

Study finds association between father's pre-conception vitamin D intake and child height and weight at five years old

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New research presented at this year's European Congress on Obesity (ECO) in Porto, Portugal (17-20 May) shows that a father's vitamin D

intake pre-conception is associated with his child's height and weight at five years old. The study is by Dr Cilia Mejia Lancheros and colleagues at the School of Public Health, Physiotherapy and Sports Science, University College Dublin, Ireland.

Maternal vitamin D intake during pre-pregnancy has been found to have an important role in both offspring musculoskeletal and overall [health](#). But whether a father's vitamin D intake during pre-conception can influence the health and development of their offspring has received little attention. This analysis investigated the prospective relationship between pre-conception paternal vitamin D intake and offspring height and weight.

The researchers analysed data from the Lifeways Cross-Generation Cohort Study—a unique longitudinal database in Ireland. Information on paternal vitamin D intake from baseline food frequency questionnaires and children's height and weight measurements were available for 213 and 148 father-child pairs when children were aged 5 and 9 years respectively. The association between father's vitamin D intake reported during the first pre-natal trimester and the height and weight of children at age 5 and 9 was calculated using a model adjusted for several possible confounders including: [paternal age](#), energy intake height, weight, and being the biological father; [maternal age](#), vitamin D and energy intake height, and weight; and child's sex, age, vitamin D and energy intake, and summer outdoor physical activity aged five.

In adjusted models, paternal vitamin D intake was positively and statistically associated with offspring's height and weight at 5 years old; whilst these associations were reduced, and no longer statistically significant, when offspring reached 9 years old. The findings remained similar when analyses were repeated with only biological fathers.

Interestingly, the findings showed no association between a mother's

vitamin D intake during the first and second trimester of pregnancy and children's weight and height at either age five or nine years.

Skin exposure to sunlight is essential for the body to produce vitamin D, so the authors also looked at the number of hours children aged 5 spent playing outdoors during summer. They found that spending 3 or more hours playing outdoors during weekends was related to increased height at 5 years of age.

The authors conclude: "Paternal [vitamin D](#) intake was positively and prospectively associated with offspring's [height](#) and [weight](#) at 5 years old, independent of maternal characteristics, meriting further investigation of familial dietary pathways."

They add: "One reason this may occur is that father's nutrition status may somehow influence the health, quality and function of their germ cells, which are involved in reproduction. Thus, maternal nutrition may not be the only key factor in offspring's growth development and health".

In the coming months and years, the authors will collect more data (anthropometric, health, lifestyle and behavior, and blood samples) from the children in this study who have now reached adolescence. They will continue studying the health status and trajectories of these children and their future generations.

Provided by European Association for the Study of Obesity

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