

Being overweight may change young adults' heart structure, function

July 30 2018



Close up of a scale weight. Credit: copyright American Heart Association

Even as a young adult, being overweight may cause higher blood pressure and thicken heart muscle, setting the stage for heart disease later in life, according to new research in the American Heart Association's journal *Circulation*.

The study is the first to explore if higher [body mass index](#) (BMI) – a weight-for-height index – results in adverse effects on the cardiovascular system in young adults.

While observational studies can suggest associations between risk factors

or lifestyle behaviors and [heart disease](#), they cannot prove cause-and-effect. Here, investigators triangulated findings from three different types of genetic analysis to uncover evidence that BMI causes specific differences in cardiovascular measurements.

"Our results support efforts to reduce body mass index to within a normal, healthy range from a young age to prevent later heart [disease](#)," said Kaitlin H. Wade, B.Sc., Ph.D., lead author of the study and a research associate at the Medical Research Council Integrative Epidemiology Unit at the University of Bristol Medical School in the United Kingdom.

Researchers used data on several thousand healthy 17-year-olds and 21-year-olds who have participated in the ongoing Children of the 90s study (also known as the Avon Longitudinal Study of Parents and Children) since they were born in the Bristol area of the United Kingdom.

The researchers' findings suggest that higher BMI:

- caused higher systolic (top number) and diastolic (bottom number) blood pressure; and
- caused enlargement of the left ventricle, the heart's main pumping chamber.

"Thickening of vessel walls is widely considered to be the first sign of atherosclerosis, a disease in which fatty plaques build up within the arteries and lead to heart disease. However, our findings suggest that higher BMIs cause changes in the heart structure of the young that may precede changes in blood vessels," Wade said.

Two of the analyses used in the study (Mendelian randomization and recall-by-genotype) take advantage of the properties of genetic variation.

Recall-by-genotype is novel and exploits the random allocation of genes at conception.

"At a population level, this provides a natural experiment analogous to a randomized trial where we can compare differences in an outcome (such as [heart](#) structure and function) with differences in BMI, without the relationship being skewed by other lifestyle and behavioral factors," Wade said.

Most participants in the longitudinal studies were white, limiting the generalizability of the findings to other ethnic groups.

The researchers plan to investigate the relationship between higher BMI and other possible disease mechanisms, such as the abundance and diversity of microbes living in the gut. They also hope to explore the relationship between BMI and cardiac structure and function in a population now in their 70s.

More information: *Circulation* (2018). [DOI: 10.1161/CIRCULATIONAHA.117.033278](https://doi.org/10.1161/CIRCULATIONAHA.117.033278)

Provided by American Heart Association

Citation: Being overweight may change young adults' heart structure, function (2018, July 30) retrieved 17 April 2024 from <https://medicalxpress.com/news/2018-07-overweight-young-adults-heart-function.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.