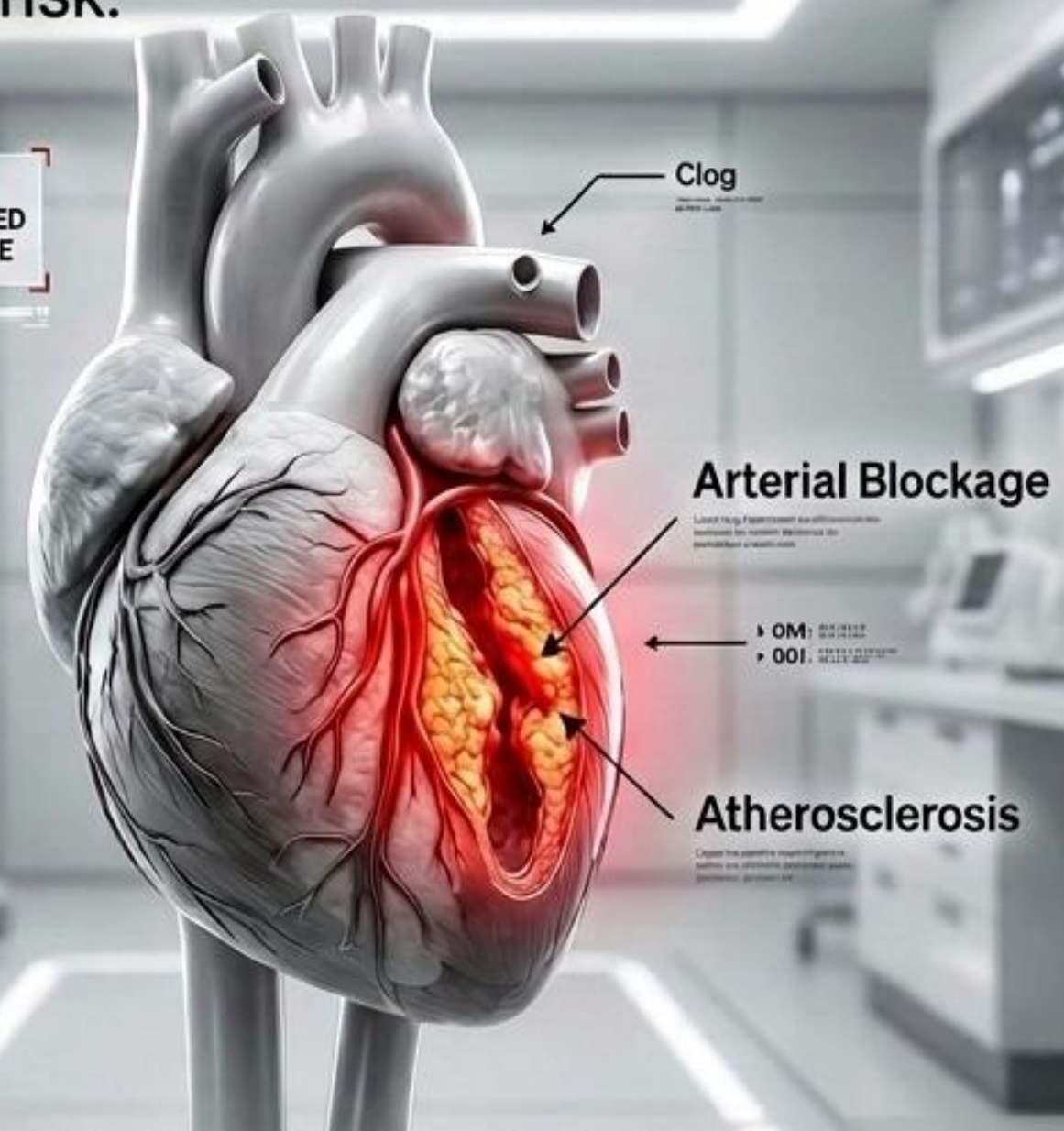


The Crisco Case: Hydrogenation, Trans Fats, and the Reversal of a Nutritional Paradigm

How industrial food innovation, marketing, and delayed toxicological evidence reshaped modern dietary risk.



100 Years

The time elapsed
between the product's
launch and the
recognition of its risks.

60 Million

The number of cans sold
annually in America just
five years after its launch.

High trans-fat content

Early partially
hydrogenated shortenings
contained substantial
amounts of industrial
trans fatty acids.

**A commercially successful food innovation later became a
paradigmatic case of delayed recognition of trans-fat
cardiovascular risk.**



1890: The (Non-Food) Origins of Procter & Gamble

At the end of the 19th century, P&G did not produce food. It was an industrial giant producing soaps and candles.



MEAT PACKING
INDUSTRY



SOAP



WAX CANDLE

The Problem:

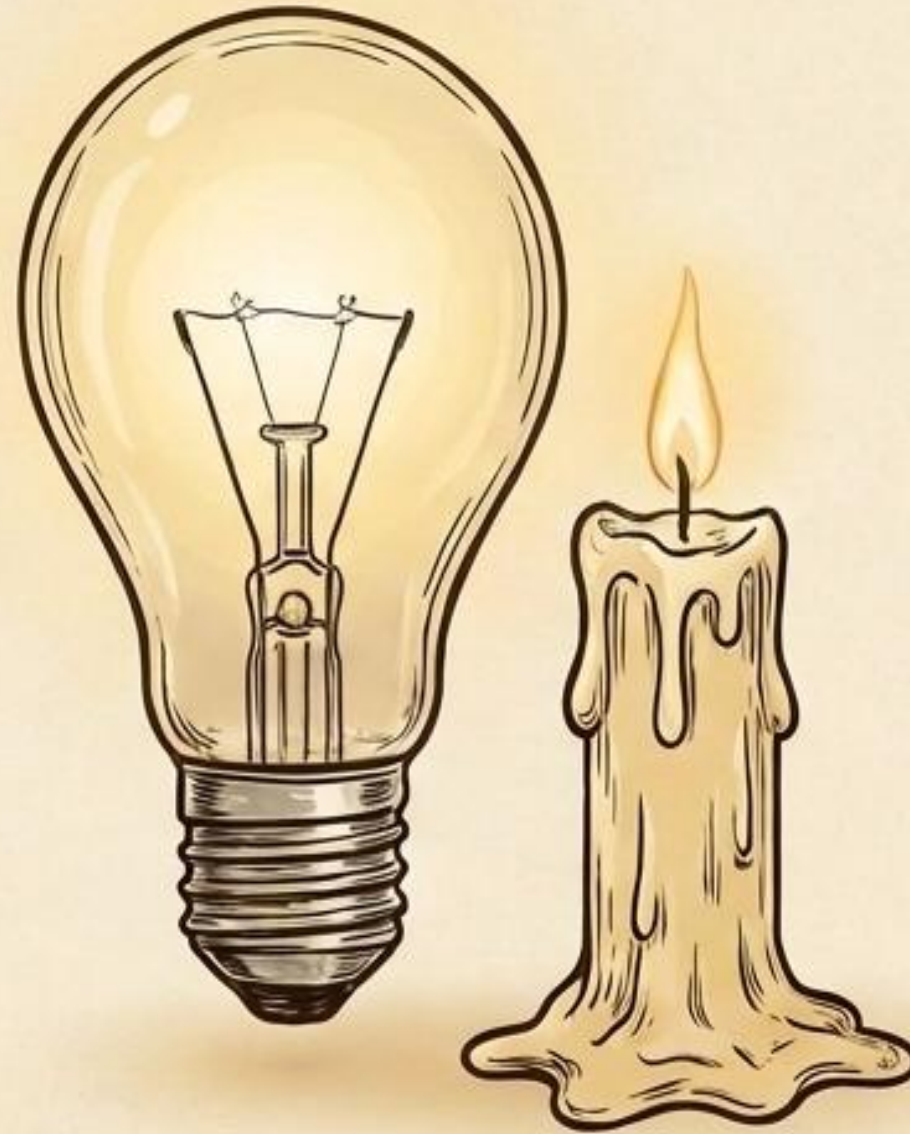
P&G depended on animal fats supplied by the meatpacking industry.

Price volatility and supply dependence encouraged the search for a cheaper, more stable industrial alternative.

The Candle Collapse and Cottonseed Oil

The advent of electricity suddenly destroyed the thriving candle market.

P&G found itself with enormous industrial infrastructure and a massive supply of a very low – cost agricultural byproduct: cottonseed oil.



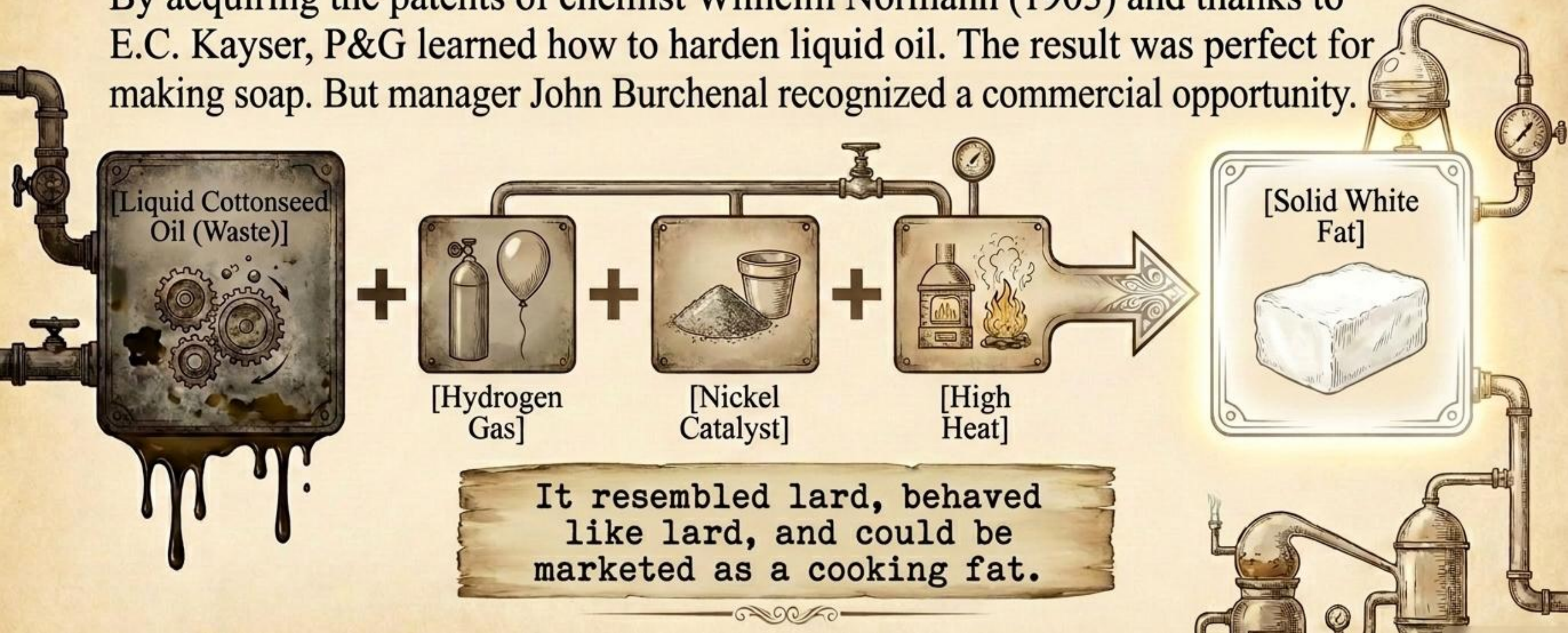
Cottonseed Oil:

Historically a low-value by-product of cotton ginning, cottonseed oil dark, often malodorous, and mainly used for industrial purposes such as machinery lubrication or dye production.



Industrial Alchemy: Hydrogenation

By acquiring the patents of chemist Wilhelm Normann (1903) and thanks to E.C. Kayser, P&G learned how to harden liquid oil. The result was perfect for making soap. But manager John Burchenal recognized a commercial opportunity.



1911: The Commercial Introduction of Crisco

P&G launches the first entirely vegetable-based solid fat in human history.



After discarding the names 'Krispo' and 'Cryst' (for religious connotations), they choose CRISCO, an acronym derived from CRYStallized Cottonseed Oil.

A product developed through industrial chemistry and marketed as a modern alternative to traditional animal fats.

The Anatomy of a Commercial Strategy

Marketing emphasized purity, modernity, and digestibility, while the industrial origin of the ingredient remained visually and rhetorically minimized.

The laboratory is associated with purity and progress, while traditional fats are repositioned as outdated.

PURE VEGETABLE SHORTENING

STRICTLY VEGETABLE
ubirco valupalee tootootan.

SCIENTIFIC METHOD
The latest tests demonstrate that this shortening is pure and free from all impurities. It is the only shortening that has been tested and found to be the most perfect for all uses.

ECONOMICAL
The latest tests demonstrate that this shortening is pure and free from all impurities. It is the only shortening that has been tested and found to be the most perfect for all uses.

TASTELESS
The latest tests demonstrate that this shortening is pure and free from all impurities. It is the only shortening that has been tested and found to be the most perfect for all uses.

DIGESTIBLE
The latest tests demonstrate that this shortening is pure and free from all impurities. It is the only shortening that has been tested and found to be the most perfect for all uses.

PURE VEGETABLE SHORTENING

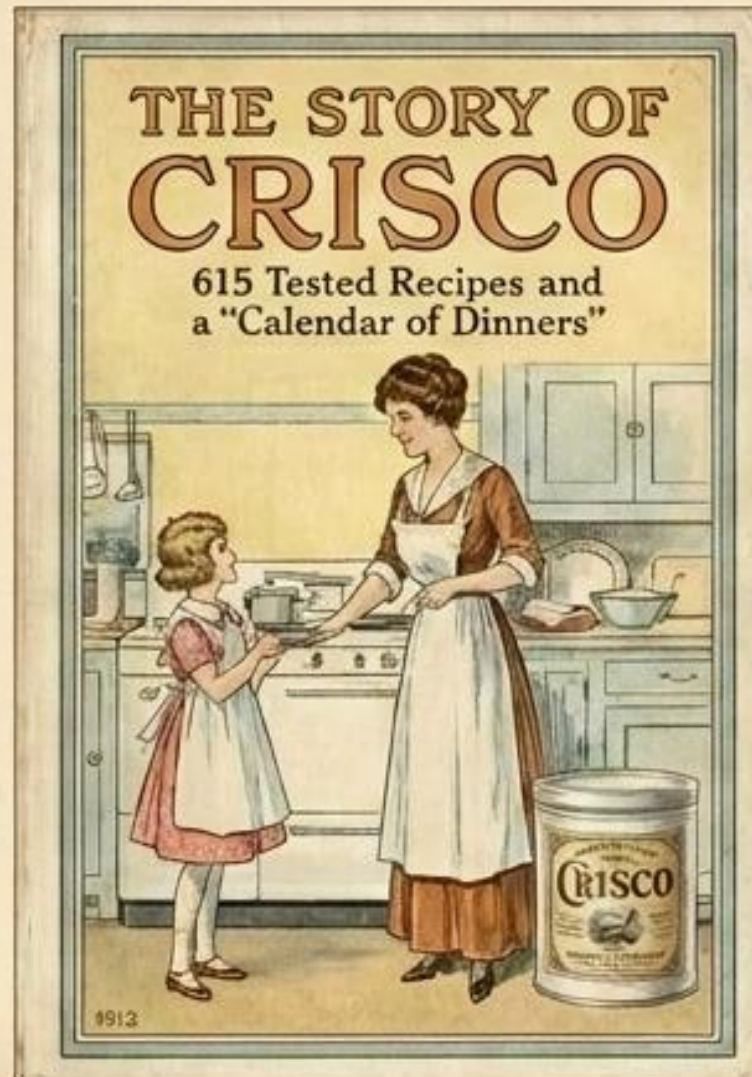
CRISCO



The advertising language minimized the industrial and botanical origin of the ingredient.

The Cookbook Tactic: Content Marketing in the 1910s

Instead of just selling the product, P&G distributed an entire cookbook for free to American housewives.



615

615 Modified Recipes: From soups to cakes, every single recipe in the book explicitly substituted butter or lard with Crisco. Women who used Crisco were portrayed as modern, enlightened, and hygienic mothers.



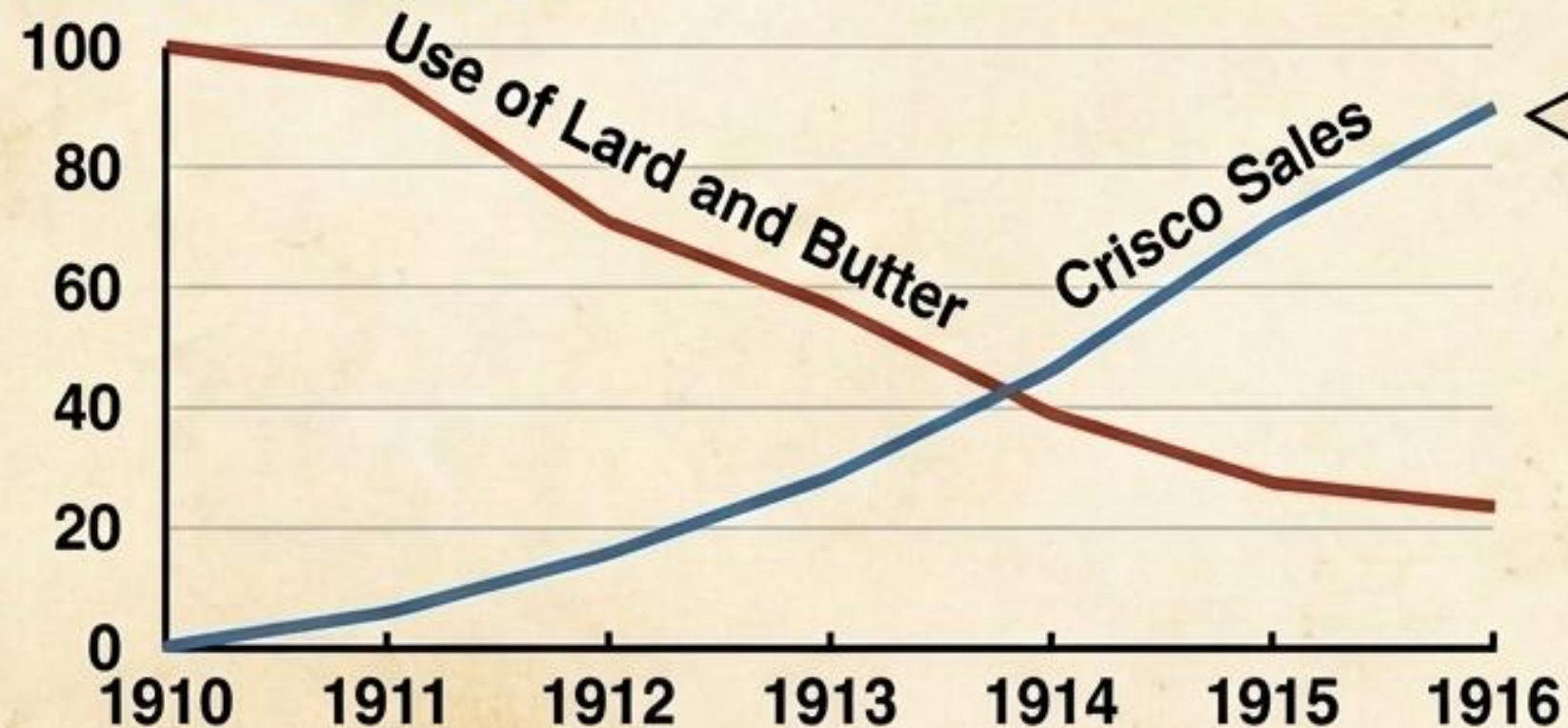
The Conquest of the Kitchens

The product worked perfectly. Furthermore, being 100% vegetable, it became immediately popular among Jewish communities (Kosher), as it could be eaten with meat without violating dietary laws.

	 Crisco	 Lard	 Burro (Butter)
Price	Very low	Medium	High
Preservation	Years outside fridge	Months in cool	Days/Weeks in cool
Smoke point	Very high	High	Low
Cultural Status	Marketed as modern and scientific.	Traditional, but increasingly reframed as outdated.	Expensive

The Sunset of Traditional Fats

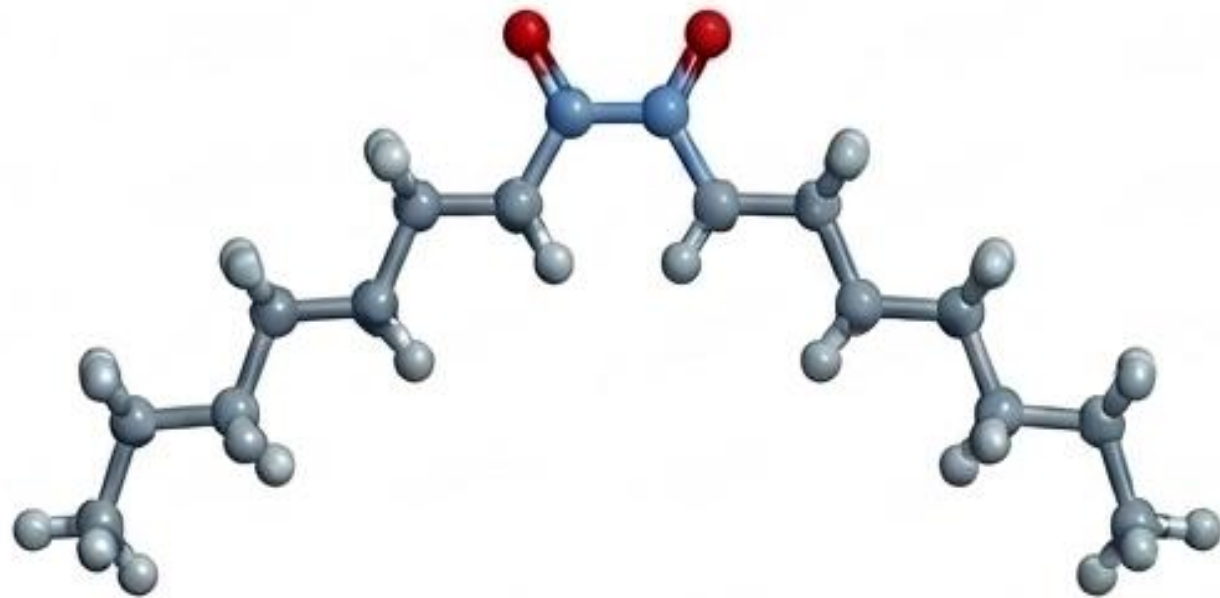
In a single generation, P&G contributed to a profound shift in American cooking habits. Traditional animal fats were increasingly reframed as old-fashioned, while industrial vegetable shortening was promoted as a modern and hygienic alternative.



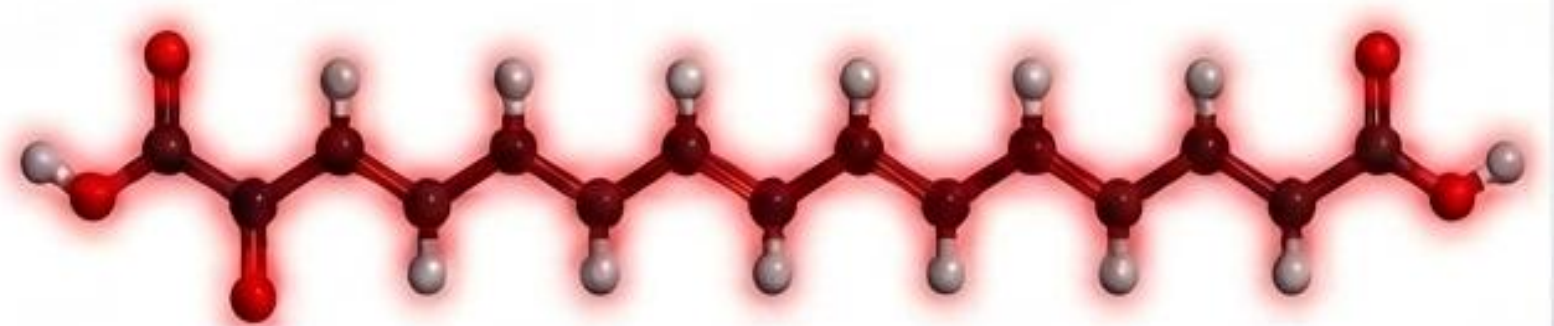
By 1916, Americans purchase over 60 million cans of Crisco per year (equal to 3 per family).

The Molecular Problem: Trans Configuration

The critical issue in partial hydrogenation is the formation of trans fatty acids. Their geometry differs from natural cis fatty acids and can alter lipid metabolism, lipoprotein profiles, membrane properties, and cardiovascular risk.



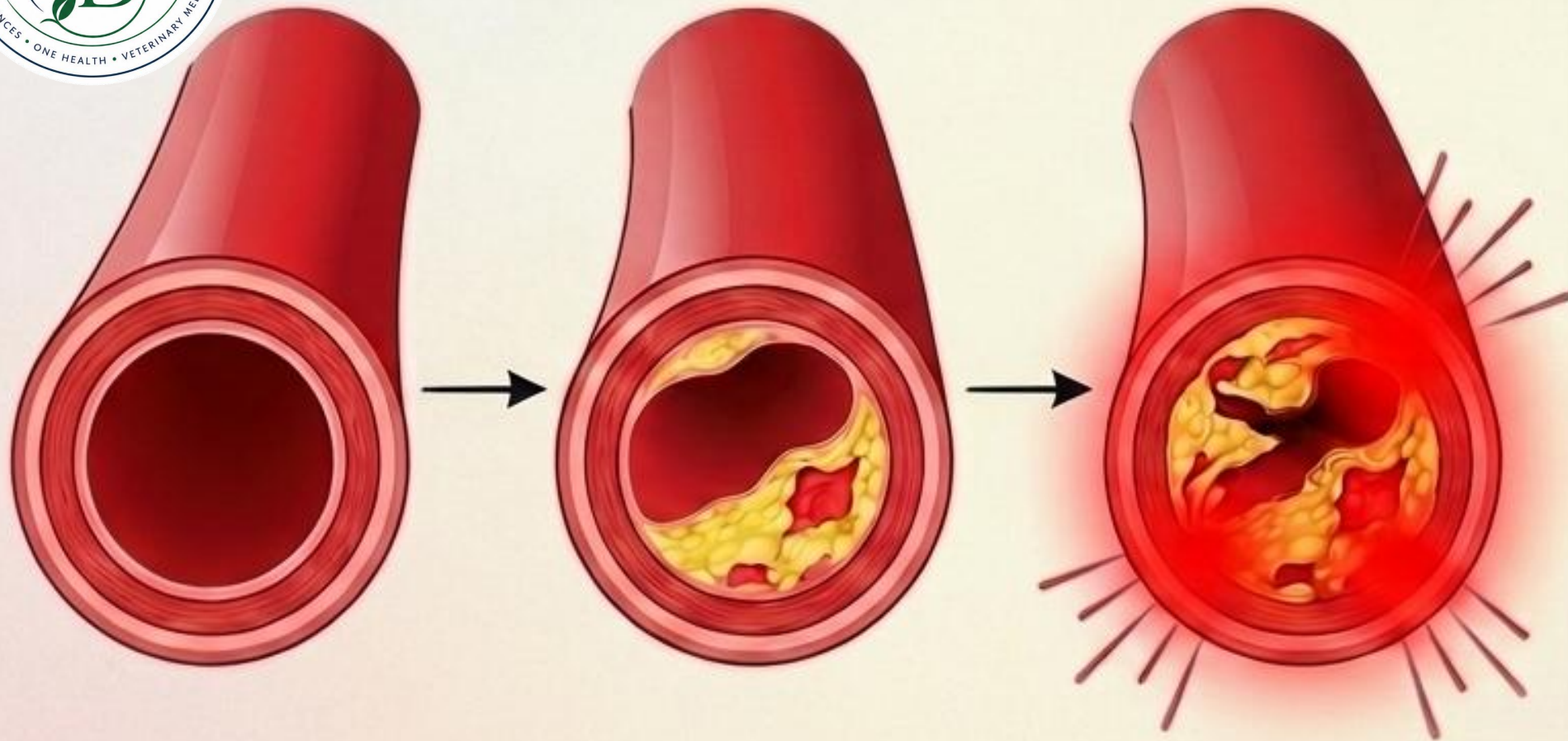
Cis Fatty Acid



Industrial Trans Fatty Acid

Cardiovascular Impact of Industrial Trans Fats

The original Crisco contained a significant amount of trans fats.



Phase 1:
Healthy Artery

Phase 2:
Plaque
Formation

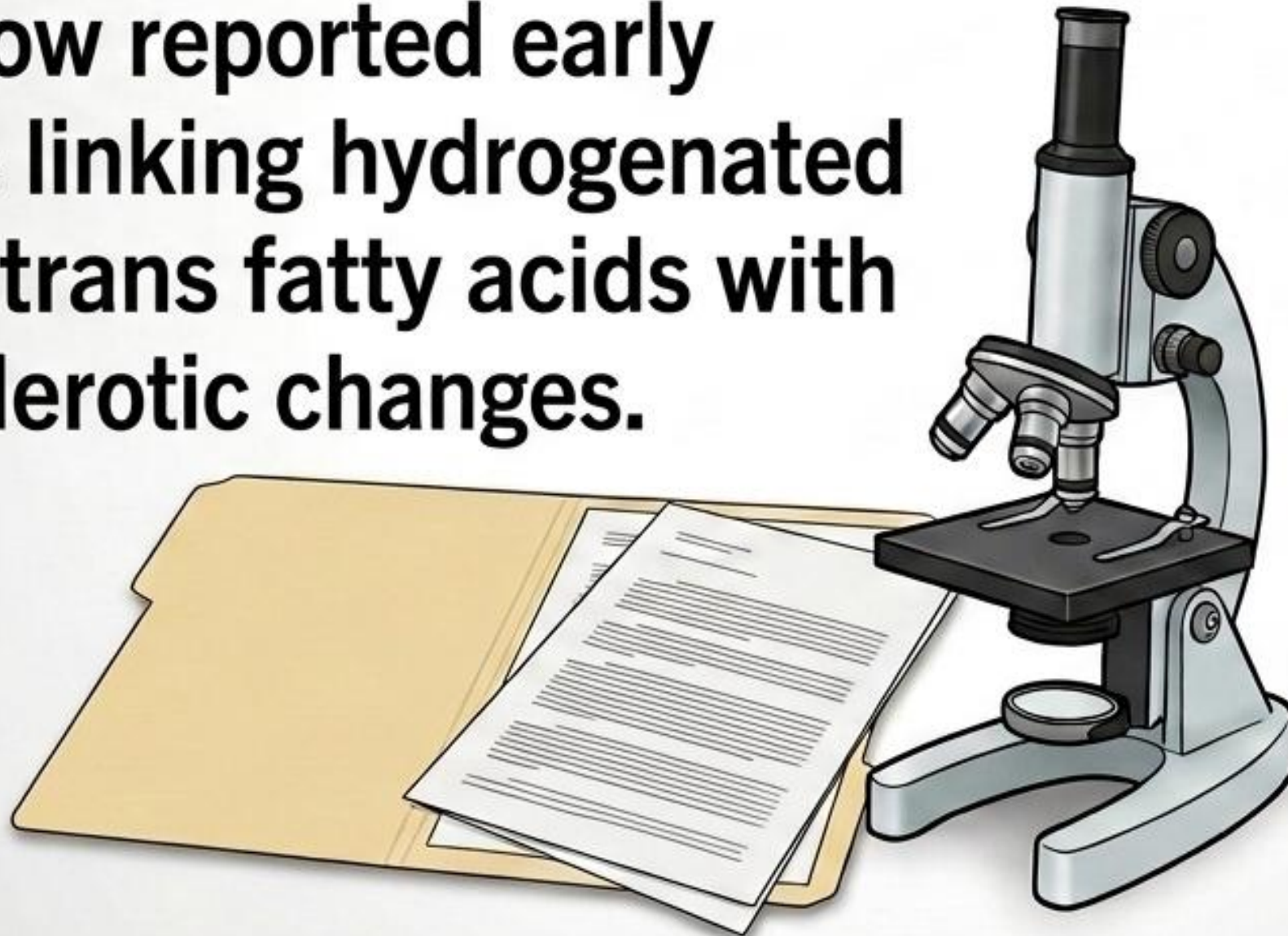
Phase 3:
Severe Obstruction
and Inflammation

- They integrate into cell membranes, altering their permeability.
- They raise 'bad' cholesterol (LDL).
- They may lower HDL cholesterol and adversely affect the LDL/HDL profile.
- They promote pro-inflammatory and pro-atherogenic pathways.

Early Evidence Underestimated

The dangers did not emerge suddenly. As early as 1957, biochemist Fred Kummerow reported early evidence linking hydrogenated fats and trans fatty acids with atherosclerotic changes.

Despite early warnings, regulatory and commercial responses were slow. The use of partially hydrogenated oils continued for decades before the cardiovascular risk of industrial trans fats was fully recognized.



The Nutritional Focus of the 1980s

During this period, public-health messaging focused primarily on saturated fats, while the specific cardiovascular risk of industrial trans fats remained less visible.



Key insight: During this period, nutritional policy and public messaging focused mainly on saturated animal fats. This helped delay broader recognition of the specific cardiovascular risk associated with industrial trans fats.

The Fast Food Paradox (1986)

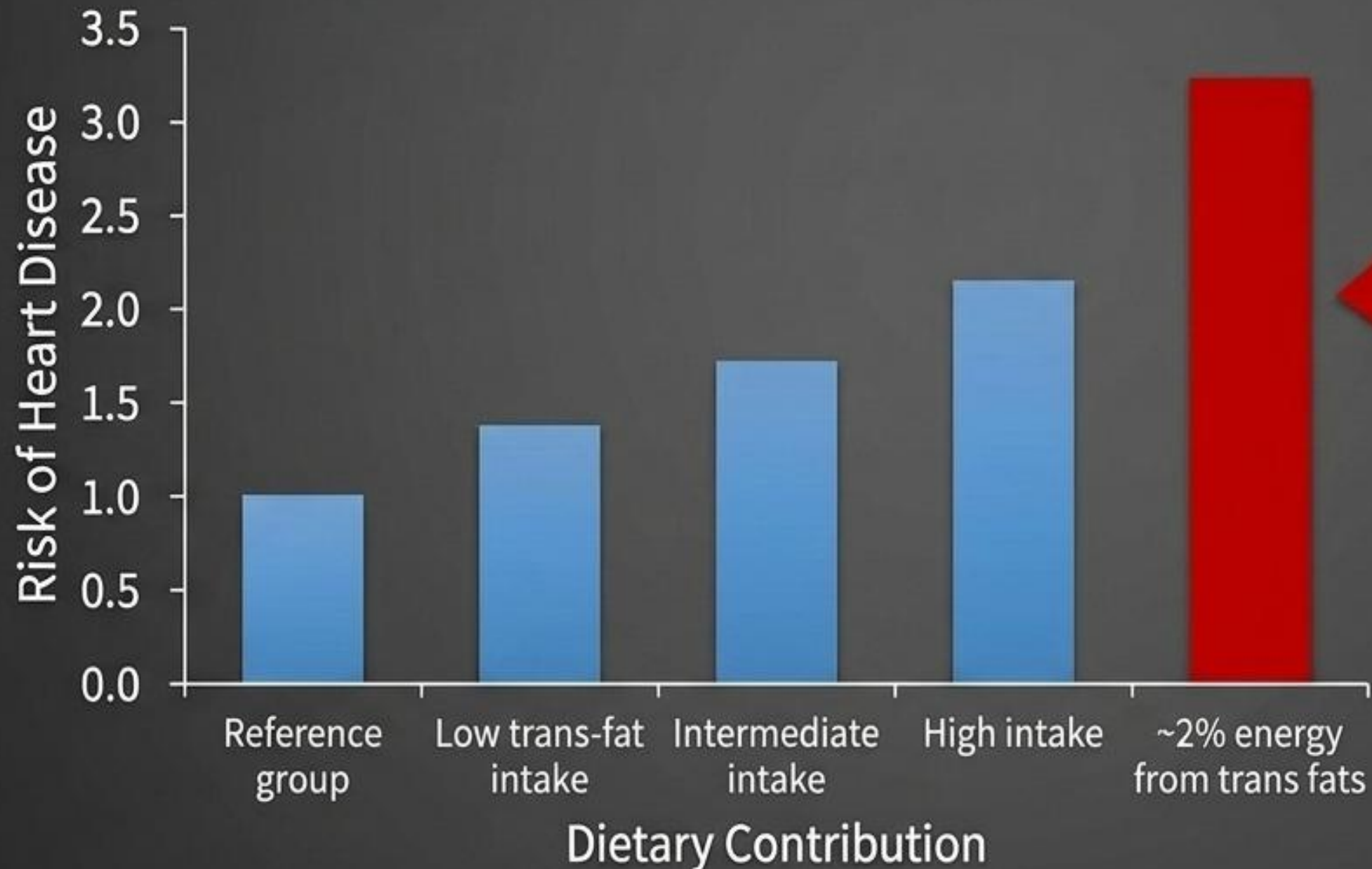
Through strong pressure from consumer groups and the industry, fast food chains like Burger King were pushed to abandon beef tallow for frying, switching to partially hydrogenated oils.



The switch was widely promoted as a heart-health improvement. In practice, it increased population exposure to industrial trans fats, which were later recognized as a cardiovascular risk factor.

1993: The Truth Emerges (Nurses Health Study)

Large epidemiological studies provided strong evidence associating trans-fat intake with increased cardiovascular risk.

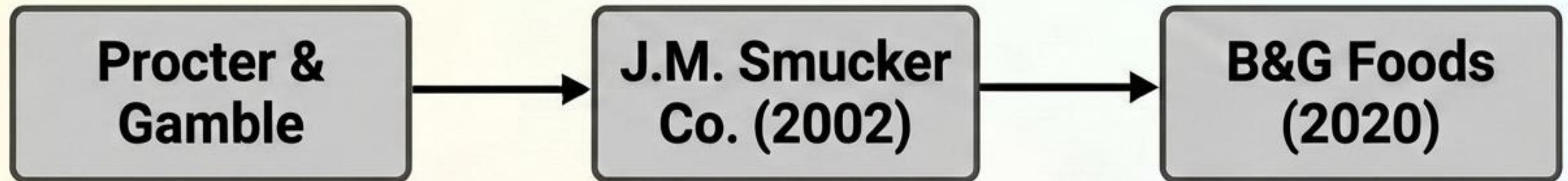


An increase of about 2% of daily energy intake from trans fats was associated with a marked increase in relative coronary heart disease risk.



The Brand Transfer and Reformulation

In 2002, P&G sold the Crisco brand to J.M. Smucker; the brand later passed to B&G Foods.



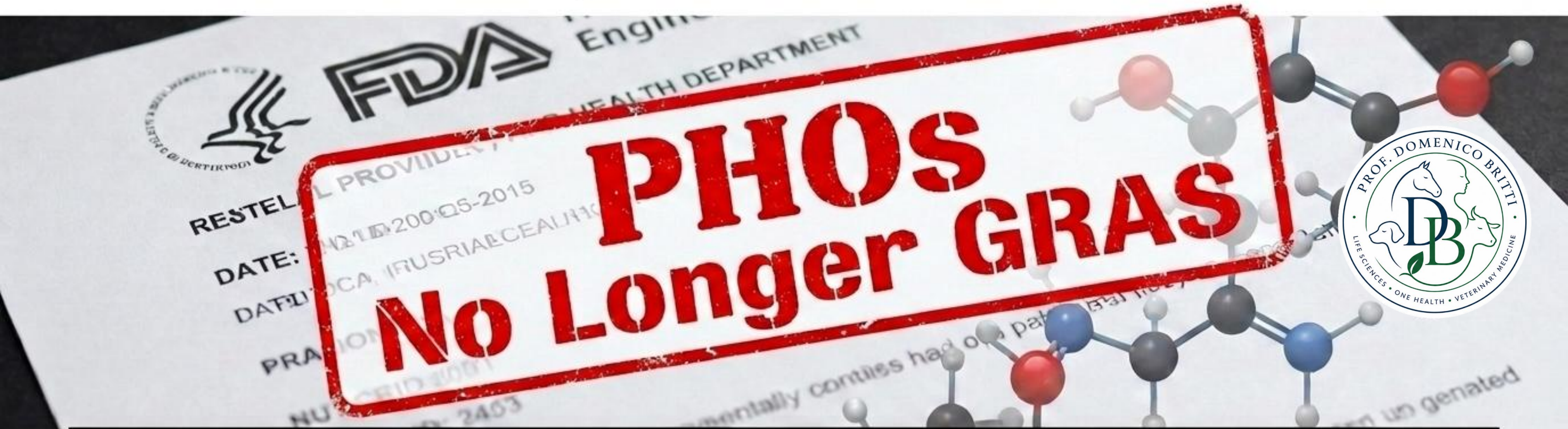
The Reformulation

In 2004, the formulation was changed, replacing partially hydrogenated fats with alternatives designed to reduce trans-fat content. Partially hydrogenated fats are replaced in favor of fully hydrogenated palm oils (zero trans fats). The original partially hydrogenated formulation was discontinued.



2015: The FDA's Final Determination

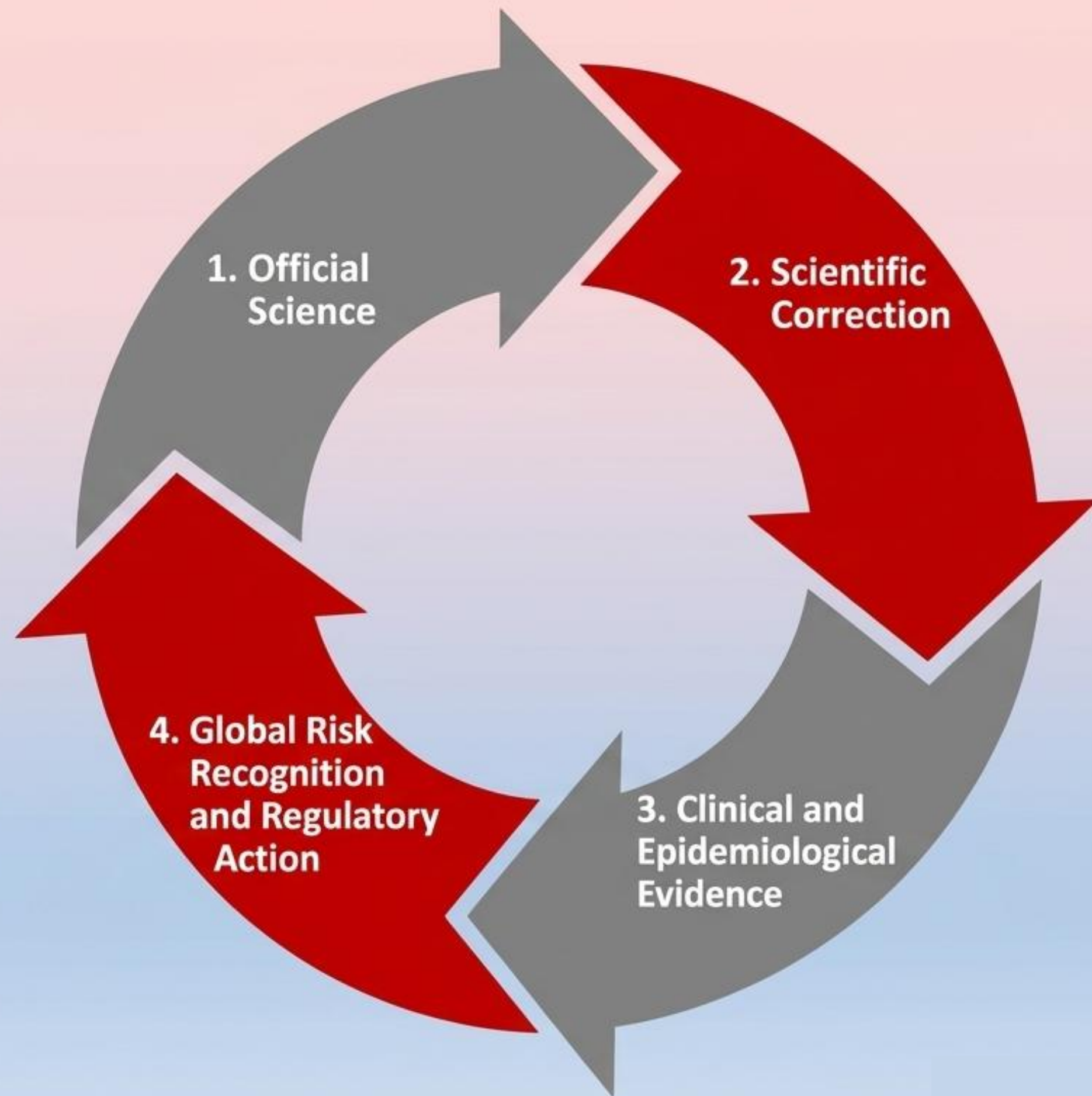
After decades of scientific evidence and growing concern about cardiovascular risk, the Food and Drug Administration issued its final determination.



Partially hydrogenated oils lose their “GRAS” (Generally Recognized As Safe) status. Partially hydrogenated oils were no longer considered generally recognized as safe for use in human food in the United States.

The Anatomy of a “Medical Reversal”

For much of the twentieth century, millions of consumers were exposed to industrial trans fats through partially hydrogenated oils promoted as modern alternatives to animal fats, supported by marketing, expert endorsement, and the nutritional assumptions of the time.





The Final Lesson

The history of Crisco is a warning against uncritical confidence in technological food innovation. Just because a product is heavily advertised, beautifully packaged, and supported by 'experts', does not mean it is compatible with human biology.

“The history of trans fats shows that food innovation, marketing, and expert consensus must remain continuously testable against biological and epidemiological evidence.”

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