



**Medical
Blueprints**

HIGH BLOOD PRESSURE HURTS KIDS, TOO! REPORT #2806

BACKGROUND: High blood pressure, or hypertension, is when your blood pressure, the force of blood flowing through your blood vessels, is consistently too high. Nearly half of American adults have high blood pressure. The tissues and organs in our body need the oxygenated blood that the circulatory system carries throughout the body. When the heart beats, it creates pressure that pushes blood through a network of tube-shaped blood vessels. The primary way high blood pressure causes harm is by increasing the workload of the heart and blood vessels, causing them to work harder and less efficiently. Over time, the force and friction of high blood pressure damages the delicate tissues inside the arteries resulting in the LDL (bad) cholesterol to form plaque along tiny tears in the artery walls. The more the plaque and damage increases, the narrower the insides of the arteries become. This raises blood pressure and begins a vicious circle that further harms the arteries, heart and rest of the body. It can ultimately lead to other conditions ranging from arrhythmia to heart attack and stroke.

(Source: <https://www.heart.org/en/health-topics/high-blood-pressure/the-facts-about-high-blood-pressure> and <https://www.heart.org/en/health-topics/high-blood-pressure/the-facts-about-high-blood-pressure/what-is-high-blood-pressure>)

HBP AND CHILDREN: Children from birth to teenage years can have high blood pressure. There are often no symptoms which is why early diagnosis and treatment are key. The American Heart Association recommends all children have yearly blood pressure measurements to allow for early detection and intervention. Blood pressure in children is calculated by the child's gender, age, and height. It can evolve from several risk factors or it can be secondary hypertension, resulting from an underlying health condition. Certain diseases as well as some medications can cause high blood pressure in children. Hereditary or lifestyle-related factors can also contribute, like family history; excess weight or obesity; race; and age. Research shows teenagers who are obese and have high blood pressure may develop thicker arteries by age 30.

(Source: <https://www.heart.org/en/health-topics/high-blood-pressure/why-high-blood-pressure-is-a-silent-killer/high-blood-pressure-in-children>)

BLOOD PRESSURE AND EYE HEALTH CONNECTION: In a new study published in, *Hypertension*, an American Heart Association journal, researchers sought to predict the development of high blood pressure in children over a four year period based on retinal blood vessel measurements. "The earlier we can provide treatment and implement lifestyle changes to reduce hypertension, the greater the benefit for these children," said Henner Hanssen, MD, the study's lead author and a professor in the department of sport, exercise and health at the University of Basel in Switzerland. Blood pressure measurements at both baseline and follow-up were performed in a sitting position after a minimum of five minutes of rest and were categorized based on the American Academy of Pediatrics' blood pressure guidelines. Results from the analysis showed children with narrower retinal vessel diameters at baseline developed higher systolic blood pressure at follow-up; children with higher blood pressure levels at baseline developed significantly narrower arteriolar diameters at follow-up, depending on weight and cardiorespiratory fitness; and initial blood pressure measures explained 66-69% of the change in retinal arteriolar diameter from baseline to follow-up.

(Source: <https://www.sciencedaily.com/releases/2020/06/200629090016.htm>)

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