

Individuals with Alzheimer's disease may lose muscle mass

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the weight of an individual's bones, muscles and organs without body fat—appears to decline among patients with Alzheimer's disease, according to a report in the April issue of *Archives of Neurology*. These decreases may be associated with declines in brain volume and function.

Unintended weight loss often occurs among individuals with Alzheimer's disease and frequently begins prior to memory loss or other cognitive symptoms, according to background information in the article. This weight loss is associated with the severity of [dementia](#) and with faster progression of Alzheimer's disease. "Although obesity in midlife is a risk factor for developing dementia, overweight and obesity in late life are associated with lower dementia risk," the authors write.

Jeffrey M. Burns, M.D., M.S., of the University of Kansas School of Medicine, Kansas City, and colleagues used dual-energy x-ray absorptiometry (DEXA) to assess body composition in 70 individuals age 60 and older without dementia and 70 with early-stage Alzheimer's disease. Participants were also evaluated with brain [magnetic resonance imaging](#) (MRI) and neuropsychological testing.

After controlling for sex, lean mass was reduced among patients with Alzheimer's disease compared with healthy controls. Decreases in the volume of the whole brain and of white matter only, along with declines in cognitive performance, were associated with loss of lean mass. However, total body fat and body fat percentage were not different between individuals with and without dementia and were not associated

with cognitive ability or brain volume.

The findings suggest that lean mass, as opposed to [body mass index](#) or other measures of overall weight or fat levels, may be a more sensitive measure of the changes in body composition associated with dementia. "We observed a direct correlation between whole-brain volume (an estimate of brain atrophy) and lean mass, suggesting that brain atrophy and loss of muscle mass may co-occur," the authors write. "[Brain atrophy](#) is considered a neuroimaging measure reflective of Alzheimer's disease pathology. Thus, our data are consistent with other studies suggesting that brain pathology may contribute to decline in body composition, perhaps by disrupting central nervous system regulation of energy metabolism and food intake."

Sarcopenia—the loss of muscle mass typically associated with aging—is most strongly associated with reductions in physical activity, the authors note. Individuals in the study with Alzheimer's disease had lower levels of physical activity; therefore, behavioral changes associated with dementia may contribute to the loss of lean mass, the authors note. Alternatively, Alzheimer's disease and sarcopenia may share an underlying mechanism, such as inflammation or changes in the process of building tissue.

More information: Arch Neurol. 2010;67[4]:428-433.

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