



## Consumer Federation of America

May 10, 2023

Stacy Dean  
Deputy Under Secretary  
Food and Nutrition Service  
U.S. Department of Agriculture

*VIA ONLINE SUBMISSION*

**RE: Docket FNS-2022-0043: Proposed rule on Child Nutrition Programs: Revisions to Meal Patterns Consistent with the 2020 Dietary Guidelines for Americans**

Dear Deputy Under Secretary Dean:

Consumer Federation of America (CFA) appreciates the opportunity to submit comments on the above referenced United States Department of Agriculture (USDA) Food and Nutrition Service (FNS) proposed rule. CFA is an association of non-profit consumer organizations that was established in 1968 to advance the consumer interest through research, advocacy, and education. We write to express support for added sugar limits in child nutrition programs, and to urge the agency to revise the proposed rule to prohibit the use of low- and no-calorie sweeteners (LCNS) in school meals. This prohibition should especially apply to foods served to children in grade 8 and below, and it should include all LCNS, including sugar alcohols. Without such a prohibition, the proposed rule may drive increased consumption of LCNS by children, as school meal providers reformulate foods to lower added sugar content, in contravention of public health authorities' recommendations.

Added sugar limits are long overdue for child nutrition programs.

The National School Lunch Act provides that “schools participating in the school lunch program or school breakfast program shall serve lunches and breakfasts that . . . are consistent with the goals of the most recent Dietary Guidelines for Americans.”<sup>1</sup> As the proposed rule points out, the current Dietary Guidelines for Americans recommend limiting intake of added sugars to less than 10 percent of calories per day. Indeed, the 2020 Dietary Guidelines for Americans Advisory Committee (DGAC) recommended that the previous administration lower this limit to 6%.<sup>2</sup> Yet the average percentage of calories from added sugars in school lunch is approximately 11 percent, and it is a whopping 17 percent in school breakfast. High amounts of added sugars in school meals contribute to cravings for sweet foods and help to explain why an estimated 70 to 80 percent of school-aged children exceed the recommended limit for added sugars.

The public health cost of excessive sugar consumption is hard to overstate. Nutrition experts caution against blaming any single ingredient or nutrient for the obesity epidemic. But added sugars, particularly when consumed in sugar-sweetened beverages (SSBs), appear to have played an outsized role in bringing the U.S.

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<sup>1</sup> 42 U.S.C. 1758(f).

<sup>2</sup> Dietary Guidelines Advisory Committee. (2020). Scientific Report of the 2020 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Agriculture and the Secretary of Health and Human Services. U.S. Department of Agriculture, Agricultural Research Service, Washington, DC., <https://doi.org/10.52570/DGAC2020>

obesity prevalence rate to 41.9%.<sup>3</sup> Researchers have documented how sugars, specifically the fructose in sugar, can increase weight and fat stores by several mechanisms. Foremost among these, metabolizing fructose appears to drive resistance to leptin, a hormone that regulates appetite. As a result, excessive sugar consumption leads individuals to feel more persistent hunger and consume excess calories.<sup>4</sup> Fructose metabolism, which occurs primarily in the liver and is less controlled than glucose metabolism, also appears to result in the cell mitochondria taking up fewer fatty acids, accelerating gains in fat mass.<sup>5</sup>

In light of the public health costs associated with added sugars, CFA urges FNS to implement rigorous standards and in particular, to ban chocolate and other sugary flavored milks from school meals. Again, research has shown that consuming sugars as a beverage contributes even more to adiposity than consuming sugar otherwise.<sup>6</sup> Parents of children any age should not have to contend with schools serving sugary flavored milk or other SSBs, but the proposed rule's "Alternative A" would at least keep this junk food out of school meals for children in grades K-8.

Last year, the Center for Science in the Public Interest, the American Heart Association, and the American Public Health Association petitioned FNS to establish an added sugars limit for school meals.<sup>7</sup> Specifically, the petition calls for an added sugars standard for school meals limiting the overall calories from sugar to less than ten percent, and limiting the calories from sugar for individual items in a manner that is consistent with the DGAs, with a compliance date of School Year 2024-2025. The proposed rule would impose product-based added sugars standards in 2025-2026, and overall "weekly dietary limit" standards in 2027-2028. The proposed rule introduces product standards that would leave some very sweet offerings on the breakfast and lunch table: e.g. breakfast cereals that are over 20% added sugars by weight. Notwithstanding these details, however, we commend FNS for issuing a rule that responds in meaningful ways to public health advocates' request for limits on added sugars.

#### The proposed rule should not ignore artificial sweeteners.

In addition to added sugar limits, the public health advocates' petition calls for FNS to prohibit the use of certain LCNS from school meals. However, the proposed rule says nothing about LCNS. This omission threatens to produce unintended consequences that may outweigh any benefits that accrue from reduced sugars in school meals. As the proposed rule notes, new added sugar limits should incentivize the food industry to develop products with less added sugars. Without rules to keep LCNS out of school foods, however, many companies are likely to design new products for school meals that replace added sugars with ingredients that have a higher level of perceived sweetness. Already, many foods served in school meals contain LCNS.<sup>8</sup> The habitual use of these sweeteners on children's health outcomes of children are not known, and the prospect of feeding school children a diet heavy in artificially sweetened foods raises serious concerns.

These concerns are reflected in the current Dietary Guidelines for Americans, which state that "[LCNS] are not recommended for children younger than age 2," because "infants and young children may develop

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<sup>3</sup> Centers for Disease Control and Prevention. (2022, May 17). Adult Obesity Facts. Centers for Disease Control and Prevention. <https://www.cdc.gov/obesity/data/adult.html>; see also Chiavaroli L, et al. Important food sources of fructose-containing sugars and adiposity: A systematic review and meta-analysis of controlled feeding trials. *Am J Clin Nutr*. 2023 Apr;117(4):741-765 Available at: [https://ajcn.nutrition.org/article/S0002-9165\(23\)04099-6/fulltext](https://ajcn.nutrition.org/article/S0002-9165(23)04099-6/fulltext)

<sup>4</sup> Johnson, R. J, et al. (2020). Fructose metabolism as a common evolutionary pathway of survival associated with climate change, food shortage and droughts. *Journal of internal medicine*, 287(3), 252–262. <https://doi.org/10.1111/joim.12993>

<sup>5</sup> *Id.*

<sup>6</sup> See Chiavaroli et al. *supra* note 3.

<sup>7</sup> Schwartz, C. (2022). Petition to Establish an Added Sugars Standard for School Meals and Competitive Foods . Center for Science in the Public Interest. Retrieved 2023, from [https://www.cspinet.org/sites/default/files/2022-02/Petition\\_Added%20Sugars%20Standard\\_0.pdf](https://www.cspinet.org/sites/default/files/2022-02/Petition_Added%20Sugars%20Standard_0.pdf) .

<sup>8</sup> Schwartz, C., & Maroney, M. (2021). (rep.). School Meals Corporate Report Card. Retrieved 2023, from [https://www.cspinet.org/sites/default/files/2022-08/2021\\_SchoolMealsCorporateReportCard\\_9.pdf?itid=lk\\_inline\\_enhanced-template](https://www.cspinet.org/sites/default/files/2022-08/2021_SchoolMealsCorporateReportCard_9.pdf?itid=lk_inline_enhanced-template).

preferences for overly sweet foods if introduced to very sweet foods during this timeframe.”<sup>9</sup> This vulnerability does not disappear on a child’s second birthday, of course, and restrictions on LNCS in school meals provided to preschoolers and other young children are particularly important. The 2015 DGAC report includes the more general recommendation that “added sugars should be reduced in the diet and not replaced with low-calorie [non-nutritive] sweeteners, but rather with healthy options, such as water in place of sugar-sweetened beverages.”<sup>10</sup> The 2020 DGAC report affirms that conclusion, noting that its review of more recent LNCS studies “is broadly consistent with findings from the 2015 Committee,” including that committee’s conclusion that LNCS “should not be recommended for use as a primary replacement or substitute for added sugars in foods and beverages,” due to the “uncertain” nature of “the long-term effects of LNCS.”<sup>11</sup>

This uncertainty has led other public health authorities to caution against the use of LNCS, particularly among children. The American Academy of Pediatrics (AAP) issued a 2019 policy statement recommending that FDA require stricter labeling for NNS ingredients.<sup>12</sup> As the AAP’s statement points out, animal studies as well as observational studies of adults and children have shown an association between LNCS consumption and obesity. The AAP policy statement emphasizes that “the long-term safety of [non-nutritive sweeteners] in childhood has not been assessed in humans.” The American Heart Association has arrived at a similar conclusion, issuing a 2018 Science Advisory finding that “there is a dearth of evidence on the potential adverse effects of [LNCS] beverages relative to potential benefits,” and concluding that “it is prudent to advise against prolonged consumption of [LNCS] beverages by children.”<sup>13</sup>

Foremost among the potential adverse effects of LNCS receiving heightened attention are the chemicals’ effect on weight gain. Researchers have hypothesized that NNS consumption may activate metabolic pathways that stimulate hunger and excessive calorie consumption in a manner not so different from sugar.<sup>14</sup> In particular, sorbitol and tagatose can be metabolized by fructokinase and thereby cause leptin resistance in a manner similar to added sugars.<sup>15</sup> Brain imaging studies have found that habitual NNS consumption is associated with stronger cravings for sugary and NNS sweetened foods alike.<sup>16</sup> These effects on cravings may explain why a study of over ten thousand children enrolled in the National Health and Nutrition Examination Survey (NHANES) found that kids who drink diet drinks consume more added sugars on average than kids who drank primarily water.<sup>17</sup>

Consuming foods with NNS may also contribute to diet-related disease by altering the gut microbiome in a manner that causes insulin resistance.<sup>18</sup> According to a recent review, “diet plays a key role in shifting the

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<sup>9</sup> U.S. Department of Agriculture & U.S. Department of Health and Human Services. (2020). Dietary Guidelines for Americans, 2020-2025: 9th Edition, pg.61. Dietary Guidelines for Americans. Retrieved 2023, from [https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary\\_Guidelines\\_for\\_Americans-2020-2025.pdf](https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf)

<sup>10</sup> Dietary Guidelines Advisory Committee. (2015). Scientific Report of the 2015 Dietary Guidelines Advisory Committee. U.S. Department of Agriculture. Retrieved 2023, from <https://health.gov/sites/default/files/2019-09/Scientific-Report-of-the-2015-Dietary-Guidelines-Advisory-Committee.pdf>

<sup>11</sup> Dietary Guidelines Advisory Committee. (2020). Scientific Report of the 2020 Dietary Guidelines Advisory Committee. U.S. Department of Agriculture. Retrieved 2023, from [https://www.dietaryguidelines.gov/sites/default/files/2020-07/ScientificReport\\_of\\_the\\_2020DietaryGuidelinesAdvisoryCommittee\\_first-print.pdf](https://www.dietaryguidelines.gov/sites/default/files/2020-07/ScientificReport_of_the_2020DietaryGuidelinesAdvisoryCommittee_first-print.pdf)

<sup>12</sup> Baker-Smith, C. M., De Ferranti, S. D., & Cochran, W. D. (2019). The Use of Nonnutritive Sweeteners in Children. *Pediatrics*, 144(5). <https://doi.org/10.1542/peds.2019-2765>

<sup>13</sup> Johnson, R. K., et al. (2018b). Low-Calorie Sweetened Beverages and Cardiometabolic Health: A Science Advisory From the American Heart Association. *Circulation*, 138(9). <https://doi.org/10.1161/cir.0000000000000569>

<sup>14</sup> Yunker, A. G., Patel, R., & Page, K. A. (2020). Effects of Non-nutritive Sweeteners on Sweet Taste Processing and Neuroendocrine Regulation of Eating Behavior. *Current nutrition reports*, 9(3), 278–289. <https://doi.org/10.1007/s13668-020-00323-3>

<sup>15</sup> Johnson, R. (2022). *Nature Wants Us to Be Fat: The Surprising Science Behind Why We Gain Weight and How We Can Prevent—and Reverse—It*. BenBella Books.

<sup>16</sup> Green, E., & Murphy, C. (2012). Altered processing of sweet taste in the brain of diet soda drinkers. *Physiology & behavior*, 107(4), 560–567. <https://doi.org/10.1016/j.physbeh.2012.05.006>

<sup>17</sup> Sylvestry, A., et al. (2019). Consumption of Low-calorie Sweetened Beverages Is Associated with Higher Total Energy and Sugar Intake and Poorer Diet Quality Among US Children and Adolescents (P18-109-19). *Current Developments in Nutrition*, 3(Suppl 1), nzz039.P18-109-19. <https://doi.org/10.1093/cdn/nzz039.P18-109-19>

<sup>18</sup> Suez, J., et al. (2015). Artificial Sweeteners Induce Glucose Intolerance by Altering the Gut Microbiota. *Obstetrical & Gynecological Survey*, 70(1), 31–32. <https://doi.org/10.1097/01.ogx.0000460711.58331.94>

balance of the gut microbiota and NNS have been shown to promote the growth of microflora that resembles those with an obese phenotype.<sup>19</sup> A more recent randomized control trial provided additional insight into this dynamic, finding that NNS consumption for two weeks, below FDA acceptable daily intake levels, had a deleterious effect on study participants' gut microbiomes.<sup>20</sup> This research built on earlier animal studies suggesting that NNS consumption “enhances the risk of glucose intolerance and that these adverse metabolic effects are mediated by modulation of the composition and function of the microbiota.”<sup>21</sup> As the researchers of that study pointed out, “artificial sweeteners were extensively introduced into our diets with the intention of reducing caloric intake and normalizing blood glucose levels without compromising the human ‘sweet tooth,’” however, the evidence suggests a bitter irony in which these chemicals “may have directly contributed to enhancing the exact epidemic that they themselves were intended to fight.”<sup>22</sup>

#### A ban on artificial sweeteners in school meals should include sugar alcohols.

Uncertainty regarding health risk, and particularly long-term health risk, applies to sugar alcohols as well as the “non-nutritive” sweeteners. Sugar alcohols technically qualify as carbohydrates, with a chemical structure similar to sugar, but with around half the calories as sugar. Sugar alcohols occur naturally in some foods, but in much lower quantities than those used in packaged foods, and include the ingredients xylitol, erythritol, sorbitol, and maltitol. As previously alluded to, researchers suspect some sugar alcohols, such as sorbitol, lead to weight gain by stimulating hunger in a manner similar to added sugars. One study that examined erythritol levels in blood samples from 264 healthy college freshman at the beginning and end of the academic year found that higher levels of the sweetener were associated with higher weight gain.

Sugar alcohols raise health concerns other than weight gain, including the promotion of cardiovascular disease. A recently reported NIH-funded study of over 1,000 people sought to identify compounds in the blood whose levels were linked to future heart attack and stroke risk. The sugar alcohol erythritol emerged as a suspect. A follow-up study of thousands more participants in the U.S. and Europe confirmed that high levels of erythritol were associated with significantly higher cardiovascular event risk. Specifically, those with erythritol blood levels in the top quartile of the cohort had about twice the likelihood of experiencing a cardiovascular event during the three-year follow-up, compared to those with levels in the lowest quartile. The reason, according to cell culture and animal studies performed by the researchers, appears to be that erythritol increases blood clot formation.<sup>23</sup>

Finally, sugar alcohols are known to cause gastrointestinal distress, in part because the body does not fully digest them.<sup>24</sup> For the same reason, some sugar alcohols can have a laxative effect, particularly at higher doses.<sup>25</sup> Susceptibility to “sugar alcohol-induced diarrhea” depends in part on an individual’s microbiome, with researchers documenting how certain bacteria, for example, “are involved in the suppression of sorbitol-induced diarrhea.”<sup>26</sup> So sugar alcohols may cause ill effects in some children more than others. However, parents may have difficulty identifying the source of the distress because they have limited awareness of what ingredients school meals contain.

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<sup>19</sup> Shum, B., & Georgia, S. (2021). The Effects of Non-Nutritive Sweetener Consumption in the Pediatric Populations: What We Know, What We Don't, and What We Need to Learn. *Frontiers in endocrinology*, 12, 625415. <https://doi.org/10.3389/fendo.2021.625415>

<sup>20</sup> Suez, J., et al. (2022). Personalized microbiome-driven effects of non-nutritive sweeteners on human glucose tolerance. *Cell*, 185(18), 3307–3328.e19. <https://doi.org/10.1016/j.cell.2022.07.016>

<sup>21</sup> Suez, J., Korem, T., et al. (2014). Artificial sweeteners induce glucose intolerance by altering the gut microbiota. *Nature*, 514(7521), 181–186. <https://doi.org/10.1038/nature13793>

<sup>22</sup> *Id.*

<sup>23</sup> Witkowski, M., et al. (2023). The artificial sweetener erythritol and cardiovascular event risk. *Nature Medicine*, 29(3), 710–718. <https://doi.org/10.1038/s41591-023-02223-9>

<sup>24</sup> Storey, D., Lee, A., Bornet, F., & Brouns, F. (2007). Gastrointestinal tolerance of erythritol and xylitol ingested in a liquid. *European journal of clinical nutrition*, 61(3), 349–354. <https://doi.org/10.1038/sj.ejcn.1602532>

<sup>25</sup> Mäkinen K. K. (2016). Gastrointestinal Disturbances Associated with the Consumption of Sugar Alcohols with Special Consideration of Xylitol: Scientific Review and Instructions for Dentists and Other Health-Care Professionals. *International journal of dentistry*, 2016, 5967907. <https://doi.org/10.1155/2016/5967907>

<sup>26</sup> Hattori, K., et al. (2021). Gut Microbiota Prevents Sugar Alcohol-Induced Diarrhea. *Nutrients*, 13(6), 2029. <https://doi.org/10.3390/nu13062029>

### A ban on LNCS is consistent with parents' preferences for healthier school meals.

Polling shows widespread support among parents for healthier school meals. In one recent nationwide poll of over a thousand parents of public school students, 72% expressed support for national standards for school meals, 75% indicated salt should be limited in meals, 91% supported requiring schools to include a serving of fruits or vegetables with every meal, and 74% expressed concern about childhood obesity.<sup>27</sup> In other words, the vast majority of parents support healthy school meals.

Healthy foods come in many different forms but a growing consensus has emerged around the idea that healthy foods are not “ultra-processed,” as defined by the NOVA classification system. There is some debate over which foods should qualify as “ultra-processed” but according to the leading proponents of the classification:

“A practical way to identify an ultra-processed product is to check to see if its list of ingredients contains at least one item characteristic of the NOVA ultra-processed food group, which is to say, either food substances never or rarely used in kitchens (such as high-fructose corn syrup, hydrogenated or interesterified oils, and hydrolysed proteins), or classes of additives designed to make the final product palatable or more appealing (such as flavours, flavour enhancers, colours, emulsifiers, emulsifying salts, **sweeteners**, thickeners, and anti-foaming, bulking, carbonating, foaming, gelling and glazing agents).”<sup>28</sup>

Studies have shown that these foods “induce high glycemic responses and have low satiety potential, and create a gut environment that selects microbes that promote diverse forms of inflammatory disease.”<sup>29</sup> One recent cohort study of 9,025 British children found that high ultraprocessed food consumption was associated with “greater increases in adiposity.”<sup>30</sup>

In other words, ultra-processed foods raise many of the same health concerns as LNCS, no doubt in part because foods with LNCS ingredients are, by definition, “ultra-processed.” Some evidence suggests that consumers struggle to correctly identify “ultraprocessed” foods.<sup>31</sup> However, when asked about artificial sweeteners, most parents express disapproval. In a survey of 120 parents recruited at a grocery store in Kensington, Maryland, 72% disagreed with the statement “NNS are safe for my child to consume.”<sup>32</sup> This disapproval helps to explain why thirteen states and 23.9% of school districts have policies restricting or even banning LNCS in school meals.<sup>33</sup> By instituting a ban on LNCS in school foods, FNS will act more consistently with parents' preferences, and by proxy, reduce the proportion of ultra-processed foods served to children.

In the absence of a total ban on LNCS in school foods, FNS should institute a ban on LNCS in meals served to younger children.

The proposed rule contemplates imposing alternative standards for different age groups with respect to flavored milk, and FNS could take a similar approach with LNCS if the agency is not willing to enact a

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<sup>27</sup> Poll Reveals Parental Demand for Healthier School Foods. (2014). Robert Wood Johnson Foundation. Retrieved 2023, from <https://www.rwjf.org/en/insights/our-research/2014/09/nationwide-polling-regarding-parents-a-views-of-school-meal-and.html>

<sup>28</sup> Monteiro, C., et al. (2019). Ultra-processed foods: What They Are and How to Identify Them. *Public Health Nutrition*, 22(5), 936-941. doi:10.1017/S1368980018003762 (emphasis added).

<sup>29</sup> *Id.*

<sup>30</sup> Poll Reveals Parental Demand for Healthier School Foods. (2014). Robert Wood Johnson Foundation. Retrieved 2023, from <https://www.rwjf.org/en/insights/our-research/2014/09/nationwide-polling-regarding-parents-a-views-of-school-meal-and.html>

<sup>31</sup> Bleiweiss-Sande, R., et al. (2020). Perceptions of Processed Foods Among Low-Income and Immigrant Parents. *Health education & behavior*: the official publication of the Society for Public Health Education, 47(1), 101–110. <https://doi.org/10.1177/1090198119885419>

<sup>32</sup> Sylvestsky, A. C., et al. (2014). What Parents Think about Giving Nonnutritive Sweeteners to Their Children: A Pilot Study. *International journal of pediatrics*, 2014, 819872. <https://doi.org/10.1155/2014/819872>

<sup>33</sup> Schermebeck, R., Leider, J., Piekarz-Porter, E., & Chriqui, J. (2019). Artificial sweeteners in food and beverage products at school. *Public Health Nutrition*, 22(11), 1941-1950. doi:10.1017/S136898001800143X

complete ban on these ingredients in school meals. Existing state and local policies restricting LNCS are most common at the elementary level.<sup>34</sup> Similar to the proposed flavored milk standard, FNS could allow LNCS for high school children only. Distinguishing between age groups in setting nutrition standards would undoubtedly impose a burden on some school meal providers, however, other health authorities have endorsed this approach. For example, in 2010, the Institute of Medicine (IOM) provided recommendations for school meal nutrition standards on the basis of age-grade groups that roughly correspond to elementary, middle school, and high school.<sup>35</sup> Moreover, in light of the DGA's recommendation against feeding very young children (0-2) *any* LNCS, a policy to keep these ingredients out of school meals for younger children makes sense.

### Conclusion

The proposed school meal standards represent a step in the right direction, but they should go further. Parents should not have to fight an uphill battle to develop children's healthy eating habits. School meal programs can both meet student's nutritional needs and help build the capacity to make good food choices throughout a lifetime. To do so, FNS should implement reasonable limits on added sugars, like those proposed, but it should also ensure that these added sugars are not replaced with low- and no-calorie sweeteners, including sugar alcohols, whose negative health impacts on children either support a ban now or are still not yet fully understood.

Thank you for your consideration of these comments.

Sincerely,

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Director of Food Policy  
Consumer Federation of America

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<sup>34</sup> Schermbeck et al. *supra* note 32.

<sup>35</sup> Institute of Medicine. 2010. School Meals: Building Blocks for Healthy Children. Washington, DC: The National Academies Press.  
<https://doi.org/10.17226/12751>.