

# Overweight or obese kids at almost three times greater risk of high blood pressure

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Overweight or obese children are at three times greater risk for high blood pressure than children of normal weight, according to researchers from the Regenstrief Institute and Indiana University School of Medicine.

Their study appears in the November 2011 issue of [Hypertension](#): *Journal of the American Heart Association* with advance online publication on Oct. 3.

More than 1,100 healthy Indiana school children were followed for nearly five years. The researchers found that when [body mass index](#) (BMI) reached or exceeded the 85th percentile for the age and gender of the child — designated as being overweight — the risk of high blood pressure nearly tripled. Obesity was defined as a BMI percentile higher than 95th.

BMI is a measurement of body fat calculated from weight and height.

Among study participants, 14 percent of overweight or [obese children](#) were pre-hypertensive or hypertensive, compared to 5 percent of normal weight children. These findings were consistent across age, gender and race.

The average age at time of study enrollment was 10.2 years. Each child was assessed approximately eight times during the course of the study. All were healthy children and none were taking medication affecting

blood pressure.

"Higher blood pressure in childhood sets the stage for high blood pressure in adulthood," said Regenstrief Institute Investigator Wanzhu Tu, Ph.D., professor of biostatistics at IU School of Medicine, who led the study. "Targeted interventions are needed for these children. Even small decreases in BMI could yield major health benefits."

The researcher found that leptin, a protein hormone which is involved in body weight regulation and metabolism, was positively associated with increased blood pressure in overweight and obese children.

"Previous studies overestimated the effect of BMI on blood pressure in children of normal weight and underestimated the effect of high BMI on overweight and obese children. Now we see the significantly greater [risk](#) of [high blood pressure](#) in overweight and obese children. But we don't yet know what makes blood pressure go up when there is an increase in the BMI percentile and the mechanisms involved in that process," Dr. Tu said.

Provided by Indiana University School of Medicine

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