

Study links weekend 'eating jet lag' to obesity

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A new study by the University of Barcelona (UB) concluded that irregularity in eating schedules during the weekend, which the authors call "eating jet lag," could be related to the increase of body mass index (BMI), a formula that measures weight and height to determine whether someone's weight is healthy.

These results, published in the science journal *Nutrients*, were independently taken from factors such as the quality of the diet, level of physical activity, [social jet lag](#) (difference in sleeping schedules during weekends) and chronotype (natural predisposition to a certain sleeping schedule).

According to the researchers, this is the first study that shows the importance of regularity in eating schedules—including weekends—to control weight, and could be an element to consider as part of nutrition guidelines to prevent [obesity](#).

The study, jointly led by Maria Izquierdo Pulido, from the Department of Nutrition, Food Sciences and Gastronomy of the UB and INSA-UB, and Trinitat Cambras, from the Department of Biochemistry and Physiology of the UB, is part of the doctoral thesis of the researcher María Fernanda Zerón Rugerio, first author of the article. Other participants in the article are Álvaro Hernández, from the August Pi i Sunyer Biomedical Research Institute (IDIBAPS) and the Physiopathology of Obesity and Nutrition Networking Biomedical Research Centre (CIBERObn), and Armida Patricia Porras Loaiza, from Universidad de las Américas Puebla (Mexico).

The importance of the biological clock in nutrition

In recent years, researchers proved the body understands calories differently depending on the time of the day. Eating late can be related to a higher risk of obesity. Maria Izquierdo Pulido says, "This difference is related to our biological clock, which organizes our body to understand and metabolize calories consumed during the day." At night, however, "it gets the body ready for fasting while we sleep. As a result, when intake takes place regularly, the circadian clock ensures that the body's metabolic pathways act to assimilate nutrients. However, when food is taken at an unusual hour, nutrients can act on the molecular

machinery of peripheral clocks (outside the brain), altering the [schedule](#) and thus, modifying the body's metabolic functions."

The new study was carried out on a population of 1,106 young people (aged between eighteen and twenty-two) in Spain and Mexico.

Researchers analyzed the relation between the body mass index and the variability in eating timing during weekends compared to the rest of the days. To do so, authors used a new marker that gathers changes in eating times (breakfast, lunch and dinner) at weekends: the eating jet lag, presented for the first time in this study.

"Our results show changing the timing of the three meals during the weekend is linked to obesity. The highest impact on the BDI could occur when there is a 3.5-hour difference in eating schedules. After this, the risk of obesity could increase, since we saw individuals who showed a 3.5-hour eating jet lag increased their BDI in 1.3 kg/m^2 ," says María Fernanda Zerón Rugerio.

Lack of synchrony between the social and body time

To explain the link between eating jet lag and obesity, the authors believe that individuals undergo a chronodisruption, that is, a lack of synchrony between internal time of the body and social time. "Our biological clock is like a machine, and is ready to unchain the same physiological and metabolic response at the same time of the day, every day of the week. Fixed eating and sleep schedules help the body to be organized and promote energy homeostasis. Therefore, people with a higher alteration of their schedules have a higher risk of obesity," notes Cambras.

More research is needed to reveal the physiological mechanisms and metabolic alterations behind the eating jet lag and its link to obesity. However, authors highlight the importance of keeping regular eating and

sleeping schedules to preserve health and wellbeing. "Apart from diet and [physical exercise](#), which are two pillars regarding obesity, other factor to be considered is regular eating schedules, since we proved it has an impact on our [body](#) weight," says Izquierdo Pulido.

Studying the long-term effects of eating jet lag

The study notes the importance of doing research on the relation between time irregularity and the evolution of weight over time, as well as conducting the study on populations with different social and economic characteristics, metabolic features and different age.

"Variability in eating schedules during weekends compared to week days can happen chronically during someone's life. Future studies should evaluate the effect of this chronic variability through the eating jet lag, on the evolution of weight," conclude researchers.

More information: María Fernanda Zerón-Ruggerio et al. Eating Jet Lag: A Marker of the Variability in Meal Timing and Its Association with Body Mass Index, *Nutrients* (2019). [DOI: 10.3390/nu11122980](https://doi.org/10.3390/nu11122980)

Provided by University of Barcelona

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