

# Nutrition *focus*

## Patient summary

### DIETARY PROTEIN INTAKE IS ASSOCIATED WITH BODY MASS INDEX AND WEIGHT UP TO 5 Y OF AGE IN A PROSPECTIVE COHORT OF TWINS

#### Background

Children may be consuming more protein than they need for their bodies to grow. This causes the hormone- insulin factor 1 axis to be stimulated, thus causing adipose cells to grow and differentiate.

#### Purpose

The purpose of this study is to determine whether an increase in calories from protein would cause weight gain in age children ages 3-5. The study analyzes children's diets from 21 months of age up to 5 years of age, showing how weight, Body Mass Index (BMI), and height is affected by dietary intake of varying protein, carbohydrate, and fat levels. In addition, it will test if the extra protein intake would lead to a higher risk of obesity.

#### Population

The study was done on 3435 families of a Gemini cohort study of twins. Participants included twins born in England and Wales between March and December 2007. Recruitment process was via the Office for National Statistics.

#### Procedure

Height and weight measurements were taken by the parents of the children at 8, 15, and 24 months. Once the participant was 24 months, a wall chart was sent to the family with instructions on how to measure height and weight every 3 months. BMI was calculated from the data submitted by parents by researchers according to the International Obesity Task Force. Dietary intake was recorded from November 2008 to August 2009 using a 3-day food diary when participants had an average age of 17.3-34.2 months. Dietary diaries were sent to The Medical Research Council Human Nutrition Research and the percent of energy from carbohydrates, fat, and protein were calculated from the recorded meal entries. Additional reports of sex, ethnicity, socioeconomic status, and if the participants were breast-fed or not were recorded.

#### Results

Increasing protein consumption greater than 16.3% post-weaning was found to increase weight and BMI at

**High Protein** diets for children can **increase** chances of *obesity*

21 months and 5 years, but not increase height. Replacing carbohydrates or fat for protein decreased BMI and weight.

#### Limitations

Outcomes were measured between long intervals, thus they may not have detected small interdependent changes. More so, it was only limited to England and Wales so it may not be generalizable to other populations. In addition, parents were responsible for logging food consumption, which could have been misreported throughout the procedure. Subjects were disqualified when they missed food diaries or measurements.

#### Conclusion

Young children who are fed a diet high in protein can have a higher risk for weight gain and obesity.

**Full article:** Pimpin, L., S. Jebb, L. Johnson, J. Wardle, and G. L. Ambrosini. "Dietary Protein Intake Is Associated with Body Mass Index and Weight up to 5 Y of Age in a Prospective Cohort of Twins." *American Journal of Clinical Nutrition* 103.2 (2015): 389-97.