

Babies' rapid weight gain linked to higher blood pressure as adults

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The pace of weight gain in early childhood may be associated with increased blood pressure in adulthood, according to a report in *Hypertension: Journal of the American Heart Association*.

In the first detailed study over the first five years of life to examine whether accelerated infant growth predicts adult systolic and diastolic blood pressure, researchers found that:

- Babies that are lighter at birth have higher systolic blood pressure as adults.
- Babies that gain weight more rapidly in the first five months after birth and from about ages 2 to 5 years have higher systolic blood pressure in young adulthood.
- Immediate weight gain after birth is associated with higher adult diastolic blood pressure.

"Changes in immediate (or the first five months) post-natal weight gain and childhood weight gain were associated with small changes in systolic blood pressure (around 1.5 millimeters of mercury [mmHg]) that were probably not due to chance," said Yoav Ben-Shlomo, lead author of the study and professor of clinical epidemiology in the Department of Social Medicine at the University of Bristol, U.K. "At an individual level, these changes would not be very important but in public health terms they are relevant."

Systolic blood pressure is the first number in a blood pressure reading and represents the pressure in the arteries while the heart contracts. Diastolic blood pressure represents the pressure when the heart relaxes between beats.

Researchers evaluated 679 adults (about age 25) whose growth patterns were tracked as infants as part of the Barry Caerphilly Growth Study. Measurements had been recorded at 14 points between birth and age five.

Ben-Shlomo and colleagues studied whether

subjects' growth patterns influenced blood pressure into adulthood.

The researchers found that weight gain occurring between 0 and 5 months and 1 year, 9 months to 5 years made the most difference.

"When trying to understand why some people get high blood pressure in later life, we need to consider a life course approach that considers early life as well as adult life risk factors such as dietary salt and obesity," Ben-Shlomo said.

For example: Two babies are born of average weight, both on the 50th percentile of the birth weight distribution. One of them gains weight but remains within the 50th percentile, while the other gains weight more rapidly and is in the 85th percentile when both are 6 months old.

"Our study suggests that the second baby would have higher systolic blood pressure at age 25 (after adjusting for other factors such as how much they weighed at birth or 5 years, smoking, adult obesity, etc.) than the other baby who stayed where he was on the distribution," Ben-Shlomo said.

The study helps researchers understand what drives the increase in the average blood pressure that, as we age, results in a greater risk of high blood pressure or hypertension, Ben-Shlomo said.

"From a public health perspective, the results are important," he said. "If children put on more post-natal weight today than they did in the past, then we could better predict that the burden of high blood pressure will increase in the future. Hypertension, in turn, is associated with an increased risk of heart disease and stroke."

An editorial by Barbara T. Alexander, Ph.D., of the University of Mississippi Medical Center said the findings provide new insight on sensitive windows for the developmental programming of blood

pressure and demonstrates the importance of research into the mechanisms linking early growth and adult blood pressure.

Parents should not be overly concerned if their child puts on a lot of weight in the first few years of life as these findings relate to the average for groups of people and may not apply in an individual case, Ben-Shlomo explained. "It is more important to ensure children eat a healthy diet, without too much processed foods and high salt snacks, and encourage your children to be involved in regular exercise so that they establish sensible habits which they can maintain into their adult lives."

Source: American Heart Association

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