

A new study shows that children born to mothers who get more vitamins from their diets during early pregnancy develop stronger and healthier bones later on in childhood.

Maternal diet during pregnancy influences childhood bone health

Maternal diet during pregnancy has been suggested to influence bone health in later life. In a new study published in the *American Journal of Clinical Nutrition*, researchers analyzed the association of dietary nutrient intake in the first trimester of pregnancy with childhood bone mass.

The study included 2,819 mothers and their children who were followed during pregnancy to determine if nutrient intake during early pregnancy was linked to bone health in their children later on. Food frequency questionnaires were used to assess intakes of calories, protein, fat, carbohydrate, calcium, phosphorus, and magnesium. Folate, vitamin B12, and homocysteine levels were determined by a blood sample. Childhood total body bone mass was measured using a DEXA scan at an average age of 6 years old.

The study found that the children of the mothers who consumed more protein, phosphorus and vitamin B12 when they were pregnant had the greatest bone mass and bone mineral content. Higher carbohydrate intake and homocysteine levels were associated with a lower bone mass in childhood. In this study, maternal fat, magnesium intake, and folate concentrations were not associated with childhood bone mass.

Researchers noted that the results could have been influenced by the possibility that pregnant women who ate the best diet also provided their children with healthier diets. It is well known that phosphorus and calcium play direct roles in bone health, but this study indicates a role for maternal protein intake and homocysteine and vitamin B12 blood concentrations in childhood bone development, and reveals that fetal nutrient exposure may permanently impact bone development.

Denise HM Heppe et al. Maternal first-trimester diet and childhood bone mass: the Generation R Study. *Am J Clin Nutr* doi: 10.3945/ajcn.112.051052.