

PRESS RELEASE

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The scientific journal *Public Health Nutrition* publishes a new research within the ANIBES Study

Meal patterns and timing, differences with regard to central obesity. Findings from the ANIBES Study

- The ANIBES Study deepens in chronobiology analyzing that four or more meals daily are associated to a lower risk of suffering from abdominal obesity
- According to the results of the study, women followed more adequate dietary habits than men, eating a greater number of meals daily, skipping fewer meals and taking more time on them
- 54.4% of women ate more than four meals daily, whereas this figure decreased to 38.8% in men, who tend to skip breakfast, mid-morning snack and mid-afternoon snack more frequently

The scientific journal [Public Health Nutrition](#) recently published the research 'Differences in meal patterns and timing with regard to central obesity in the [ANIBES Study](#), a new scientific research focused on the study of the association of different meals frequency, as well as time spent on them and food consumption and energy intake patterns, with abdominal obesity.

Thus, this study coordinated by the [Spanish Nutrition Foundation](#) (FEN in Spanish) tries to identify the best dietary strategies that can help reduce the prevalence of obesity.

"According to the results, women followed more adequate dietary habits than men, eating a greater number of meals daily, skipping fewer meals and taking more time on them. On the other hand, men consumed more energy after 14.00 hours and from dinner" according to **Prof. Rosa M^a Ortega**, Director of the VALORNUT Research Group and Professor of Nutrition at the Complutense University of Madrid. "Furthermore, men ate more eggs and meat, whereas women had a higher consumption of fish, fruits, wholegrain cereals and dairy products".

Number of meals

Moreover, this research, framed within the ANIBES Study, suggests that "eating four or more meals daily is associated with a lower risk of suffering from abdominal obesity", explains the leading researcher of this study. Slightly over half of women (54.4%) ate

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more than four meals daily, whereas this figure decreased to 38.8% in men, who skipped breakfast, mid-morning snack and mid-afternoon snack more frequently”.

In this sense, “individuals with abdominal obesity more frequently skipped the mid-afternoon snack and spent less time on the mid-morning snack and more time on lunch than those without abdominal obesity”, stated Prof. Ortega.

In line with these results “several recent studies suggest that some characteristics of dietary behaviour such as skipping breakfast, eating more of the day’s total energy intake during the evening, higher frequency of meals eaten away from home and a lower number of meals eaten per day, but also snacking between meals, are associated with a higher risk of being overweight or obese”, remarked the leading researcher of this study.

Regarding the distribution of energy eaten in each meal throughout the day, Prof. Ortega highlighted that “breakfasts and lunches containing more than 25% and 35% of total energy intake respectively were associated with increased likelihood of suffering from abdominal obesity”. On the contrary, mid-morning snacks and mid-afternoon snacks, leading to an intake over 15% of total energy, were associated with decreased likelihood of abdominal obesity, which is why the importance of both intakes is remarkable”.

Time spent and variety

On the other hand, “individuals with abdominal obesity spent less time on the mid-morning snack than those without abdominal obesity. Furthermore, they consumed fewer meals away from home, slept for shorter, and ate more energy at lunch and less energy at the mid-morning and mid-afternoon snacks than those without abdominal obesity”, stated Prof. Ortega. “With regard to the dietary variety, this was higher in the population without abdominal obesity, group that ate more cereals, wholegrain cereals and dairy products”.

Keeping in mind all this data, Prof. Ortega concludes that “future dietary strategies aimed at reducing the prevalence of abdominal obesity should advise consuming at least four meals daily, with a breakfast containing less than 25% of total energy intake, including a mid-morning and mid-afternoon snack, which provide at least 15% of total energy intake, and trying to have lunch at an appropriate time and with a total energy contribution not exceeding 35%”.

Aparicio A, Rodríguez-Rodríguez E, Aranceta-Bartrina J, Gil A, González-Gross M, Serra-Majem LI, Varela-Moreiras G, Ortega RM. Differences in meal patterns and timing with regard to central obesity in the ANIBES (‘Anthropometric data, macronutrients and micronutrients intake, practice of physical activity, socioeconomic data and lifestyles in Spain’) Study. *Public Health Nutrition*, 2017;1-10; doi:10.1017/S1368980017000635.

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With the participation of:



Spanish Nutrition Society (SEÑ)



Spanish Society of Community Nutrition (SENC)

Technical specifications of the ANIBES Study

Design: Representative sample of the resident population in Spain (excluding Ceuta and Melilla)

Total sample: Individuals aged between 9 and 75 years old who live in municipalities with more than 2,000 inhabitants

Sample for this study: Individuals aged between 18 and 64 years old (n=1,655)

Universe: 37 million inhabitants

Final sample: 2,009 individuals (2.23% error and 95% margin of confidence)

Random sample plus boost: 2,285 participants*

*Boost in the sample size was considered in order to obtain a correct representation

The final protocol of the ANIBES scientific study was previously approved by the Clinical Ethics Committee of the Autonomous Region of Madrid (Spain).

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