

Food and weight gain: time to end our fear of fat

In *The Lancet Diabetes & Endocrinology*, Ramon Estruch and colleagues¹ report on long-term bodyweight change in PREDIMED, a multicentre trial in which 7447 men and women with type 2 diabetes or multiple cardiovascular risk factors were randomly assigned to a control diet (advice to reduce dietary fat) or one of two Mediterranean diets including liberal intake of extra-virgin olive oil or nuts. After 5 years, dietary fat consumption was substantially higher in the Mediterranean diets than in the control diet (42% vs 37% energy), yet without greater weight gain, and actually some evidence for less weight gain and lower waist circumference in these groups. **These important findings should be heralded around the world.**

For decades, major dietary advice policies have prioritised reduction of total fat. The early justification was that such advice would reduce intake of saturated fat, leading to lower blood cholesterol levels and reductions in heart disease. This rationale was grossly oversimplified. First, it overlooked the complex effects of saturated fat—eg, increased LDL particle size, little effect on apolipoprotein B concentrations, increased HDL cholesterol, and reduced triglycerides in VLDL cholesterol and chylomicron remnants, compared with carbohydrates.² Second, such policies did not account for harms of starches and sugars, the intake of which characteristically goes up when dietary fat or protein are reduced. Third, this advice disregarded important cardiometabolic benefits of **foods rich in healthy fats, including fish and phenolic-rich and unsaturated fat-rich nuts and vegetable oils.**³ Since those early recommendations, the accumulated scientific evidence has made clear that **lowering total fat**—ie, avoiding high-fat foods, selecting low-fat options, and using less fat in cooking and food preparation—**has no benefits for cardiovascular disease, diabetes, or other major chronic diseases.**^{4,5}

But the focus on low-fat diets lives on. In the USA, for example, the Nutrition Facts Panel and federal standards for school snacks maintain a 35% limit,^{5,6} and the National Institutes of Health recommends **fat-free salad dressing** (the main ingredients of which are **starch, sugar, and salt**) and cautions against tuna canned in oil, avocados, olive oil, and all vegetables with added fat;⁷ unsurprisingly, most people still actively avoid

dietary fat because of perceived harms.⁸ In Europe, recommendations for fat intake remain capped at 35% of total energy, and WHO maintains an even stricter limit of 30%.

How can this be? With the global obesity pandemic, **the fear of total fat has been replaced by the fear of total calories**, and lower-fat foods and diets are seen as a path to less weight gain. As happened with total fat and heart disease, **the rationale is grossly oversimplified**: fat has more calories per gram than carbohydrate or protein, foods that contain more calories must increase obesity, so energy-dense foods with more fat must cause weight gain.

Ironically, just as focusing on total fat to prevent heart disease was misguided because it overlooked the different effects of specific fatty acids, the prioritisation of total calories (and by extension, total fat) to prevent weight gain **ignores the diverse physiological effects of different foods.** Although the rationale has morphed over time, the end result is similar: a proliferation of fat-reduced—and often correspondingly starch-rich and sugar-rich—foods and diets, with paradoxical warnings and caveats about eating healthy, high-fat foods, such as those rich in nuts and vegetable oils.

For **short-term** weight loss, **calories** are pre-eminent, irrespective of the type of food or diet. But in the **long term**, the **physiological regulation of bodyweight is complex**, involving numerous tissues and pathways that are differentially affected by different foods. Over the past decade, results from randomised trials⁹ have shown that **high-fat diets are equally effective or superior to low-fat diets for weight loss.** And data from long-term observational studies have soundly contradicted the relevance of prioritising total calorie contents or energy density of foods for the prevention of long-term weight gain.^{3,10–12} These findings from the PREDIMED trial¹ provide further **robust evidence that liberally adding healthy foods to the diet, including high-fat choices such as nuts and extra-virgin olive oil, does not increase weight gain.** The results build upon the findings from a **previous meta-analysis** of 33 smaller clinical trials, totalling less than 2000 participants and typically less than 6 months in duration, which showed trends toward lower bodyweight, BMI, and waist circumference in diets providing nuts, compared with control diets.¹³



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For **WHO recommendations** see

<http://www.who.int/mediacentre/factsheets/fs394/en/>

Dietary guidelines should be revised to lay to rest the outdated, arbitrary limits on total fat consumption. **Calorie-obsessed caveats** and warnings about healthier, higher-fat choices such as nuts, phenolic-rich vegetable oils, yoghurt, and even perhaps cheese, should also be dropped. We **must abandon the myth that lower-fat, lower-calorie products lead to less weight gain**. This illusion leads to **paradoxical policies that focus on total calories, rather than food quality**, on restaurant menus; ban whole milk but allow sugar-sweetened fat-free milk; compel food manufacturers, retailers, and restaurants to remove healthy vegetable-derived fats from meals and products while heavily marketing fat-reduced products of dubious health value; and mislead consumers to select foods based on total fat and calorie contents rather than actual health effects.

The fat content of foods and diets is simply not a useful metric to judge long-term harms or benefits. **Energy density and total caloric contents can be similarly misleading**. Rather, modern scientific evidence supports an emphasis on eating more calories from **fruits, nuts, vegetables, beans, fish, yoghurt, phenolic-rich vegetable oils, and minimally processed whole grains**; and **fewer calories from highly processed foods rich in starch, sugar, salt, or trans-fat**. We ignore this evidence—including these results from the PREDIMED trial—at our own peril.

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For more on milk policies see <https://www.gpo.gov/fdsys/pkg/FR-2012-01-26/pdf/2012-1010.pdf>