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Radiographic imaging exposes relationship between obesity and cancer

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Researchers at the National Institute for Aging are working to improve understanding about obesity and cancer. A study, published today in the journal *Applied Physiology, Nutrition, and Metabolism*, is the first to use direct radiographic imaging of adipose tissue rather than estimates like body mass index (BMI) or waist circumference, and focuses on the relationship between obesity and cancer risk in aging populations. Findings emphasize the negative impact of adiposity on long term health particularly for older men and women.

The researchers investigated relationships between fat mass and risk of developing cancer in 2,519 older adults in the Health, Aging, and Body Composition Study, a prospective, population-based study supported by the National Institute on Aging. They measured total body fat and body fat within the abdomen and thigh including visceral fat (adipose around the internal organs) and subcutaneous fat with radiographic images. Individuals were followed for cancer incidence over 13 years.

According to the study, "results suggest that adiposity may carry risk for cancers beyond those identified as obesity-related by the National Cancer Institute and further suggest a possible sex differential with respect to adipose and cancer risk."

Dr. Rachel Murphy, lead author on the study, is a researcher at the Laboratory of Epidemiology, and Population Sciences, Intramural Research Program, National Institute on Aging, in Bethesda, Maryland.

She said, "I think it's important to realize that BMI is not the only indicator of health to concentrate on. After controlling for risk factors we found that greater fat confers risk for cancer in older men and women. For example, women with more overall fat mass and more visceral fat had a higher risk of developing cancer."

"For men, greater visceral adipose was a particularly strong risk factor for many types of cancer regardless of the individual's BMI. Men with the most visceral fat had a nearly 3 times higher risk of many types of cancer (esophagus, pancreas, colon and rectum, kidney, thyroid, and gallbladder) compared to men with little visceral fat. When we controlled for BMI, the risk for visceral fat was strengthened."

"These findings provide new insight into obesity and cancer in old age, and suggest that interventions to target visceral adipose in addition to promotion of healthy body weight may impact future cancer risk."

More information: The article "Association of total and computed tomographic measures of regional adiposity with incident cancer risk: a prospective population-based study of older adults" is available Open Access in the journal *Applied Physiology, Nutrition, and Metabolism*. DOI: 10.1139/apnm-2013-0360

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