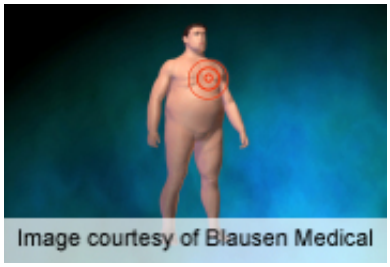
Gynoid fat resists metabolic risks of obesity

19 November 2014



(HealthDay)—The differences in the developmental profiles of upper-body and lower-body fat depots may explain their opposing associations with obesity-related metabolic disease, according to research published in the November issue of *Diabetes*.

Katherine E. Pinnick, D.Phil., of the University of Oxford in the United Kingdom, and colleagues defined the relationship between DEXA-quantified fat depots and metabolic risk factors in a cohort of 3,399 healthy individuals. The transcriptional profiles of 49 paired samples of gluteal subcutaneous adipose tissue (GSAT) and abdominal subcutaneous adipose tissue (ASAT) were compared across the body mass index spectrum.

The researchers observed a negative correlation between gynoid fat mass and insulin resistance after total fat mass adjustment; a positive correlation was found for abdominal fat. For both depots, energy-generating metabolic genes were negatively linked and inflammatory genes were positively linked with obesity, but these associations were significantly weaker in GSAT. Systemic arteriovenous release of interleukin-6, a pro-inflammatory cytokine, was lower from GSAT than ASAT. Developmental differences were observed in preadipocytes from GSAT versus ASAT.

"In conclusion, intrinsic differences in the expression of developmental genes in regional adipocytes provide a mechanistic basis for diversity in adipose tissue function," the authors write. "The less inflammatory nature of lower-body adipose tissue offers insight into the opposing metabolic disease risk associations between upper- and lower-body obesity."

More information: Abstract
Full Text (subscription or payment may be required)