















A Scientific Appraisal of Concerns of the Public and Food Industry Stakeholders of the "Make Our Children Healthy Again: Assessment"

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Executive Summary

The MAHA Report, also referred to as the "Make Our Children Healthy Again: Assessment," signals the intentions of the Department of Health and Human Services to examine "the root causes of deteriorating child health." The Commission that produced the document states that it "establishes a clear, evidence-based foundation for the policy interventions, institutional reforms, and societal shifts needed to reverse course." After the release of the MAHA Report, concerns were raised regarding the accuracy of the assessment.

This report serves as a scientific evaluation of some of the concerns that have been expressed by the public and stakeholders in the food industry through comments provided via a publicly available website. Specific concerns were collated into summarized issues below, which are followed by a referenced scientific appraisal of each issue.

These issues, coupled with the much-reported failings of inadequate sourcing and "phantom citations," point to likely the report's greatest failing: The MAHA Report is not based on sound scientific data – often relying on biased "narrative reviews" – and, thereby, falls woefully short of President Trump's Executive Order to Restore Gold Standard Science to the federal government. Considering the serious potential consequences to the U.S. economy, U.S. jobs, consumer choice, and food prices, policymakers should not craft food policy using the scientifically feeble MAHA Report as a basis.



A common issue raised among commenters is the MAHA recommendation to reduce consumption of seed oils and to replace them with sources of animal fats, such as beef tallow, butter, and "traditional" oils including olive oil. Commenters indicated that the report ignores the benefits of seed oils and raises erroneous concerns regarding the consumption of omega-6 polyunsaturated fatty acids.

Response: Based on the best available data, commenters are rightly concerned about this issue. As has been recently reviewed, common dietary advice from nutrition scientists is to consume foods rich in polyunsaturated fatty acids (including omega-6 fatty acids) and reduce reliance on saturated fatty acids, which tend to be highest in animal fats such as beef tallow, butter, and plant fats that are referred to as the tropical oils such as palm oil, palm kernel oil, and coconut oil. As commenters pointed out, most government and health-related agencies around the world tend to recommend that no more than 10% of energy intake comes from saturated fatty acids, with many recommendations even more stringent such as those from the American Heart Association.²

The primary fatty acid present in omega-6 polyunsaturated fatty acid rich oils is linoleic acid. To put dietary recommendations for fatty acids into perspective, the Acceptable Macronutrient Distribution Range (AMDR) for linoleic acid is 5-10% of dietary energy and the current Adequate Intake (AI) level established through the Dietary Reference Intakes is 10-16 grams per day for children 4-18 years of age.³ In contrast, the AMDR for omega-3 fatty acids is 0.6-1.2% of energy intake and the AI is 0.9-1.6 grams per day.

It is also important to note that although linoleic acid is an essential nutrient required at relatively high levels, not all seed oils are equally rich in linoleic acid. This is just one reason that the broad claims made within the MAHA Report are misleading. In fact, some oils produced from different varieties of seeds provide vastly different amounts of polyunsaturated vs. monounsaturated fatty acids. Table 1 provides a glimpse into the fatty acid distributions of various seed oils as well as some animal-source fats. Note that two of the seed oils (safflower oil and sunflower oil) have high oleic acid varieties that are much richer in monounsaturated fatty acids with correspondingly lower levels of polyunsaturated fatty acids.

¹ Petersen KS, Maki KC, Calder PC, Belury MA, Messina M, Kirkpatrick CF, Harris WS. Perspective on the health effects of unsaturated fatty acids and commonly consumed plant oils high in unsaturated fat. British Journal of Nutrition. 2024 Oct 28:1-2.

² https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/fats/saturated-fats

³ https://nap.nationalacademies.org/read/11537/chapter/12

Although the MAHA Report cites a narrative review from 2008 4 suggesting that the omega-6 to omega-3 fatty acid ratio is critical for key measures of health, most research indicates that both fatty acids produce positive health outcomes, and that when the ratio is linked to negative consequences, it's more likely a consequence of low intake of absolute amounts of omega-3 fatty acids.⁵ Johnson and Frische performed what is perhaps the first systematic review to determine whether higher intake of linoleic acid is linked to higher risk for systemic inflammation. Those authors concluded that among the clinical trials reviewed, none demonstrated a significant impact of varying linoleic acid on concentrations of C-reactive protein (CRP) in the blood.

Overall, data accumulated on this topic suggest that the ratio of these fatty acids is not critical as has been previously posited. In fact, individuals who consume the highest amounts of both omega-3 and omega-6 fatty acids tend to exhibit the least amount of inflammation. As stated by Petersen et al., "The omega-6 to omega-3 fatty acid ratio lacks utility because a specific dietary omega-6 to omega-3 ratio can be achieved by an almost infinite set of dietary patterns, some of which may be deficient in both fatty acid classes. Dietary recommendations should be made based on absolute intake of omega-3 and omega-6 polyunsaturated fatty acids." This current understanding of the topic is reflected in recommendations by numerous leading organizations suggesting that saturated fatty acids be replaced with unsaturated fatty acids including linoleic acid.8

With further regard to the MAHA Report's recommendation of replacing seed oils with animal-source fats, as one stakeholder commented, there are currently no practical alternatives to replacing seed oils with animal fats. Additionally, doing so may have consequences for the food economy and the environment; therefore, any strict guidance considered in the future should be enacted cautiously.

Overall, dietary fats and oils should not be simply classified based on their fatty acid profiles since these are complex food sources. Additionally, some of these oils are produced using minimal refinement techniques, such as expeller pressing, which tends to preserve even more of the originally present plant nutrients. More importantly, each fat or oil should be considered for its impact on metabolic and health outcomes overall. Moreover, the fats or oils should be considered within their contexts in a given food and within the context of the overall diet and doses consumed, as well as the individual consuming them who may be more or less prone to positive or negative impacts of their consumption.

⁴ Simopoulos AP. The importance of the omega-6/omega-3 fatty acid ratio in cardiovascular disease and other chronic diseases. Experimental biology and medicine. 2008 Jun;233(6):674-88.

⁵ Petersen KS, Maki KC, Calder PC, Belury MA, Messina M, Kirkpatrick CF, Harris WS. Perspective on the health effects of unsaturated fatty acids and commonly consumed plant oils high in unsaturated fat. British Journal of Nutrition. 2024 Oct 28:1-2.

⁶ Johnson GH, Fritsche K. Effect of dietary linoleic acid on markers of inflammation in healthy persons: a systematic review of randomized controlled trials. Journal of the Academy of Nutrition and Dietetics. 2012 Jul 1;112(7):1029-41.

⁷ Pischon T, Hankinson SE, Hotamisligil GS, Rifai N, Willett WC, Rimm EB. Habitual dietary intake of n-3 and n-6 fatty acids in relation to inflammatory markers among US men and women. Circulation. 2003 Jul 15;108(2):155-60.

⁸ Arnett DK, Blumenthal RS, Albert MA, et al. (2019) ACC/ AHA guideline on the primary prevention of cardiovascular disease: a report of the American College of Cardiology/ American Heart Association task force on clinical practice guidelines. Circulation 140, e596-e646.

Lichtenstein AH, Appel LJ, Vadiveloo M, et al. (2021) Dietary quidance to improve cardiovascular health: a scientific statement from the American Heart Association. Circulation 144, e472-e487.

Kirkpatrick CF, Sikand G, Petersen KS, et al. (2023) Nutrition interventions for adults with dyslipidemia: a clinical perspective from the National Lipid Association. J Clin Lipidol 17, 428-451.

As mentioned, Table 1 presents fatty acid profiles of some seed oils and refined animal fats produced based on percentages of total fatty acids calculated from information available at the FoodData Central website of the United States Department of Agriculture. As can be observed, some seed oils provide omega-3 fatty acids, primarily as alpha-linoleic acid, which is considered "essential." Additionally, some seed oils are particularly rich in oleic acid, an omega-9 monounsaturated fatty acid typically considered to produce health benefits. Regarding the animal fats depicted in Table 1, it is clear that these fats are particularly rich in saturated fatty acids and are not rich sources of omega-3 fatty acids, as the MAHA Report may imply.

Percent of Fatty Acids*	Corn	Soy	Canola	Flaxseed	Safflower	High Oleic Safflower	Sunflower	High Sunflower	Cottonseed	Beef Tallow	Lard	Butter
Saturated	14	16	7	9	8	8	11	10	27	52	41	70
Monounsaturated	29	23	66	19	15	77	20	68	19	44	47	26
Polyunsaturated	57	61	27	71	78	15	69	22	54	4	12	4
Оmega-3	1.1	7.0	9.7	56.9	0.0	0.2	0.0	0.2	0.2	0.6	1.0	0.6
<u>Отеда</u> -6	55.5	53.8	19.7	14.9	78.4	14.6	68.8	22.0	54.0	3.2	10.7	2.9

TABLE 1: Fatty acid profiles of commonly consumed seed oils and key processed animal fats

^{*} Saturated, mono-unsaturated and poly unsaturated fatty acids are presented as percentages of the total fat content of the food source. Omega-3 and omega-6 fatty acids are presented as percent of the total food.



The MAHA Report indicates that animal fats are rich in vitamins, and that seed oils are depleted of such nutrients as well as phytosterols.

Response: Contrary to concerns expressed in the MAHA Report that seed oils are low in vitamin E, according to information provided by FoodData Central, the average vitamin E (alpha-tocopherol) content of the seed oils depicted in Table 1 is 31 mg per 100 g oil; whereas, the average for the animal fats presented is 1 mg per 100 g of the fat source making these oils more than 30-fold richer in vitamin E. Although oil refinement has long been known to reduce phytosterol content of plant oils⁹, the majority of phytosterols are generally retained depending on the degree of refinement. 10 Such reductions are not consistent with the notion that phytosterols of seed oils is "depleted" by refinement as is described in the MAHA Report, and it's important to put into perspective that the levels in animal fats, which primarily contain cholesterol rather than phytosterols, are lower than the levels in seed oils. 11 The topic of loss of phytosterols, vitamins and other nutrients during oil refining has been comprehensively reviewed, and the conclusions of the authors do not support the statements within the MAHA Report. 12





⁹ Gutfinger T, Letan A. Quantitative changes in some unsaponifiable components of soya bean oil due to refining. Journal of the Science of Food and Agriculture. 1974 Sep;25(9):1143-7.

¹⁰ Bai G, Ma C, Chen X. Phytosterols in edible oil: Distribution, analysis and variation during processing. Grain & Oil Science and Technology. 2021 Mar 1;4(1):33-44.).

¹¹ Liao CD, Peng GJ, Ting Y, Chang MH, Tseng SH, Kao YM, Lin KF, Chiang YM, Yeh MK, Cheng HF. Using phytosterol as a target compound to identify edible animal fats adulterated with cooked oil. Food control. 2017 Sep 1;79:10-6.

¹² Fine F, Brochet C, Gaud M, Carre P, Simon N, Ramli F, Joffre F. Micronutrients in vegetable oils: The impact of crushing and refining processes on vitamins and antioxidants in sunflower, rapeseed, and soybean oils. European Journal of Lipid Science and Technology. 2016 May;118(5):680-97.

Stakeholders shared concerns that ultra processed foods is a term that is poorly defined, that the MAHA Report incorrectly indicates refined foods are new developments within the past century, and that ultra processed foods are uniquely American. They also suggest that the MAHA Report erroneously misclassifies foods (or food-like substances as the MAHA Report referred to them) according to NOVA and implies that all ultra processed foods are "unhealthy" and are designed to override satiety.

Response: As pointed out by stakeholders, food processing techniques and refined foods have indeed existed for longer than the past century, although the term ultra processed food appears to have been coined more recently. Stakeholders are correct that defining foods as ultra processed is not straightforward, according to the scientific community. The MAHA Report correctly indicates that the NOVA classification is a common system for classifying foods; however, research has indicated that even scientists do not all classify foods similarly within NOVA.¹³ Furthermore, shareholders correctly point out that numerous other systems of processed food classifications exist, which further complicates the definition of the term "ultra processed food." ¹⁴

Stakeholders also correctly highlight that by demonizing additives and ingredients used in commercially available foods, the MAHA Commission appears to be guilty of the appeal to nature fallacy, which suggests that something that is not directly from nature is inherently harmful and that the natural alternative is always more healthful. In fact, some plants grown in nature can be extremely toxic and many foods developed through processing technologies are considered healthful. The MAHA Report also ignores the fact that many "ultra processed foods" have ingredients added such as fiber, vitamins, minerals, probiotics, and numerous other bioactive compounds that can potentially increase their nutritive value compared to other foods. In all, the public should not be left with the notion that the processing of food is inherently dangerous. Stakeholders cited research demonstrating that by using dietary modeling, "a weekly menu comprised of 91% calories from ultra processed foods as defined by the NOVA system achieved a Healthy Eating Index (HEI) score of 86 out of 100 (compared to Americans' current average score of 59)." Those data suggest not only that so-called ultra processed foods can be included within a healthful diet, but that they could potentially even form a majority of the diet when consumed with proper care.

¹³ Braesco V, Souchon I, Sauvant P, Haurogné T, Maillot M, Féart C, Darmon N. Ultra-processed foods: how functional is the NOVA system?. European Journal of Clinical Nutrition. 2022 Sep;76(9):1245-53.

¹⁴ Medin AC, Gulowsen SR, Groufh-Jacobsen S, Berget I, Grini IS, Varela P. Definitions of ultra-processed foods beyond NOVA: a systematic review and evaluation. Food & Nutrition Research. 2025 Jun 16.

¹⁵ Messina M, Messina V. Nova fails to appreciate the value of plant-based meat and dairy alternatives in the diet. Journal of Food Science. 2025 Feb;90(2):e70039.

¹⁶ Hess JM, Comeau ME, Casperson S, Slavin JL, Johnson GH, Messina M, Raatz S, Scheett AJ, Bodensteiner A, Palmer DG. Dietary guidelines meet NOVA: developing a menu for a healthy dietary pattern using ultra-processed foods. The Journal of nutrition. 2023 Aug 1;153(8):2472-81.

Stakeholders commented that the MAHA Report specifically indicated that ingredients in ultra processed foods can spike glucose and insulin and damage the gut microbiome. This is an extremely broad sweeping statement, since some ingredients in ultra processed foods such as fructose, which has among the lowest glycemic index of all foods, would likely lower glycemic and insulinemic responses. Additionally, ultra processed foods with prebiotic ingredients would more likely improve the gut microbiome. Painting the concept with too broad of a brush will only confuse the general public more than it already has.

As pointed out by stakeholders, the MAHA Report specifically suggests that reducing ultra processed foods and carbohydrate intake would enhance health by decreasing insulin resistance; however, this concept ignores the fact that total energy intake is likely the most important issue, ¹⁹ especially since some ultra processed foods include ingredients that are likely to reduce insulin resistance. Surprisingly, few, if any, clinical studies have assessed if the impact of diets that are based on recommendations from the USDA and USDHHS such as the Dietary Guidelines for Americans negatively impact health outcomes when ultra processed foods are included versus when they are excluded. Until clinical trials assess these potential effects in a variety of populations, we will not have a strong understanding of the implications of including these foods in the diet. Clinical trials also need to evaluate doses at which various ultra processed foods may lead to potential health problems.









¹⁷ Foster-Powell K, Miller JB. International tables of glycemic index. The American journal of clinical nutrition. 1995 Oct 1;62(4):871S-90S.

18 Le Bastard Q, Chapelet G, Javaudin F, Lepelletier D, Batard E, Montassier E. The effects of inulin on gut microbial composition: a systematic review of evidence from human studies. European Journal of Clinical Microbiology & Infectious Diseases. 2020 Mar;39(3):403-13.

¹⁹ Donin AS, Nightingale CM, Owen CG, Rudnicka AR, Jebb SA, Ambrosini GL, Stephen AM, Cook DG, Whincup PH. Dietary energy intake is associated with type 2 diabetes risk markers in children. Diabetes Care. 2014 Jan 1;37(1):116-23.

Comments suggested that the MAHA Report "ignores the extensive science-based research and testing showing that pesticides, including atrazine and glyphosate, can be used safely for their intended uses."

Response: Although the MAHA Report does include several statements regarding the Commission's concern over pesticides, the report concludes that "...a large-scale FDA study of pesticide residues (2009-2017) found the majority of samples (>90%) were compliant with federal standards." Further, the report states, "More recent data from the USDA's Pesticide Data Program found that 99% of food samples tested in 2023 were compliant with EPA's safety limit. Federal government reviews of epidemiologic data for the most common herbicide did not establish a direct link between use according to label directions and adverse health outcomes, and an updated U.S. government health assessment on common herbicides is expected in 2026."

Regarding glyphosate, the MAHA Report states that "a selection of research studies on a herbicide (glyphosate) have noted a range of possible health effects, ranging from reproductive and developmental disorders as well as cancers, liver inflammation and metabolic disturbances." The report itself states that these concerns come from only a "selection of research studies," implying that other available studies do not yield the same results. Since other available studies have failed to detect similar health outcomes, as has been outlined in a recent narrative review, a less biased approach to discussing this topic is certainly warranted to avoid promoting unease among American consumers regarding safety of the food supply.

Notably, on its website²¹ (the Environmental Protection Agency states that, "In February 2020, after receiving and considering public comments on the glyphosate proposed interim decision, EPA published the interim decision registration review decision (ID) for glyphosate. As part of this action, EPA found that there are no risks of concern to human health when glyphosate is used in accordance with its current label. EPA also found that glyphosate is unlikely to be a human carcinogen.

The ID also identified potential ecological risks to non-target organisms, primarily non-target plants through spray drift. The ID identified interim risk mitigation measures in the form of label changes, including spray drift management language, herbicide resistance management language, a non-target organism advisory, and certain label consistency measures. It concluded that the benefits of glyphosate outweigh the potential ecological risks when glyphosate is used in accordance with labels."

²⁰ Bou-Mitri C, Dagher S, Makkawi A, Khreyss Z, Hassan HF. Glyphosate in food: a narrative review. Journal of Agriculture and Food Research. 2025 Mar 1:19:101643.

²¹ https://www.epa.gov/ingredients-used-pesticide-products/glyphosate#:~:text=Glyphosate%20is%20a%20widely%20used,in%20the%20U.S. %20since%201974



Stakeholders shared that the MAHA Report misleadingly suggests that high fructose corn syrup is responsible for playing a significant role in childhood diseases. The truth is that HFCS is not directly involved in childhood diseases when consumed as part of a diet that does not exceed energy and sugar limits and that HFCS is no more hazardous than sugar, which is currently being promoted by the MAHA movement.

Response: Available research supports the stakeholders' statement, since high fructose corn syrup is not inherently "unhealthy" and that it is likely no more hazardous than sugar (sucrose). As with most dietary constituents, the key issue with whether or not HFCS may impact risk for childhood diseases is the dose that is consumed. As one key stakeholder remarked, even water can be toxic when consumed in excess. Shockingly, despite the level of concern expressed regarding fructose and HFCS, few clinical studies of physiologically relevant doses of either fructose or HFCS have been conducted.

Taking the available research together, studies suggest that consumption of fructose at typical levels in the average American diet is not likely to lead to negative health outcomes. Whereas most research demonstrating negative health outcomes has examined the impacts of high doses of fructose, research from my own laboratory assessed the dose response to fructose in rats and demonstrated no negative effects when diets approximated the usual American intake level but yielded some negative outcomes when no fructose was consumed or when the fructose content formed 20% and 45% of the diet by weight, which far exceeds usual intake levels.²² Likewise, research in humans that assessed the implications of fructose consumed at levels at the higher end of what might be relevant (17-20% of energy intake) has tended to not yield negative health outcomes.²³

²² Benado M, Alcantara C, de la Rosa R, Ambrose M, Mosier K, Kern M. Effects of various levels of dietary fructose on blood lipids of rats. Nutrition Research. 2004 Jul 1;24(7):565-71.

²³ Swanson JE, Laine DC, Thomas W, Bantle JP. Metabolic effects of dietary fructose in healthy subjects. The American journal of clinical nutrition. 1992 Apr 1;55(4):851-6.

Bantle JP, Raatz SK, Thomas W, Georgopoulos A. Effects of dietary fructose on plasma lipids in healthy subjects. The American journal of clinical nutrition. 2000 Nov 1;72(5):1128-34.

The MAHA Report relies on epidemiological research that cannot demonstrate cause and effect and ignores President Trump's Executive Order on Restoring Gold Standard Science and Office of Science and Technology Policy (OSTP) Guidance.

Response: The stakeholders rightfully point out that most epidemiological studies are not experimental in design and therefore can only demonstrate associations rather than cause and effect. Furthermore, as some stakeholders have pointed out, many of the references provided within the MAHA Report are not scientific studies but rather narrative reviews, which are prone to the biases of those who have conducted the reviews. One notable example, highlighted by multiple commenters, is the narrative review of Simopoulos,²⁴ cited above, that contends that the ratio of omega-6 to omega-3 fatty acids is critical for determining health status. Reliance upon this narrative review is not considered gold standard science, and commenters accurately point out that such reviews are open to biases of their authors. Should the Department of Health and Human Services move forward with its efforts to "Make America Healthy Again," reports that are meant to help establish policy and guidance should meet a higher standard of scientific review to avoid making mistakes that may be costly in numerous ways to the citizens of the United States.











Stakeholders expressed concern that the MAHA Report inaccurately suggests that consumption of artificial sweeteners negatively impacts the gut microbiome.

Response: The MAHA Report cites one study²⁵ demonstrating the potential negative implications of artificial sweeteners on the gut microbiome; however, that research has been widely criticized and overinterpreted. Furthermore, the MAHA Report seems to equate all artificial sweeteners as being identical in their potential effects; however, since metabolism of these compounds varies among the sweeteners, it is disingenuous to equate them all. As stakeholders rightfully point out, several of these compounds are unlikely to appear in the colon after ingestion where they would have the potential to influence the gut microbiota. Furthermore, the doses at which these compounds are consumed are typically extremely low, which would make potential impacts on the gut microbiome unlikely. The MAHA Report also cites a review article to support their case; however, that review article suggests that in human research, most of the available research has not yielded negative health outcomes.²⁶ Perhaps a better conclusion for the MAHA Commission to draw is that the various artificial sweeteners should be studied for their potential impact on the gut microbiomes of humans consuming tightly controlled diets.



U.S. Department of Health and Human Services



Appraisal Conclusion

The intention to improve child health in the United States is laudable, and this sentiment was expressed within the comments of most stakeholders and members of the public. However, concerns that have been raised regarding the MAHA Report highlight the importance of basing changes to government regulations and recommendations on the full body of sound scientific evidence.

Furthermore, a key role of the government should include the funding of high-quality research to address topics for which inadequate evidence exists. Rather than instituting sweeping changes that impact members of negatively society economically or through limitation of food options for consumers, a more reasoned approach should include an expansive, longterm investment in understanding potential problems prior to attempting to correct them and to implement accurate and transparent guidance and policies regarding issues that are well-supported by high quality scientific evidence. The approach taken by the Commission that produced the MAHA Report is particularly concerning in light of the announced "rewrite" of the Dietary Guidelines

for Americans and the pending "Make Our Children Healthy Again Strategy," both of which should not be produced via rushed processes that rely on non-scientists for their completion. As one stakeholder pointed out in their comments, the MAHA Report itself states that, "Before we act, we must fully understand the scope of the crisis, the conditions that created it, and the mechanisms through which it continues to grow. Without this foundation, interventions risk being reactive, fragmented, or ineffective." Furthermore, implementation of an extremely conservative approach of attempting to avoid all potential health risks through restrictive guidance and policy is likely not possible and perhaps more importantly does not allow for a range of choices that will likely provide individuals with freedom and flexibility for food selection. Rather than establishing strict policy, governmental guidance should include focusing on educating children and their caregivers regarding key eating and lifestyle behaviors such as monitoring portion sizes of foods, attentiveness to appetitive cues, obtaining adequate physical activity, limiting consideration time, and of the screen psychosocial values of consuming delicious foods and beverages within the context of an overall healthful diet.