INSULIN-SENSITIVE OBESITY

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Background: Although abdominal obesity is known to promote insulin resistance, an insulin-sensitive obese (ISO) phenotype has also been identified in selected populations. We compared ISO with insulin-resistant obesity (IRO) in a nationally representative sample from the National Health and Nutrition Examination Survey (NHANES) conducted between 1999 and 2004.

Methods: Fasting insulin and glucose levels were used to define insulin resistance as the upper tertile of the homeostasis model assessment (>3.60 for men and >3.13 for women) in 6485 adults without diabetes. Waist circumference, metabolic parameters, energy intake, diet composition and physical activity of participants with ISO and IRO were compared in univariate and multiple regression analyses in 693 men and 820 women with a body mass index ≥30.

Results: Three hundred men (weighted prevalence 44.6%) and 370 women (weighted prevalence 48.8%) had ISO. Compared with IRO subjects, ISO had lower triglyceride levels (161.3 mg/dL vs. 222.9 in males, P<0.001 and 123.5 vs. 167.0 in females, P<0.0001) and greater high-density lipoprotein (HDL) cholesterol levels (44.9 mg/dL vs. 40.5 in males, P<0.0001 and 54.3 vs. 48.0 in females, P<0.0001). The
differences in triglycerides and HDL remained significant after adjusting for age, gender and waist circumference. The two phenotypes had similar energy intake, diet composition and physical activity levels.

Conclusions: ISO is common and has a healthier lipid profile than the IRO phenotype. The findings may help individualize the importance of weight reduction in the management of the obesity, because the lipid “advantage” of ISO appears to be independent of abdominal adiposity.