

Location of Body Fat Associated with Cardiovascular Risk in Older Men and Women Even at Normal Body Weight

CHICAGO, IL -- April 11, 2005 -- The distribution of body fat in older men and women is associated with metabolic syndrome, a risk factor for cardiovascular disease and diabetes, even in normal weight individuals, according to the April 11 issue of *Archives of Internal Medicine*, one of the *JAMA/Archives* journals.

Metabolic syndrome, a disorder that includes dyslipidemia (elevated blood lipid levels), insulin resistance and high blood pressure, affects 22 percent of adults in the U.S. and an even higher (42) percent of older men and women, according to background information in the article. In addition to overweight and obesity, patterns of fat distribution in middle-aged adults may confer additional risk for metabolic syndrome, but it is not known whether this is true for older individuals.

Bret H. Goodpaster, Ph.D., of the University of Pittsburgh Medical Center, and colleagues examined the association between the pattern of distribution of body fat and metabolic syndrome in 3,035 men and women aged 70 to 79. The distribution of body fat was determined using computed tomography (CT) scanning. Patients were examined and characterized as having metabolic syndrome if they met at least three of the following criteria: waist circumference greater than about 40.2 inches in men or 34.7 inches in women; elevated blood triglyceride levels; low high density lipoprotein (HDL) cholesterol levels; high blood pressure, treated or untreated; and elevated blood sugar level, treated or untreated. Individuals were classified as normal weight, overweight or obese based on the basis of body mass index (BMI, calculated as weight in kilograms divided by the square of height in meters) with a BMI of less than 25.0 considered normal weight, overweight was defined as a BMI of 25.0-29.9 and obese was defined by a BMI of greater than 29.9.

Visceral fat (fat found in the deeper tissues and around the body's organs rather than just under the skin) was associated with metabolic syndrome in older men and women whether they were normal weight, overweight or obese. Subcutaneous (under the skin) abdominal fat was associated with metabolic syndrome only in normal weight men. Intramuscular fat was associated with the syndrome in normal and overweight men, the researchers found. A surprising finding, according to the authors, was that subcutaneous thigh fat was inversely associated with metabolic syndrome in obese men and women. Having more of this type of fat made an individual less likely to have metabolic syndrome.

"In conclusion, excess accumulation of either visceral abdominal or muscle AT [adipose tissue or fat] is associated with a higher prevalence of metabolic syndrome in older adults, particularly in those who are of normal body weight," the authors write. "This suggests that practitioners should not discount the risk of metabolic syndrome in their older patients entirely on the basis of body weight or BMI. Indeed, generalized body

composition, in terms of both BMI and the proportion of body fat, does not clearly distinguish older subjects with the metabolic syndrome."

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