

Even Modest Weight Gain Can Harm Blood Vessels Mayo Researchers Find

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ROCHESTER, Minn. — Mayo Clinic researchers found that healthy young people who put on as little as 9 pounds of fat, specifically in the abdomen, are at risk for developing endothelial cell dysfunction. Endothelial cells line the blood vessels and control the ability of the vessels to expand and contract.

"Endothelial dysfunction has long been associated with an increased risk for coronary artery disease and cardiovascular events," says [Virend Somers, M.D., Ph.D.](#), a cardiologist at Mayo Clinic. "Gaining a few pounds in college, on a cruise, or over the holidays is considered harmless, but it can have cardiovascular implications, especially if the weight is gained in the abdomen."

For the study, which was published in this week's *Journal of the American College of Cardiology*, Dr. Somers and his team recruited 43 healthy Mayo Clinic volunteers with a mean age of 29 years. They were tested for endothelial dysfunction by measuring the blood flow through their arm arteries. The volunteers were assigned to either gain weight or maintain their weight for eight weeks, and their blood flow was tested. The weight-gainers then lost the weight and were tested again.

Among those who gained weight in their abdomens (known as visceral fat), even though their blood pressure remained healthy, researchers found that the regulation of blood flow through their arm arteries was impaired due to endothelial dysfunction. Once the volunteers lost the weight, the blood flow recovered. Blood flow regulation was unchanged in the weight-maintainers and was less affected among those who gained weight evenly throughout their bodies.

Dr. Somers says the study is unable to offer conclusions about whether recovery of blood flow is possible if the weight is kept on for several years. "Patients should know that having a big belly may be more harmful than simply being obese," he says. "Letting weight creep on during college or as the result of aging should not be accepted as normal.

"Physicians should know that the location of fat is important. Greater attention should be given to the circumference of a patient's waistline, not just their body mass index (BMI)." BMI is a formula that uses height and weight to estimate body fat and associated health risks.

The study was funded by the National Institutes of Health. Mayo Clinic co-authors are Diane Davison; Prachi Singh, Ph.D.; Christine Huyber; [Francisco Lopez-Jimenez, M.D.](#); and [Michael Jensen, M.D.](#) Co-authors formerly at Mayo Clinic are Abel Romero-Corral, lead author; Fatima Sert-Kuniyoshi, Ph.D.; Justo Sierra-Johnson, M.D., Ph.D.; Marek Orban, M.D.; Apoor Gami, M.D.; Snigdha Pusalavidyasagar, M.B.B.S.; and Susanne Votruba, Ph.D.