

# Impaired heart function among obese children may help predict later disease

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Impaired heart function among obese children and adolescents may be an indicator of future heart disease, a new clinical trial finds. The results were presented Saturday at The Endocrine Society's 95th Annual Meeting in San Francisco.

[Obesity rates](#) in developed countries worldwide are climbing among all age groups, including children. In the United States today, one-third of children are overweight or obese, which raises concerns about the effects of early weight gain on future health.

Previous research showed that obesity in childhood can cause a type of heart abnormality characterized by blood improperly filling the [heart chamber](#). One of the earliest signs of obesity-related heart disease, this heart abnormality can eventually weaken the heart until it no longer can pump enough blood for the body's needs, which is a potentially fatal disease known as heart failure.

A primary risk factor for heart failure and other forms of heart disease is diabetes. Type 2 diabetes, which is the most common type, occurs when the pancreas either secretes insufficient insulin to control blood-sugar levels, or when cells are resistant to the hormone. Insulin resistance is one of the early sign of future diabetes.

To determine whether [obese children](#) are at greater risk for heart disease than their normal-weight counterparts, investigators measured blood concentrations of insulin and another hormone that also helps regulate

the level of sugar, or glucose, in the blood. This other hormone, adiponectin, is secreted by [fat cells](#), and at low levels also may indicate diabetes.

They found that obesity, insulin resistance and lower concentrations of adiponectin all were associated with impaired heart functioning. The children who were most likely to exhibit impaired heart functioning had all three of these conditions

"These findings suggest that these youth are at increased risk of long-term heart disease, such as [heart failure](#), if they are unable to improve their weight and fitness," said study senior author Gary M. Leong, PhD, associate professor and senior academic fellow in child obesity research and chronic disease prevention at the University of Queensland, Mater Children's Hospital in South Brisbane, Queensland, Australia. "It suggests that adolescents with obesity and [insulin resistance](#) should be monitored for impaired left [heart function](#) and, in addition to measures to attain a healthier weight, interventions should aim to normalize the metabolic profiles of these youth."

Study participants included 35 overweight and 34 normal-weight youth. Their average age was 15 years. Sixty percent of the overweight and 38 percent of the normal-weight group was female.

Investigators obtained participants' height-to-weight ratios, or body-mass indexes, and analyzed blood samples for sugar, or glucose, insulin, and [adiponectin](#) concentrations. They assessed how well the heart pumped blood with a noninvasive test that uses sound waves to portray the heart's functioning in real time.

The Golden Casket Mater Children's Hospital funded the study, which was conducted by Rachana Dahiya as part of her PhD program.

Provided by The Endocrine Society

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