

# Understanding the health consequences of trans fats in the Mexican diet and policy recommendations for improving health

## Introduction

According to the World Health Organization (WHO), in 2024, over 278,000 individuals died from consuming industrially produced trans fats.<sup>1</sup> Policy changes regarding trans fatty acids (TFA) in foods and their consumption is a pressing issue in Mexico; research<sup>2</sup> has shown that trans fat consumption is linked to coronary heart disease, which can be avoided if trans fat is completely eliminated from the diet. The WHO has begun advocating the complete removal of trans fats from all foods since 2018.<sup>3</sup> However, trans fats remain prevalent in processed and packaged foods, which include popular meals such as frozen pizza and donuts.<sup>4</sup> When analyzing modern dietary trends, people in the United States reported having less time to cook and enjoy meals at home and tended to snack more frequently for quicker energy boosts.<sup>14</sup> This could indicate an overall decrease in work-life balance. In addition, having a lower income can significantly strain having healthy meals, as finding the time to make nutritional meals becomes even more challenging, and higher budgets would have to be allocated to have more nutritious food options.<sup>15</sup> When applied more broadly to the

global population, these factors likely make other modern populations gravitate toward packaged foods as a more accessible alternative to making satiating meals.

A 2019 study<sup>5</sup> conducted in NYC found that individuals in minority groups, lower-income populations, and children are at an increased risk of consuming trans fats, leading to significant health disparities. The researchers stated, “replacing *trans* fats with heart-healthy substitutes would not impact [food’s] taste or quality,” indicating that one’s palate can be satisfied while still improving the quality of food; this suggests that policy changes could significantly improve the health of these vulnerable groups.<sup>5</sup> The WHO reported findings<sup>6</sup> that several countries neighboring Mexico, including Paraguay and Argentina, have begun better policies to limit the inclusion of trans fats in foods; as of 2023, Mexico has also begun implementing best-practice policies.

A critical factor to consider when implementing safer trans fat policies is ensuring that traditional Mexican foods can still be eaten so that these recommended changes do not displace or negatively impact Mexican cuisine. To determine this, our research aims to look at the general food culture in Mexico and its current nutritional policies related to trans fat consumption.

## **Health Consequences of Trans Fats**

The WHO defines trans fat (or trans fatty acids, TFA) as “unsaturated fatty acids that come from either industrial or natural sources,” and are produced industrially by adding hydrogen to liquid oils in a process called hydrogenation, which makes the liquid oil become solid.<sup>1</sup> While there are no known health benefits of trans fat consumption, the WHO highlights a vital health outcome that is directly correlated with it: heart disease. Trans fats can lead to an increased risk of type 2 diabetes and stroke<sup>10</sup>. Another poor health outcome associated with trans fat consumption is the increase of low-density lipoprotein cholesterol (LDL); if LDL levels become too high in the blood, these molecules can damage artery walls and impair cardiovascular function, leading to a higher heart attack risk and coronary heart disease.<sup>10</sup> Thus, trans fat consumption leads to an overall increase in mortality, as cardiovascular diseases are the leading cause of death worldwide.<sup>1</sup>

## **The Mexican Diet and the Role of Trans Fats**

If Mexico adopted a policy adhering to the WHO’s trans fat consumption guidelines, it would be prudent to ensure that these policy changes do not impact traditional Mexican diets. Therefore, the crucial question to address is the extent to which trans fat influences Mexican cuisine.

Authentic Mexican food, like pico de gallo, molletes, and pozole, typically does not naturally contain high amounts of trans fat, and tends to be nutrient-dense. When researchers from the NIH conducted a study in 2016 comparing different metabolic outcomes between women of Mexican descent, aged 18-45, eating a typical Mexican diet versus a US diet, they found that the women who were assigned the Mexican diet tended to have “improved insulin sensitivity, reduced circulating concentrations of IGFBP-3, and tended to reduce circulating concentrations of IGF-1 under conditions of weight stability,” despite the acknowledgment of the “nutritional transition to Western-like dietary patterns in Mexico.”<sup>7</sup> The study characterized a traditional Mexican diet as “high in fruits, vegetables, beans, corn tortillas, soups, full-fat milk, and Mexican cheeses.”<sup>7</sup> Although this study pertains mainly to women of Mexican descent, the positive health outcomes can be further researched to be generalizable to the broader Mexican population.

Traditional Mexican food is not the culprit for increasing trans fat consumption. The Mexican government acknowledges that “studies suggest that the use of trans fats causes almost 20 thousand preventable deaths a year in Mexico.”<sup>8</sup> This is not because of traditional Mexican food; “most of the trans fats or trans fatty acids (TFA) that people consume come from junk food.”<sup>8</sup> The Noncommunicable Disease (NCD) Alliance states that the impact of trans fat consumption is high because “industries add trans

fats to everyday products, which are cheap because of their poor quality,” including products like “microwave popcorn, to some types of bread and fried foods.”<sup>9</sup> Therefore, policy changes regarding trans fat consumption need to focus on decreasing the amount of processed foods in a typical diet and prohibiting the use of trans fats by the food industry as a whole.

## **Policy Recommendations**

The World Health Organization has compiled a set of policies that countries can implement to reduce the amount of trans fats being incorporated into packaged foods.<sup>3</sup>

The main goal is to stop industrially produced trans fats - the WHO states that there are “two best-practice policy alternatives: 1) mandatory national limit of 2 grams of industrially produced trans fat per 100 grams of total fat in all foods; and 2) mandatory national ban on the production or use of partially hydrogenated oils (a major source of trans fat) as an ingredient in all foods.”<sup>3</sup>

By adopting the World Health Organization’s areas of action, abbreviated as

**REPLACE**, Mexico can significantly improve the health outcomes of its population:

Review dietary sources of industrially-produced trans fat and the landscape for required policy change.

**Promote the replacement of industrially-produced trans fat with healthier fats and oils.**

**Legislate or enact regulatory actions to eliminate industrially-produced trans fat.**

**Assess and monitor trans fat content in the food supply and changes in trans fat consumption in the population.**

**Create awareness of the negative health impact of trans fat among policy-makers, producers, suppliers, and the public.**

**Enforce compliance with policies and regulations.**

*Adopted by the World Health Organization*

Mexico has already taken several steps that go hand in hand with the WHO's recommendations; advocacy groups such as Salud Justa, the NCD Alliance, and México SaludHable Coalition worked together to show evidence of the harmful effects of trans fats to Mexican lawmakers - thanks to their efforts, "the country's legislators - Senators in 2021 and Deputies in 2023 - unanimously approved the law for the elimination of industrially-produced trans fatty acids (iTFA) from the Mexican food supply."<sup>11</sup> According to the USDA Foreign Agricultural Service, in March 2023, Mexico passed legislation adding to Mexico's General Health Law, which states that "fatty acid content should not exceed 2 percent of the product's total nutritional value."<sup>12</sup>

These steps mark significant progress, as the Mexican government has made the WHO guidelines into tangible guidelines that the food industry needs to follow. To further enhance the message, some more outreach steps can be taken to promote the decrease in trans fat consumption.

The banning of trans fatty acids cannot be the sole component in the effort towards promoting a healthy lifestyle among Mexican citizens. There must be another outlet to maintain these regulations effectively, and Eliza Galeana, industry analyst for Agribusiness provides the idea that “[to] help improve the dietary habits of the Mexican population, the government needs to promote an awareness campaign to educate about the health impact of processed food and, at the same time, promote the consumption of fruit and vegetables with high nutritional value.”<sup>13</sup> Instilling a fear of food into the minds of Mexican consumers will produce a population of uncertain communities and families burdened with a problem that threatens their health. To anchor long-term improvements in nutrition, a ban on trans fat is to be followed by an increase in advertising safe foods that promote wellness. This movement will connect Mexican families and individuals who can integrate these healthier food options into their established cuisine.

## The Power of Clear, Unambiguous Labeling Can Be Applied to Trans Fat, Too



Mexican politics are no stranger to food reform, as displayed by the 2019 amendment passed by Congress and carried out by the Comisión Federal para la Protección contra Riesgos

Sanitarios (COFEPRIS) to add warning labels on the front of all processed foods and non-alcoholic beverages. The surge of obesity and food-borne chronic illnesses such as diabetes and heart disease called for transparency in the foods people were consuming, and this display of warnings for the unhealthy quantities of saturated fats, sugar, calories, and trans fat was a commendable start. This program was successful in Chile in 2016, and after introducing these labels, sugary beverage sales decreased by 25%.”<sup>16</sup> Similar warnings can misdirect marketing schemes that target children or intentionally hide the health consequences of trans fatty acids in food for vulnerable and uneducated communities.



## Industry Interference and the Targeting of the Health of Mexicans

The Chamber of Deputies and the Senate of the Republic have exposed the marketing utilized by major food corporations when targeting vulnerable populations in Mexico, such as children. The National Health and Nutrition Survey reported “35.6% of children, 38.4% of adolescents, and 75.2% of adults already have some degree of overweight or obesity.”<sup>17</sup> The NCD Alliance has proposed solutions by including children in labeling with phrases such “contains sweeteners”, “contains caffeine”, / “not recommended for children.”<sup>17</sup> There is unfortunately pushback from major food corporations. As the NCD puts it, “the powerful economic interests of these industries are intent on stopping the application of this measure. They are arguing all kinds of falsehoods before the judiciary”<sup>17</sup> The World Cancer Research Fund characterized industry interference as the 4 D’s: “**Delay** (suspending publication of the standard, asking to start the process again from the beginning, and arguing that more research is needed on the subject), **Divide** (argue that they have an alternative labelling proposal), **Deny** (argue that no scientific evidence was presented), and **Distort** (argue that labeling will not help and the solution lies in education or increased physical activity, arguing that warning labels do not inform, etc.)”<sup>17</sup> A similar outrage can be expected when fighting against trans fats in food since these corporations profit off of

consumption, disregarding the adverse health consequences this might have on the health of the Mexican people.

## Where/How it Appears to the Public Eye



Top: Photograph from a Nicaraguan Child Getting Diagnostic Blood Work (Dr. Eva Harris in white coat and cap).

<https://www.harrisresearchprogram.org/>

Bottom: The Medical Staff and Volunteers in Nicaragua (Sustainable Science Institute)

<https://www.sustainableciences.org/ssi-partners>.

For change to be sustainable, it must be accepted and implemented by individuals in their own communities. When policies are imposed without consulting the individuals they impact, populations may be less likely to perceive it as a health benefit, the Mexican people may perceive sudden changes as the Mexican government is trying to revoke their right to enjoy their beloved snacks. Community-based participation must be secured before removing these foods for people to adhere to and support the banning of trans fat. Dr. Eva Harris, a researcher and public health professor at the University of California Berkeley School of Public Health, can exhibit one example of this community engagement. Dr. Harris's team carried out a longitudinal study where they studied the Dengue virus and subsequently curated a graspable and appropriate format to convey this science to families in the poorest regions of Nicaragua. Dr. Harris' team took a bottom-up approach, starting with those directly impacted and then leveling up to policy-wide efforts in their pilot study from 2004-2008. Nicaraguan residents were given tools to collect their evidence, gain knowledge about the matter in this way, and devise their interventions. The results successfully reduced dengue virus infections after interventions, where 60% fewer children were infected. Awareness and education were continued by locals even after the UC Berkeley Public Health team left through *barrio* fairs, community plays, or novellas, and even a song performed by adolescents now known as *dengueton*, a spin-off of the reggaeton music genre common in South America<sup>19</sup> The success of Dr.

Harris' project proves that informed community mobilization can add effectiveness to government-run trans fat bans in Mexico. Once people develop a personal relationship with the issue revolving around trans fat consumption, public health advisories become more than data and recommendations. Still, they are integrated into the social-cultural framework of individual communities.

COVID-19 impacted people's attitudes towards food corresponding to their health. Communities in Oaxaca, Mexico, displayed a unified response when it came to the effect of processed foods, containing levels of trans fat during COVID- a time when their health was most vulnerable. The Noncommunicable Disease Alliance shared reports from 2020 on how Indigenous Oaxacans created a human barrier, blocking trucks delivering processed foods and beverages containing trans fat from entering their cities, to protect their traditional Mexican diets.<sup>18</sup> This community force influenced policy as the Oaxacan government passed legislation to ban the sale of junk food to minors, and the neighboring state of Tabasco followed this approach.

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