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## Trends in Cardiovascular Medicine

journal homepage: [www.elsevier.com/locate/tcm](http://www.elsevier.com/locate/tcm)Editorial commentary: Lessons from the long saga of trans-fats<sup>☆☆☆</sup>

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Taste preferences are set early in life, as is the memory of how foods “ought” to taste. People of all cultures wax nostalgic about favorite dishes and dinner staples made by mothers, grandmothers, and other relatives. The ingredients and recipes for these dishes are codified and passed across generations, and they come to find their reflections in popular processed and prepared foods. As such, core dietary patterns and desires tend to shift slowly, especially when contrasted with ever-oscillating studies concerning the health benefits (or harms) of various foods. Indeed, the contents of one’s refrigerator and pantry are probably as revealing of a person’s age, upbringing, and education as his or her choice of interior décor.

These patterns are essential to understanding how trans-fats were assimilated into modern diets, and their prolonged farewell even after significant scientific evidence suggested they were harmful. As detailed by Shah and Thadani in this issue of Trends in Cardiovascular Medicine [1], trans-fats were introduced largely for commercial reasons of price, shelf stability and product consistency. Their reach expanded rapidly in the second half of the twentieth century, bolstered by aggressive marketing and a scientific consensus about the dangers of animal-derived foods rich in saturated fat (e.g. butter, lard). Partially hydrogenated oils rich in trans-fats were incorporated into many of the foods children and adults love: pies, pastries, cake frosting, fried chicken, and French fries. Gradually, these oils subtly re-defined the normative taste for many of these foods to the point that partially hydrogenated oils were considered essential for their production. For the most part, this shift towards “vegetable oils” was encouraged as salutary by physicians, government, public interest groups, and the media [2].

Major concerns about the deleterious effects of trans-fats on serum lipids, inflammation and atherosclerosis came to light through a series of observational studies in the early 1990s [3]. The initial reaction to these findings was cautious, with significant resistance from the restaurant and margarine industries [4]. It took over a decade for government mandates to begin to require food labeling and the reduction of trans-fats in developed countries. Initial resistance to regulations on trans-fats was widespread among producers and consumers. For instance, one of us recalls how a

county-wide ban was resisted by two local bakeries who were concerned that their pastries would not taste the same, which would damage their reputation and reduce their revenue. The local bakeries finally complied after they were reassured by proprietors from Little Italy in New York City, who had successfully changed their recipes in response to the first regulations against restaurant trans-fats in the United States [5]. Anecdotally, similar dynamics were at play in many other municipalities trying to reduce trans-fats. In the end, commercial trans-fats were finally banned in the United States in 2018, nearly a generation after the first rigorous scientific studies identified the dangers. Despite this progress in developed countries, trans-fats remain prevalent in many foods consumed in developing countries to this day.

Even though it took many years, the decline in trans-fats is considered a public health success. Many factors coincided to give this initiative traction: the strong and consistent harmful signal from the scientific literature, attention of public interest groups, successful government interventions, ready substitutes (butter and new vegetable oil formulations), and the growing disfavor of foods considered processed or artificial. In recent years, US per capita butter consumption actually outpaced margarine for the first time in decades [6]. There are important lessons to be learned as we face the continued challenge of unhealthy diets that contribute to obesity, diabetes, and atherosclerosis.

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