

Higher vitamin D levels in first year of life could help against obesity in adolescence

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Low levels of vitamin D during the first year of life are inversely associated with metabolic syndrome in adolescence—which is closely linked to obesity—according to a new University of Michigan study.

Metabolic syndrome is a group of conditions such as [high blood sugar](#), excess body fat around the waist and abnormal cholesterol or triglyceride levels that together increase risk of heart disease, stroke and type 2 diabetes.

"We can never tell from an observational study if there is causation but at least from a predictive point of view, the fact that a single measure of vitamin D in [early life](#) predicts cardiovascular risk over such a long period is compelling," said senior author Eduardo Villamor, professor of epidemiology at the U-M School of Public Health.

The study, published in the *American Journal of Clinical Nutrition*, used data from more than 300 children from a cohort of about 1,800 participants recruited as infants. The children from 50 low- and middle-income neighborhoods in Santiago, Chile, were followed through adolescence for a cardiovascular risk assessment.

Villamor and colleagues measured blood concentration of vitamin D at age 1 and examined its association with body mass index-for-age at ages 5, 10, and 16-17. They also measured the percentage of fat and [muscle mass](#) and a [metabolic syndrome](#) score and its components (waist circumference, [blood pressure](#), blood lipids, insulin resistance) at age 16-17.

They found that every extra unit of vitamin D in the blood of a 1-year-old was related to a slower gain in BMI between ages 1 and 5, a lower metabolic risk score at age 16-17 and less body fat and more muscle mass in adolescence.

Another important aspect of the study was that it was conducted at a time when early [cardiovascular risk](#) factors in Chilean children were on the rise, driven in part by the obesity epidemic in this Andean country.

"The fact that you can have 16-year-olds with high blood pressure, a poor lipid profile and [insulin resistance](#) is very sobering. Finding potentially modifiable factors that might modulate that risk could be valuable," said Villamor, adding that more research is needed to examine the effects of vitamin D supplementation in early life on long-term cardiometabolic outcomes.

More information: Joshua Garfein et al. Vitamin D status in infancy and cardiometabolic health in adolescence, *The American Journal of Clinical Nutrition* (2020). [DOI: 10.1093/ajcn/nqaa273](https://doi.org/10.1093/ajcn/nqaa273)

Provided by University of Michigan

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