

Small BMI change in overweight children could have big blood pressure impact

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Small changes in weight can make bigger differences in the blood pressure for overweight children, compared to those at normal weight, according to a new study.

Researchers tracked [blood pressure](#), height and weight of 1,113 children over time, with the longest follow-up exceeding 10 years. They then compared the children's [body mass index](#) (BMI, a measure of body weight) to national charts adjusted for age, sex and height. Kids with BMIs in the 85th percentile or higher are considered overweight.

"Below the 85th percentile, BMI effects on blood pressure appear to be fairly linear," said Wanzhu Tu, co-author of the study. "After the 85th, particularly after the 90th percentile, the BMI effect became noticeably stronger."

Analysis indicated the effect on systolic blood pressure of overweight boys' BMI percentile was 4.6 times that in normal-weight boys. Systolic blood pressure is a measure of the force of the blood pumped by the [heart](#) against the arteries when the heart is contracted. Findings were similar for diastolic pressure in boys, and both readings in girls. Diastolic blood pressure is a measure of the force of the blood against the arteries when the heart is relaxed and is the top number in a blood pressure reading.

In normal-weight children, BMI percentile and blood pressure remained related but the associations were weaker.

BMI and blood pressure studies typically don't separate normal-weight and [overweight children](#), so findings tend to overestimate BMI's effect on blood pressure in normal-weight children but underestimate it in overweight kids, Tu said.

"Because our estimate of the BMI effect was much greater in overweight kids, the results suggest that even a modest reduction in BMI may produce a

much greater benefit in blood pressure in overweight kids," Tu said. "Conversely, a small increase in BMI could put them at much greater risk of blood pressure elevation."

Provided by American Heart Association

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