

## Do Ultra-Processed Foods Drive Weight Gain and Health Risk Beyond ‘Calories In, Calories Out’?

Public health advice often treats food as math: eat fewer calories, lose weight. Yet the modern diet is dominated by products engineered for convenience and shelf stability, and those products may change eating behavior in ways that calorie equations fail to predict. Evidence from a tightly controlled randomized inpatient trial, along with large cohort studies and formal definitions of ultra-processed foods, supports a clear claim: ultra-processed foods tend to increase energy intake and are associated with higher health risks, even when nutrient targets look similar on paper. The strongest explanation across sources is behavioral and physiological - ultra-processed diets make it easier to eat more, more quickly, and with less satiety.

A key piece of causal evidence comes from Kevin Hall and colleagues' inpatient randomized controlled trial. Participants were given ultra-processed and unprocessed diets in a crossover design, with meals matched for presented calories and several nutritional factors. People ate more calories on the ultra-processed diet and gained weight, while they ate less and lost weight on the unprocessed diet. The controlled setting matters: it reduces the usual confounders (income, time, cooking skill) and isolates the diet pattern itself. When access and choice are held constant, ultra-processed meals still lead to higher intake.

To interpret what ‘ultra-processed’ means, Monteiro and colleagues' NOVA framework is the main reference point in public health research. It classifies foods by the extent and purpose of industrial processing, emphasizing formulations made from extracted substances, recombined ingredients, and cosmetic additives designed to shape taste, texture, and convenience. This definition matters because it shifts attention away from single nutrients (fat, sugar) and toward product design. The Hall trial aligns with that perspective: the diets were not simply ‘junk food’ versus ‘healthy food’ stereotypes. They were contrasting processing patterns that can influence how people eat.

Observational evidence strengthens the concern by linking ultra-processed intake to long-term outcomes. In a prospective cohort of Spanish university graduates, higher consumption of ultra-processed foods (more than four servings daily) was associated with higher all-cause mortality risk, with risk increasing per additional serving. A newer large cohort analysis also reports an association between higher ultra-processed intake and slightly higher all-cause mortality. Cohort studies cannot prove causation the way an inpatient trial can, but they show the pattern persists in real life across years, where repeated overconsumption becomes chronic exposure.



A reasonable objection is that ‘ultra-processed’ can be a blunt category. Critics argue definitions can be inconsistent and that some processed products can be nutritionally useful. That criticism is fair: processing level does not automatically equal nutritional value. But the combined evidence still points to a practical risk: as a diet pattern, heavy reliance on ultra-processed foods correlates with worse outcomes, and in controlled conditions it can raise calorie intake. The most defensible takeaway is not ‘ban everything processed.’ It is that a diet anchored in minimally processed foods reduces the structural conditions that promote overeating.

Ultra-processed foods did not become dominant because they are evil. They became dominant because they are convenient, consistent, and engineered to be easy to consume. The research picture, however, suggests that this convenience comes with a predictable downside: higher intake and higher risk over time. The most realistic health strategy is not perfect purity. It is shifting the default - more meals built from minimally processed ingredients, and fewer calories coming from industrial formulations designed to disappear quickly.

### Works Cited

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