Issue At A Glance:

Ultra-Processed Foods

This brief discusses the definition of ultra-processed foods, their prevalence, and associated health impacts, while considering regulatory and equity challenges in their regulation.

Introduction

The average American gets over half of their daily calories from ultra-processed foods (UPF).[1] Consequently, the role of UPFs has been widely discussed in both the scientific and public realms in relation to long-term health.

The NOVA system is used by experts to classify the degree of processing foods undergo.[2] Group 4 foods (UPFs) are designed to enhance qualities of its constituents and mask unpalatable aspects of the product. Moreover, these foods are created using techniques unique to industrial production, like hydrolyzation and carbonation. The result is a food product that has commercial appeal and brand value.

A rule of thumb for identifying UPFs is the inclusion of at least one ingredient not found in a typical home kitchen. UPFs include a wide variety of food, ranging from the more obvious, like sodas, deli meats, and potato chips, to healthier-seeming options, like protein bars, whole-wheat cereal, and plant-based milk. It is estimated that UPFs make up about 75% of the U.S.'s food supply.[3]

The NOVA System[2]

Group 1: Unprocessed or minimally processed

- Edible parts of plants (e.g., nuts, seeds)
- Animal products (e.g., milk, eggs)
- Natural foods altered to better preserve or eat (e.g., by shelling, boiling)

Group 2: Processed culinary ingredients

- Derived from nature to make products used to cook Group 1 foods (e.g., oils, butters, sugar, salt)

Group 3: Processed foods

- Created by the addition of Group 2 foods to Group 1 foods (e.g., cheese, bread, canned vegetables)

Group 4: Ultra-processed foods

- Formulated mostly from extracted/modified food, additives, and flavor enhancers intended for attractiveness and convenience

Bringing wholeness to individuals and communities, the **Institute for Health Policy and Leadership** (IHPL) strives to integrate health policy research and education with leadership development. Our goal is to improve the health of our communities by building on our strong heritage of health promotion and disease prevention. To learn more, visit us at IHPL.llu.edu

LOMA LINDA UNIVERSITY HEALTH

UPFs and Health Outcomes

Despite UPFs being popular and accessible sources of food, many have called into question the long-term health impacts of moving away from whole foods. The mechanisms through which these foods influence health are multifold. The ingredients of UPFs, designed to enhance flavor, often are high in saturated and trans fats, lack dietary fiber and nutrients, and are calorically dense.[4] Additionally, some research has suggested UPFs may influence long-term eating habits by encouraging food addiction, fueling a cycle in which individuals are at risk of eating increased amounts of UPF, with less and less room for foods with higher nutritional value.[5]

A meta-analysis published in *The BMJ* spanning 45 analyses and including over nine million people sought to quantify the health outcomes from UPF consumption. Researchers found direct associations between greater exposure to UPF and 32 distinct adverse health outcomes, including all-cause mortality, obesity, type 2 diabetes, sleep disorders, and mental health disorders.[6] A separate meta-analysis of 25 reports found similar associations between increased UPF consumption and conditions like hypertriglyceridemia and hypertension.[7]

Notably, about one in three adults in the United States meets diagnostic criteria for metabolic syndrome.[8] One in five American children and two in five American adults have obesity.[9,10] Experts maintain that reduction of UPF consumption can have positive health impacts. A recent clinical trial of 36 adults found that switching from a diet of 50% UPF to <15% UPF resulted in caloric reduction, weight loss, improved response to insulin and lipid metabolism, and reduced inflammatory markers.[11] Albeit small, studies like these represent initial steps by researchers to better understand the direct effects of UPF on health.

Ultra-Processed Food in the News

Currently, there is no federal definition for ultra-processed foods. However, there has been a lot of attention given to UPFs in the past year. On May 9, 2025, the U.S. Food and Drug Administration (FDA) and the National Institutes of Health announced the creation of the Nutrition Regulatory Science Program to further investigate the health impacts of UPF and suggest policy changes.[12] Most recently, the FDA launched an investigation into butylated hydroxyanisole (BHA), a preservative commonly found in UPF.[13]

Challenges in Addressing UPFs

Differences Among UPFs

Although current research supports the detrimental effects of UPF overconsumption in general, it is important to note that the Group 4 label is broad. Importantly, public health has often worked together with the food industry to improve nutritional health. For example, folic-acid food fortification, a practice primarily affecting UPFs, has been estimated to decrease neural tube defects in newborns by 19-32% since its implementation in 1998.[14] Some studies have even found certain UPFs such as low-fat dairy, whole-wheat products, and some plant-based items can have positive nutritional benefits.[15]

UPF and Socioeconomic Status

The retail food environment has long been linked to structural inequalities impacting lower-income communities and ethnic and racial minorities. Namely, "food deserts," areas lacking sufficient access to healthy foods, and "food swamps," areas with high densities of small retailers such as convenience and dollar stores, have been coined to describe limited access to food options for disadvantaged communities.[16]

Part of the popularity of UPFs can be attributed to intended long shelf lives, consistency, and availability. Compared to perishable NOVA 1 products, UPFs are well suited for sales in various retail environments.

In short, this means that people living in "food deserts" and "food swamps" are more likely to have disproportionate access to UPFs compared to fresh, whole food options.[16] In addition, researchers identified that Black and Hispanic communities are more frequently targeted by food and beverage television advertising compared to their White counterparts.[17] Consequently, these communities are susceptible to increased UPF purchasing and consumption. Therefore, policies involving UPF must consider equitable access and targeted initiatives to ensure support for food-insecure areas.

Global Policy and UPF Regulation

Because there is no global product-level regulation based on the NOVA groups, individual countries determine the degree to which UPFs are controlled. For example, in the World Health Organization (WHO) Region of the Americas, a front-of-pack nutrition labeling system was implemented in the 2010s to address health risks posed by UPFs. Foods with excess sugars, fats, and/or salts were clearly labeled as such to help consumers make healthier choices. Thirty of the 35 countries who enacted this policy decided to adopt it due to improvements in population diet.[18]

However, there is still room for improvement on the global level. The WHO, as of late 2025, has since assembled a guideline development committee to issue further guidance on UPF consumption.[19]

It is important to note that individual components of UPF have undergone separate regulatory processes worldwide. For instance, brominated vegetable oil, an additive banned in the European Union and Japan, was banned by the FDA in 2025.[20]

Conclusion

UPFs have become increasingly more available in the retail food environment and now comprise a significant portion of the average American diet. UPF overconsumption, broadly, has been associated with several adverse health outcomes and has been suggested to contribute to the growing obesity epidemic in the United States. This is due to UPFs' low nutritional value and tendency to replace healthier whole food options, which have been shown to reduce the risk for preventative, chronic disease.

However, tackling UPF remains a complex and nuanced issue. The NOVA system, currently the leading method of understanding UPF, arguably lacks distinction between nutritionally-rich and -poor options. Additionally, geographic and socioeconomic factors influence the public's access to UPFs and healthier alternatives, given UPFs are more likely to be nonperishable, transportable, and convenient for families with limited retail access. For these reasons, global, coordinated policy recommendations to regulate UPF have not yet been made.

As such, policymakers, scientists, and individuals alike should weigh trips to the grocery store with both a critical eye, with the goal being to ensure healthful, whole, and balanced meals for the nation as a whole.

References

1. https://blogs.cdc.gov/nchs/2025/08/07/7825/
2. https://pmc.ncbi.nlm.nih.gov/articles/PMC10261019/
3. https://www.nature.com/articles/s41467-023-37457-1
4. https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/nutrition-basics/are-ultraprocessed-foods-good-or-bad
5. https://pubmed.ncbi.nlm.nih.gov/34953001/
6. https://www.bmj.com/content/384/bmj-2023-077310
7. https://onlinelibrary.wiley.com/doi/full/10.1111/add.16065
8. https://jamanetwork.com/journals/jama/article-abstract/2842706
9. https://www.cdc.gov/obesity/childhood-obesity-facts/childhood-obesity-facts.html
10. https://www.cdc.gov/nchs/products/databriefs/db508.htm
11. https://www.clinicalnutritionjournal.com/article/S0261-5614(25)00282-1/fulltext
12. https://www.hhs.gov/press-room/hhs-fda-usda-ultra-processed-foods-definition-rfi.html
13. https://www.fda.gov/news-events/press-announcements/fda-launches-assessment-bha-common-food-chemical-preservative
14. https://pmc.ncbi.nlm.nih.gov/articles/PMC3257747/
15. https://www.mdpi.com/2072-6643/15/14/3117
16. https://www.sciencedirect.com/science/article/pii/S1353829223001260
17. https://uconnruddcenter.org/wp-content/uploads/sites/2909/2022/11/Rudd-Targeted-Marketing-Report-2022.pdf
18. https://www.thelancet.com/journals/lanam/article/PIIS2667-193X(22)00217-4/fulltext
19. https://www.who.int/news-room/articles-detail/public-notice-and-comment-who-guideline-development-group-for-ultra-processed-foods
20. https://cen.acs.org/food/food-ingredients/Goodbye-brominated-vegetable-oil/102/i21

Did you know?

Which of the following are UPFs?

A. Almond butter
B. Salted sunflower seeds
C. Strawberry Greek yogurt
D. Frozen salmon filet
E. Rice crackers

Answers: A, C, E

LOMA LINDA UNIVERSITY HEALTH

Institute for Health Policy and Leadership

11209 Anderson Street
Loma Linda, CA 92354
Phone: 909-558-7022
Fax: 909-558-5638
IHPL.llu.edu

Special guest contributor:
Alexis Duke, MS4

Questions?
Please contact the Institute for Health Policy & Leadership (ihpl@llu.edu).