

Biophysical abnormalities seen in aorta of obese children

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(HealthDay) -- Obese children have abnormal measurements of the biophysical properties of the aorta, reflecting increased aortic stiffness and early cardiovascular disease, according to a study published online June 25 in *The American Journal of Cardiology*.

Kevin C. Harris, M.D., from the British Columbia Children's Hospital in Vancouver, Canada, and colleagues measured the biophysical properties of the aorta in 61 obese children and in 55 normal-weight controls using a noninvasive echocardiographic Doppler method. Doppler findings were correlated with [lipid levels](#). Left ventricular dimensions and standard measures of [cardiovascular function](#) were assessed and obese children underwent cardiopulmonary exercise testing.

The researchers found that obese children had an increased pulsewave velocity, characteristic impedance, arterial wall stiffness index, arterial pressure-strain elastic modulus, and peak aortic velocity, compared with normal-weight children. Systolic, but not diastolic, blood pressure was also higher in obese children compared with normal-weight children. Although standard measures of cardiac systolic function and left ventricular dimensions were similar between the groups, altered diastolic properties were seen for obese children and their left ventricular mass was greater. There was no correlation noted between lipid levels and the biophysical characteristics of the aorta. Based on cardiopulmonary testing, obese children had a relative [oxygen consumption](#) 68 percent of predicted.

"In conclusion, measures of the biophysical properties of the [aorta](#) are already abnormal in [obese children](#), reflecting increased aortic stiffness at this early stage of disease," the authors write.

[Abstract](#)

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