Medical Xpress

Eating mostly whole grains, few refined grains linked to lower body fat

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People who consume several servings of whole grains per day while limiting daily intake of refined grains appear to have less of a type of fat tissue thought to play a key role in triggering cardiovascular disease and type 2 diabetes, a new study suggests. Researchers at the Jean Mayer USDA Human Nutrition Researcher Center on Aging (USDA HNRCA) at Tufts University observed lower volumes of Visceral Adipose Tissue (VAT) in people who chose to eat mostly whole grains instead of refined grains.

"VAT volume was approximately 10 % lower in adults who reported eating three or more daily servings of whole grains and who limited their intake of refined grains to less than one serving per day," says first author Nicola McKeown, PhD, a scientist with the Nutritional Epidemiology Program at the USDA HNRCA. "For example, a slice of 100% whole wheat bread or a half cup of oatmeal constituted one serving of whole grains and a slice of white bread or a half cup of white rice represented a serving of refined grains."

McKeown and colleagues, including senior author Caroline S. Fox, MD, MPH, medical officer at The Framingham Heart Study of the National Heart Lung and Blood Institute (NHLBI), examined diet questionnaires submitted by 2,834 men and women enrolled in The Framingham Heart Offspring and Third Generation study cohorts. The participants, ages 32 to 83, underwent multidetector-computed tomography (MDCT) scans, to determine VAT and subcutaneous adipose tissue (SAT) volumes.

Visceral fat surrounds the intra-abdominal organs while subcutaneous fat is found just beneath the skin. "Prior research suggests visceral fat is more closely tied to the development of metabolic syndrome, a cluster of risk factors including hypertension, unhealthy cholesterol levels and insulin resistance that can develop into cardiovascular disease or type 2 diabetes," explains co-author Paul Jacques, DSc, director of the Nutritional Epidemiology Program at the USDA HNRCA and a professor at the Friedman School of Nutrition Science and Policy at Tufts. "Not surprisingly, when we compared the relationship of both visceral fat tissue and subcutaneous fat tissue to whole and refined grain intake, we saw a more striking association with visceral fat. The association persisted after we accounted for other lifestyle factors such as smoking, alcohol intake, fruit and vegetable intake, percentage of calories from fat and physical activity."

Published online September 29 by The American Journal of Clinical Nutrition, the present study builds on prior research that associates greater whole grain intake with reduced risk of metabolic syndrome and insulin resistance. "However, because these studies are observational, future research that specifically investigates whole grain intake and body fat distribution in a larger, more diverse study population is needed to identify the mechanism that is driving this relationship," Jacques adds.

Additionally, in the present study, the authors observed that participants who consumed, on average, three daily servings of whole grains but continued to eat many refined grains did not demonstrate lower VAT volume. "Whole grain consumption did not appear to improve VAT volume if refined grain intake exceeded four or more servings per day," says McKeown, who is also an assistant professor at the Friedman School. "This result implies that it is important to make substitutions in the diet, rather than simply adding whole grain foods. For example, choosing to cook with brown rice instead of white or making a sandwich with whole grain bread instead of white bread."

Provided by Tufts University