

High protein intake in early childhood is associated with higher body fat mass but not higher lean mass

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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 high intake of protein in early childhood, particularly from animal food sources, is associated with a higher body mass index (BMI) due to increased body fat and not increases in fat-free mass. The study was conducted by Dr Trudy Voortman and colleagues at the Erasmus University Medical Centre, Rotterdam, the Netherlands.

There is increasing concern about health issues such as childhood obesity and the role which diet in early life can play in controlling [body fat levels](#) and managing weight.

Previous studies have suggested that eating a [high protein diet](#) during infancy and [early childhood](#) leads to a higher BMI but they did not determine whether the extra weight children gained was in the form of lean mass, as has been observed in adults, or whether it led to greater adiposity. There was also a lack of information about the role of other macronutrients such as starches, sugars, and various types of fat, as well as the replacement effects they exhibit.

The authors conducted a population-based cohort study of 3,564 Dutch children whose dietary intake was assessed using food-frequency questionnaires at age 1 year. From that, the researchers calculated intakes of total [protein](#), protein from different sources; of total

carbohydrates, polysaccharides, monosaccharides, and disaccharides; and of total, saturated, monounsaturated, and polyunsaturated fat.

Participants had their height and weight repeatedly measured between the ages of 1 and 10 years, while fat (fat mass index - FMI) and fat-free masses (fat-free mass index - FFMI) were assessed using dual x-ray absorptiometry (DXA) scanning at age 6 and 10 years. The data were adjusted to take account of variables such as maternal age and education, child's ethnicity, total energy intake, whether or not the child was breastfed, and physical activity levels.

The study found that a higher intake of both total and animal protein (from dairy and non-dairy sources) was associated with being taller, heavier, and having a higher BMI up to the age of 10. This was true regardless of whether protein was replacing carbohydrates or fats in the diet.

Further analysis discovered that the association between high protein intake and high BMI could be explained entirely by increases in FMI with no increase in FFMI as may be expected in adults. The authors say: "Our results suggest that high protein intake, particularly from animal food sources, in early childhood is associated with higher body fat mass, but not fat-free mass."

They add: "Future studies are needed to examine the optimal range of protein intake and macronutrient composition of the diet for infants and young children and translate these findings into dietary guidelines targeted at this specific age group."

Provided by European Association for the Study of Obesity

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