women had MRIs to determine white and gray matter volume. The results? Those with the most weight gain had the lowest gray matter volume. These women were otherwise healthy, unlike the typical female who is overweight and tends to “have high blood pressure, impaired glucose tolerance and other health concerns known to affect the brain.”

Could this mean that weight gain in and of itself impacts the brain?

Obese middle-agers & underweight seniors may be other links. Researchers led by Annette L. Fitzpatrick, PhD from the University of Washington (Seattle) reviewed data from 2,798 dementia-free elderly participants (mean age 74.7). Those in their midlife with a body mass index (BMI) higher than 30 (obese) proved more inclined to demonstrate dementia than their slimmer counterparts. But participants with a low BMI (below 20) in their later life also demonstrated a heightened risk for dementia while their overweight senior cohorts did not show an increased risk. Therefore, “midlife obesity may be associated with risk for dementia,” but after age 65, the reverse is true: Underweight people are at risk for developing dementia.

A faster decline with heart disease. A study led by Elizabeth P. Helzner, PhD at the Columbia University Medical Center showed that of the 156 patients diagnosed with Alzheimer’s participating in the research, those having higher LDL and total cholesterol levels before diagnosis had a “more rapid decline on cognitive test scores.” Per the study, this research further demonstrates the role of vascular risk factors in the course of Alzheimer’s disease. Prevention, they say, could slow the course of the disease.

The insulin resistance factor. When cells no longer respond normally to insulin, it takes greater amounts of the hormone to affect the body. Causes of insulin resistance range from obesity and metabolic syndrome to pregnancy, infection/severe illness or stress. Research continues to mount linking metabolic disorders with late-life dementia.

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More Facts

- One small chocolate chip cookie (50 calories) is equivalent to walking briskly for 10 minutes.
- The difference between a large gourmet chocolate chip cookie and a small chocolate chip cookie could be about 40 minutes of raking leaves (200 calories).
- One hour of walking at a moderate pace (20 min/mile) uses about the same amount of energy that is in one jelly-filled doughnut (300 calories).
- A fast food "meal" containing a double-patty cheeseburger, extra-large fries and a 24 oz. soft drink is equal to running 2½ hours at a 10 min/mile pace (1500 calories).

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