

# Adolescents who have more than four meals a day are thinner

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Eating more than four scheduled meals a day or not eating too fast are associated with lower body fat levels. Credit: Stuart Pilbrow

A study carried out in Spain reveals that certain healthy habits, like eating more than four times a day or not eating too fast, are associated with lower body fat levels independently of exercise habits during free time.

The key to preventing obesity is in keeping up [healthy eating habits](#) and this is not a new concept. But, a new study headed by the Institute of [Food Science](#) and Technology and Nutrition (ICTAN) of the Spanish National Research Council (CSIC) goes one step further.

The study shows that certain [healthy habits](#), like eating more than four scheduled meals a day or not eating too fast, are associated with lower

[body fat levels](#) independently of [exercise habits](#) during free time.

Data on fat levels were obtained by taking the sum of six skin folds and the waist circumference of 1,978 adolescents (1,017 girls) between the ages of 13 and 18 years from five Spanish cities (Granada, Madrid, Murcia, Santander and Zaragoza). The role that [physical activity](#) during free time plays on fat levels was also assessed.

"To clarify the effects of [dietary habits](#) on obesity it is vital to study them along with other [lifestyle habits](#) such as physical activity," explained to SINC Sonia Gómez Martínez, lead author of the study and researcher at the ICTAN's department of Metabolism and Nutrition.

The young men were taller, weighed more, had a larger [waist circumference](#), and ate faster during meals. However, according to the study published in the *Journal of Adolescent Health*, their accumulated fat rate was lower.

Furthermore, the authors observed that eating breakfast on a daily basis is especially beneficial in the case of young men who do not do any exercise since those who skipped this meal showed higher body fat values.

Gómez Martínez stated that "the results obtained have shown that one in every four girls and one in every three boys in Spain are overweight or obese." However, only 18.5% of the boys did not do some form of sport as opposed to 48.5% of the girls.

Sexual maturity and the increase in size and weight determine the nutritional needs of adolescents, who grow by approximately 20% of their adult height and 50% of their muscle and bone mass during puberty.

Such processes require a high amount of energy and nutrients and so the diet should be designed to meet such requirements. During adolescence, the three most important minerals are calcium, iron and zinc.

Whereas calcium is essential for bone growth, iron is involved in haematologic tissue (red blood cells) and muscle tissue growth, and zinc plays a part in bone and muscle growth. It is also linked to hair and nail growth.

Dietary recommendations for adolescents include drinking three or four glasses of milk or yoghurt for calcium, vitamin D and riboflavin; five or more portions of fruit and vegetables; two portions of lean protein foods; six to twelve portions of cereal, pasta, rice and potatoes; and eat foods rich in fat and sugar in moderation.

**More information:** Sonia Gómez-Martínez, David Martínez-Gómez, Fátima Pérez de Heredia, Javier Romeo, Magdalena Cuenca-García, Miguel Martín-Matillas, Manuel Castillo, Juan-Pablo Rey-López, Germán Vicente-Rodríguez, Luis Moreno y Ascensión Marcos. "Eating Habits and Total and Abdominal Fat in Spanish Adolescents: Influence of Physical Activity. The AVENA Study". *Journal of Adolescent Health* 50 (2012) 403.

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