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Editorial

Ultra-processed foods and chronic disease: a new challenge for food and biomedical sciences

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Most of us can name the ultra-processed foods in our own kitchens without much effort: the instant noodles, the flavoured yoghurt, the breakfast cereal that turns the milk pink. What is harder to accept is how much of the diet they now occupy. National surveys from 36 countries put their share of daily energy anywhere between 9% in Iran and 60% in the United States, and in China and South Korea that share has roughly tripled within three decades [1]. The habit has long since left the West.

The health data have caught up with the sales data. The 2025 *Lancet* Series reviewed 104 prospective studies, and 92 of them linked diets high in ultra-processed foods to at least one chronic disease. Pooled estimates were significant for 12 outcomes, among them obesity, type 2 diabetes, cardiovascular disease, chronic kidney disease, depression and death from any cause [1]. A modelling study across eight countries attributed 4% of premature deaths in Colombia, and 14% in the United Kingdom and the United States, to these products [2]. A September 2026 pooled analysis of 51 cohorts and 8.8 million adults found risk rising in step with the amount eaten [3].

Sceptics are right that cohorts cannot prove cause, and that a category holding both cola and packaged wholemeal bread is a blunt instrument. Trials are starting to answer them. In the UPDATE crossover trial, 55 adults ate two eight-week diets that both followed UK healthy-eating guidance. Weight fell on both, by about 2% on the minimally processed diet and about 1% on the ultra-processed one [4]. Nutrient content alone does not explain that gap, so something about the processing itself seems to matter.

That “something” is where the hard work lies, and it falls between two disciplines that rarely share a bench. Food scientists understand how extrusion, emulsifiers and rebuilt food matrices change texture, eating speed and shelf life. Biomedical researchers know how to measure inflammation, glycaemic response and the gut microbiome. Neither group can pin down the mechanism alone. We need joint studies that set an ultra-processed product against its minimally processed counterpart, as the *Lancet* authors themselves request [1]. We need validated biomarkers of intake, which do not yet exist [4], to replace questionnaires that depend on memory. And we need a classification sharp enough to tell regulators which processes and additives do the damage.

There is a practical side too. These foods are cheap, slow to spoil and convenient for people short of time and money. Telling families to cook from scratch is not a policy. Food science has to deliver affordable products that keep their structure and drop the cosmetic additives. Biomedicine has to show, quickly and free of industry funding, which of those changes protect health. The evidence is already strong enough to act on while that work goes on.

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