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Waist-to-hip ratio may better predict cardiovascular risk than body mass index

DALLAS – Aug. 13, 2007 – A tape measure, not just a bathroom scale, may help you better assess your heart disease risk.

In a study to be published in the Aug. 21 issue of the *Journal of the American College of Cardiology*, investigators at UT Southwestern Medical Center found that people with a larger waist-to-hip ratio may be at increased risk for heart disease. The research evaluates the association between different measures of obesity and the prevalence of arterial disease.

“Our study shows that people who develop fat around the middle have more atherosclerotic plaque than those who have smaller waist-to-hip ratios,” said Dr. James de Lemos, associate professor of internal medicine and senior author of the study. “The risk was the same for both men and women who develop abdominal fat.”

Prior studies examining the association between obesity and cardiovascular risk reported varied results for overweight subjects who eventually had clinical cardiovascular events. The patients often were evaluated for obesity on the sole measurement of body mass index (BMI), a weight-to-height ratio commonly used in doctors’ offices to gauge obesity. The UT Southwestern findings, however, suggest that BMI alone might not give a clear enough picture of heart disease risk

“BMI was used as the primary measure of obesity rather than alternative measures such as waist circumference or waist-to-hip ratio,” said Dr. de Lemos. “The latter measures have demonstrated stronger correlations for cardiovascular risk than BMI.”

In the UT Southwestern study, researchers looked at men and women between the ages of 18 and 65. Nearly 3,000 individuals participated in a total of three medical visits each, which included an in-home health survey, blood and urine collection, and a detailed clinical exam complete with abdominal magnetic resonance imaging and coronary artery calcium scans.

Calcium was more likely to be found in the arteries of patients with the greatest waist-to-hip ratio, the researchers discovered. People with the largest waist-to-hip ratio had a twofold increase in

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the incidence of calcium deposits – a strong indicator of future cardiovascular ailments including heart attacks.

The prevalence of coronary artery calcium was strongly associated with waist circumference and waist-to-hip ratio in addition to high BMI. Hip circumference alone, however, was not a strong indicator for coronary calcium deposits.

“Fat that accumulates around your waist seems to be more biologically active as it secretes inflammatory proteins that contribute to atherosclerotic plaque buildup, whereas fat around your hips doesn’t appear to increase risk for cardiovascular disease at all,” Dr. de Lemos said. “We think the key message for people is to prevent accumulation of central fat early on in their lives. To do so, they will need to develop lifelong dietary and exercise habits that prevent the development of the ‘pot belly.’”

The research was conducted as part of the Dallas Heart Study, a multiethnic, population-based study of more than 6,000 patients in Dallas County designed to examine cardiovascular disease. The multiyear study aims to gather information to help improve the diagnosis, prevention and treatment of heart disease.

Other UT Southwestern authors include Dr. Raphael See, internal medicine resident; Dr. Shuaib Abdullah, internal medicine postdoctoral researcher; Dr. Darren McGuire, associate professor of internal medicine; Dr. Amit Khera, assistant professor of internal medicine; Dr. Mahesh Patel, internal medicine resident; Dr. Jason Lindsey, internal medicine resident; and Dr. Scott Grundy, professor of internal medicine and director of UT Southwestern’s Center for Human Nutrition.

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