

# Scientists claim that overeating is not the primary cause of obesity

September 13 2021

---



Credit: CC0 Public Domain

Statistics from the Centers for Disease Control and Prevention (CDC) show that obesity affects more than 40% of American adults, placing them at higher risk for heart disease, stroke, type 2 diabetes, and certain types of cancer. The USDA's [Dietary Guidelines for Americans 2020—2025](#) further tells us that losing weight "requires adults to reduce the number of calories they get from foods and beverages and increase the amount expended through physical activity."

This approach to [weight](#) management is based on the century-old energy

balance model which states that weight gain is caused by consuming more energy than we expend. In today's world, surrounded by highly palatable, heavily marketed, cheap processed foods, it's easy for people to eat more calories than they need, an imbalance that is further exacerbated by today's sedentary lifestyles. By this thinking, overeating, coupled with insufficient physical activity, is driving the [obesity](#) epidemic. On the other hand, despite decades of public health messaging exhorting people to eat less and exercise more, rates of obesity and obesity-related diseases have steadily risen.

The authors of "The Carbohydrate-Insulin Model: A Physiological Perspective on the Obesity Pandemic," a perspective published in *The American Journal of Clinical Nutrition*, point to fundamental flaws in the energy balance model, arguing that an alternate model, the carbohydrate-insulin model, better explains obesity and weight gain. Moreover, the carbohydrate-insulin model points the way to more effective, long-lasting weight management strategies.

According to lead author Dr. David Ludwig, Endocrinologist at Boston Children's Hospital and Professor at Harvard Medical School, the energy balance model doesn't help us understand the *biological* causes of weight gain: "During a [growth spurt](#), for instance, adolescents may increase food intake by 1,000 calories a day. But does their overeating cause the growth spurt or does the growth spurt cause the adolescent to get hungry and overeat?"

In contrast to the energy balance model, the carbohydrate-insulin model makes a bold claim: overeating isn't the main cause of obesity. Instead, the carbohydrate-insulin model lays much of the blame for the current obesity epidemic on modern dietary patterns characterized by excessive consumption of foods with a high glycemic load: in particular, processed, rapidly digestible carbohydrates. These foods cause hormonal responses that fundamentally change our metabolism, driving fat storage,

[weight gain](#), and obesity.

When we eat highly processed carbohydrates, the body increases insulin secretion and suppresses glucagon secretion. This, in turn, signals fat cells to store more calories, leaving fewer calories available to fuel muscles and other metabolically active tissues. The brain perceives that the body isn't getting enough energy, which, in turn, leads to feelings of hunger. In addition, metabolism may slow down in the body's attempt to conserve fuel. Thus, we tend to remain hungry, even as we continue to gain excess fat.

To understand the obesity epidemic, we need to consider not only how much we're eating, but also how the foods we eat affect our hormones and metabolism. With its assertion that all calories are alike to the body, the energy balance model misses this critical piece of the puzzle.

While the carbohydrate-insulin model is not new—its origins date to the early 1900s—*The American Journal of Clinical Nutrition* perspective is the most comprehensive formulation of this model to date, authored by a team of 17 internationally recognized scientists, clinical researchers, and public health experts. Collectively, they have summarized the growing body of evidence in support of the carbohydrate-insulin model. Moreover, the authors have identified a series of testable hypotheses that distinguish the two models to guide future research.

Adoption of the carbohydrate-insulin model over the energy-balance model has radical implications for weight management and obesity treatment. Rather than urge people to eat less, a strategy which usually doesn't work in the long run, the carbohydrate-insulin [model](#) suggests another path that focuses more on what we eat. According to Dr. Ludwig, "reducing consumption of the rapidly digestible carbohydrates that flooded the food supply during the low-fat diet era lessens the underlying drive to store body fat. As a result, people may lose weight

with less hunger and struggle."

The authors acknowledge that further research is needed to conclusively test both models and, perhaps, to generate new models that better fit the evidence. Toward this end, they call for constructive discourse and "collaborations among scientists with diverse viewpoints to test predictions in rigorous and unbiased research."

**More information:** The carbohydrate-insulin model: a physiological perspective on the obesity pandemic, *The American Journal of Clinical Nutrition* (2021). [DOI: 10.1093/ajcn/nqab270](https://doi.org/10.1093/ajcn/nqab270)

Provided by American Society for Nutrition

Citation: Scientists claim that overeating is not the primary cause of obesity (2021, September 13) retrieved 26 April 2024 from <https://medicalxpress.com/news/2021-09-scientists-overeating-primary-obesity.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.