Misconceptions and challenges related to (ultra)processed foods

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Food processing: Sustainability and misconceptions International Dairy Federation and IUFoST Webinar 28 April 2025, 15:00 – 16:30 CEST onlinr

Outline

- The trouble with (ultra) processed foods.
- What is NOVA classification based on?
 - Nutrients, ingredients, processing, industry practices?
- Is UPF about fat, sugar, and salt?
 - Milk, yogurt case histories.
- Plant-based "milk alternatives" are all ultra-processed
 - So are ALL plant-based protein concentrates/isolates
- NOVA and nutrient profiling scores another problem
- An economic explanation for adverse health effects.

Unprocessed vs. processed foods

	Group 1				
European Journal of Clinical Nutrition ARTICLE OPEN R Conclusion	Unprocessed or Minimally Processed Foods	Group 2 Processed Culinary	Group 3 Processed Foods	Group 4 Ultra-Processed Foods	
Ultra-processed foods: how functional is the NOVA system? Verorigate Brenco [®] , labelle Southan [®] , Patrick Savient [®] , Typhaine Houngel [®] , Matthew Mailke [®] , Catherine Feart ^{®®} and Noted Damon [®] e The Anthro(s) 2022	Fresh, dry, or frozen vegetables or fruit, grains, legumes, meat, fish, eggs, nuts and seeds.	Plant oils (e.g., olive oil, coconut oil), animal fats (e.g., cream, butter, lard), maple syrup, sugar, honey, and salt.	Canned/pickled vegetables, meat, fish, or fruit, artisanal bread, cheese, salted meats, wine, beer, and cider.	Sugar sweetened beverages, sweet and savory packaged snacks, reconstituted meat products, pre- prepared frozen dishes, canned/instant soups, chicken nuggets, ice cream.	
ECORDURD: It the NXXA distillation system, decisptive cateria are used to assign foods to over of four groups based on processing-relined orters. <i>Hhough NXXA widey used</i> , its robustness and functionality mean in trady usesplored. We determined the heart has system lack to consider if doal adaptive table systems to yours.	Processing includes removal of inedible/unwarted parts. Does not ad substances to the original food.	Substances derived from Group 1 foods or from nature by processes including pressing, refining, grinding, milling, and drying.	Frocessing of foods from Group 1 or sugar by means of canning, pickling, smoking, curing, or fermentation.	Formulations made from a series of processes including extraction and from a series of processes including extraction and chemical modification. Includes very little intact Group 1 foods.	
	Increasing Level of Processing				

Braesco, I Souchon, P Sauvant, T Haurogné, M Maillot, C Féart and Darmon (2022) Ultra-processed foods: how functional is the NOVA system? European Journal of Clinical Nutrition; https://doi.org/10.1038/s41430-022-01099-1

Problem #1 Unclear classification

- What is the NOVA categorization based on?
 - Nutrients (fat, sugar, salt)
 - Ingredients
 - Processing methods (industrial vs home made)
 - Something else (packaging, marketing).
- It is hard to say.

Is NOVA about nutrients? No and yes

> Public Health Nutr. 2009 May;12(5):729-31. doi: 10.1017/S1368980009005291.

Nutrition and health. The issue is not food, nor nutrients, so much as processing

Carlos A Monteiro¹

Ultraprocessed foods and cardiovascular health: it's not just about the nutrients @ Mark Lawrence @

The American Journal of Clinical Nutrition, Volume 113, Issue 2, February 2021, Pages 257–258, https://doi.org/10.1093/ajcn/nqaa333 Published: 09 December 2020

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- UPFs are typically energy-dense products, high in calories, added sugar, saturated fats, and salt, and low in dietary fiber, protein, vitamins, and minerals.
- UPFs are formulations of macronutrients (starches, sugars, fats, and protein isolates) with little, if any, whole food and often with added flavors, colors, emulsifiers, and other cosmetic additives.
 - Zhang et al 2021
- UPF have high amounts of **fat, sugar**, and **salt**, **high energy density** and low **fiber** content.
 - Mendonca 2026

Is NOVA about food additives? Yes and no

> Public Health Nutr. 2019 Apr;22(5):936-941. doi: 10.1017/S1368980018003762. Epub 2019 Feb 12.

Ultra-processed foods: what they are and how to identify them

Carlos A Monteiro ¹, Geoffrey Cannon ², Renata B Levy ², Jean-Claude Moubarac ³, Maria Lc Louzada ², Fernanda Rauber ², Neha Khandpur ², Gustavo Cediel ², Daniela Neri ², Euridice Martinez-Steele ², Larissa G Baraldi ², Patricia C Jaime ¹

Many of these **additives** are also used at home – vanilla, egg white, starch, yeast, sugar - so it has to be industrial additives. Does the ingredient list contains **at least one item characteristic** of the NOVA ultra-processed group:

- Food substances never or rarely used in kitchens (H-F corn syrup, hydrolyzed proteins, isolates).
- Additives designed to make the final product palatable or more appealing (flavors, flavor enhancers, colors, emulsifiers, emulsifying salts, sweeteners, thickeners, and anti-foaming, bulking, carbonating, foaming, gelling and glazing agents).
- Criteria published by Monteiro et al. 2019

Is NOVA about processing? No and yes

- Everything home-made is exempt from being classified as UPF
- Foods that have gone through industrial processes such as removal of inedible husks or shells, soaking, steam blanching, squeezing, crushing, grinding, drying, powdering, high-pressure homogenization, pulsed electric fields, ultrasound, nonalcoholic fermentation, fortification, chilling, freezing, or placing in containers can all be viewed as unprocessed.









Is NOVA all of this – or nothing at all?

- UPFs are industrial formulations of food-derived substances (oils, fats, sugars, starch, protein isolates) that contain little or no whole food and often include flavorings, colorings, emulsifiers, and other cosmetic additives.
- UPF have little, if any, whole foods and are manufactured with substances extracted from foods or synthesized in laboratories (dyes, flavorings, and other additives). Mendonca et al 2026
- Their low nutritional quality, high energy density, and unique non-nutritional attributes, assembled into ready-to-consume hyper-palatable foods, promote overconsumption. Alonso-Pedrero et al 2016
- UPF are **extremely palatable** foods that are **aggressively advertised** and contain many **chemical additives**.

Problem #2: Is it nutrients or ingredients?

- NOVA (supposedly) relies on ingredients.
- The USDA FNDDS does not list ingredients.
- The USDA Branded Food products database does list ingredients; but it cannot be used for health studies.
- In reality, NOVA classification depends on fat, sugar, salt content of foods (low sugar, lightly salted = processed; but high sugar or high salt = UPF)



Nutritional Epidemiology

VNF.

Identifying and Estimating Ultraprocessed Food Intake in the US NHANES According to the Nova Classification System of Food Processing

Eurídice Martínez Steele^{1,2,*,†}, Lauren E. O'Connor^{3,†}, Filippa Juul⁴, Neha Khandpur ^{1,2,5}, Larissa Galastri Baraldi ^{2,6}, Carlos A. Monteiro^{1,2}, Niyati Parekh ^{7,8,9}, Kirsten A. Herrick³

¹ Department of Nutrition, School of Pablic Health, University of São Paulo, Brazil, ² Center for Fejdeminical Studies in Health and Nutrition, University of São Paulo, São Paulo, Brazil, ³ Risk Factor Assessment Branch, Epidemiology and Genomics Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute, National Institutes of Health, Rockville, MD, USA; ⁵ Department of Public Health Policy and Management, School of Global Public Health, New York, UNIV, New York, NY, USA; ⁵ Department of Public Health Policy and Management, School of Global Public Health, New York University, New York, NY, USA; ⁵ Department of Public Health Health Nutrition Frogram, School of Global Public health, New York University, New York, NY, USA; ⁵ Department of Publicans, Campinas, Rearil, ² Public Health Nutrition Frogram, School of Global Public health, New York University, New York, NY, USA; ⁵ Department of Publication Health Sciences, NYU Grossman School of Medicine, New York University, New York, NY, USA; ⁸ Rary Meyers School of Nursing, New York, University, New York, NY, USA

Category assignments in 2015-16 FNDDS

NOVA	Examples			
Unprocessed	Fresh, dry, or frozen fruit, vegetables, grains, legumes, meat, fish, and milk;			
Processed	Canned fish, vegetables, artisanal cheeses, and products made by adding salt, sugar, oil, or other culinary ingredients to minimally processed foods			
Ultra-processed	Instant and canned soups; reconstituted meat and fish; ready-made sauces, gravies, and dressings; French fries and chips, RTE and dry-mix desserts; confectionery; sweet and savory snacks, granola and protein bars, sugar sweetened and diet soda, fruit drinks, bottled tea and coffee, energy drinks, and dairy-based drinks; flavored yogurt; commercial cakes, cookies, and pies; dry cake and pancake mixes; breads; sweet breakfast cereals; frozen and RTE meals; ice cream, frozen yogurt, ices; meatless patties and fish sticks			
Culinary ingredients	Table sugar, oils, fats, and salt	Ultra-processed food consumption among US adults from 2001 to 2018 Filippa Juul 🕿, Niyati Parekh, Euridice Martinez-Steele, Carlos Augusto Monteiro, Virginia W Chang		

Juul et al. Data codes available on application and approval.

The American Journal of Clinical Nutrition, Volume 115, Issue 1, January 2022, Pages 211–221, https://doi-org.offcampus.lib.washington.edu/10.1093/ajcn/nqab305 Published: 14 October 2021 Article history ▼

How was this assignment done?

NOVA	Examples
Unprocessed	Fresh, dry, or frozen fruit, vegetables, grains, legumes , 195 , milk;
Processed	Canned fish, vegetables, artisanal cheeses, artical sugar, oil, or other culinary ingredies and salt, sugar, oil, or other culinary ingredies and salt sugar.
Ultra-processed	Instant and canned soups; receive a lat and fish; ready-made sauces, gravies, and dressings in the original ori
tS	Table sugar, oils, fats, and salt Ultra-processed food consumption among US adults from 2001 to 2018 Filippa Juul 록, Niyati Parekh, Euridice Martinez-Steele, Carlos Augusto Monteiro, Virginia W Chang The American Journal of Clinical Nutrition, Volume 115, Issue 1, January 2022, Pages

Published: 14 October 2021 Article history

Juul et al. Data codes available on application and approval.

Problem #3 Subjective criteria

- Adding fat, sugar or salt can place foods in the UPF category. That is formulation.
- Food processing and formulation are distinct processes
 - Adding fat, sugar or salt was the only way to ensure food safely.
 - Now we have alternative methods
 - refrigeration, pasteurization, etc.
- NOVA categorization is also based on:
 - The intent and purpose of industrial processing
 - The purpose of processing is to transform commodities into actual foods

Potential for mis-classification

nature food Unprocessed Ingredients Processed Ultra-processed Explore content ~ About the journal ~ Publish with us ~ Subscribe NOVA category assignments from Mozaffarian et al. 2021 (Nature Food) n =8032 Sugars Condiments nature > nature food > articles > article Fats, oils Flavored water Coffee, tea Soft drinks Article Published: 14 October 2021 Diet drinks Fruit juice 100 Food Compass is a nutrient profiling system using White potatoes Vegetables expanded characteristics for assessing healthfulness of Fruit Other desserts foods Candy Cakes, pies Nutrition bars Dariush Mozaffarian Z, Naglaa H. El-Abbadi, Meghan O'Hearn, Josh Erndt-Marino, William A. Masters, Crackers Snacks, chips Paul Jacques, Peilin Shi, Jeffrey B. Blumberg & Renata Micha Cooked cereals RTE cereals Quickbreads Nature Food 2, 809-818 (2021) Cite this article Bread, rolls Pasta, rice Soups Nutri-Score NOVA Category foodcode level1nd Description Food Compass Score Health Star Rating Mixed food sandwich 63105010 3000 Vegetables Avocado, raw 100 72101100 3000_Vegetables Beet greens, raw 100 45 Pizza 72101210 3000 Vegetables Beet greens, cooked, fat not added in cooking 100 4.5 Mixed dishes Mexican 72101230 3000 Vegetables Beet greens, cooked, made with oil 100 Mixed dishes Asian 72101250 3000_Vegetables Beet greens, cooked, made with margarine 100 100 72103000 3000 Vegetables Broccoli raab raw Mixed dishes grain 72103020 3000_Vegetables Broccoli raab, cooked, fat not added in cooking 100 4 0 Mixed dishes meat 72103040 3000_Vegetables Broccoli raab, cooked, made with oil 100 4.5 72103060 3000 Vegetables Broccoli raab, cooked, made with margarine 100 4 5 Beans, legumes 72104100 3000 Vegetables 100 Chard, raw 45 Meat, processed 100 45 72104210 3000 Vegetables Chard, cooked, fat not added in cooking Eggs 72104230 3000 Vegetables Chard, cooked, made with oil 100 4.5 Seafood Chard, cooked, made with margarine 100 72104250 3000 Vegetables 4 5 72107100 3000 Vegetables Collards raw 100 Chicken 72107210 3000 Vegetables Collards, cooked, NS as to form, fat not added in cooking 100 Meat, fresh 72107211 3000 Vegetables Collards, cooked, from fresh, fat not added in cooking 100 100 Yogurt 72107212 3000_Vegetables Collards, cooked, from frozen, fat not added in cooking 4.5 72107213 3000 Vegetables Collards, cooked, from canned, fat not added in cooking 100 45 Cheese 72107224 3000_Vegetables Collards cooked NS as to form made with oil 100 Milkshakes 100 72107226 3000 Vegetables Collards cooked NS as to form made with margarine Milk, flavored 72107227 3000_Vegetables Collards, cooked, from fresh, made with oil 100 100 72107229 3000_Vegetables Collards, cooked, from fresh, made with margarine Milk 100 72107230 3000_Vegetables 4.5 Collards cooked from frozen made with oil 100 72107232 3000_Vegetables Collards, cooked, from frozen, made with margarine 4.5 72107233 3000 Vegetables Collards, cooked, from canned, made with oil 100 4.5 0% 60% 80% 100% 40% 72110100 3000_Vegetables 100 4.5 Cress, raw

Unprocessed Ingredients Processed Ultra-processed

Potential for mis-classification

- Serious misclassification of thousands of foods.
- As many as 6,227 foods out of 8,032 (77%) in the USDA FNDDS 2015-16 were classified as UPF.
- Only 339 foods (out of 8,032) were classified as unprocessed or minimally processed (fruit, juice, milk, yogurt).
- Nobody questioned this.

NOVA categor	y assign	intents noi	II IVIOZAII		. 2021 (14	ature roou) n	-6032
Sugars]						
Condiments							
Fats, oils							
Flavored water							
Coffee, tea							
Soft drinks							
Diet drinks							
Fruit juice 100							
White potatoes							
Vegetables							
Fruit							
Other desserts							
Candy							
Cakes, pies							
Nutrition bars							
Crackers							
Snacks, chips							
Cooked cereals							
RTF cereals							
Quickbreads							
Bread rolls							
Pasta rice	-						
Source							
Mixed food sandwich							
Pizza							
Fizza Aived dishes Mexican	-						
Mixed dishes Asian							
Mixed dishes and							
Mixed dishes grain							
Nixed dishes meat	-						
beans, legumes	-		_				
ivieat, processed	-						
Eggs	-						
Seatood	-						
Chicken	-						
Meat, fresh	-		_				
Yogurt	_						
Cheese							
Milkshakes	-						
Milk, flavored							
Milk	_						
0)%	20%	40	%	60%	80%	100

Mixe

How confident are we about NOVA assignments?

NOVA category assignments for 8032 FNDDS 2015-16 foods published in Nature Food 2021

Most food categories, • including whole grains, vegetables, legumes and dairy fell into the UPF category in the Food Compass paper.

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Food Compass is a nutrient profiling system using

nature food

foods

nature > nature food > articles > article Article | Published: 14 October 2021

Paul Jacques, Peilin Shi, Jeffrey B. Blumberg & Renata Micha

Nature Food 2, 809-818 (2021) Cite this article



Figure based on analyses of data for 8032 FNDDS foods published in Nature Food 2021, Mozaffarian et

How confident are we about NOVA assignments?

NOVA category assignments for 8032 FNDDS 2015-16 foods published in Nature Food 2021

A focus on UPF vegetables:

- Did all those studies on diets and health use the same NOVA category assignments as the Food Compass paper?
- Remember that foods classified as UPF have been linked to higher risks of obesity, T2 diabetes, metabolic syndrome, hypertension, cardiovascular disease, depressive symptoms, cancer, and all-cause mortality.
- Does that include carrots?



Figure based on analyses of data for 8032 FNDDS foods published in Nature Food 2021, Mozaffarian et al

Author correction in Nature Food 2021

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Article Published: 14 October 2021

Food Compass is a nutrient profiling system using expanded characteristics for assessing healthfulness of foods

Dariush Mozaffarian 🖾, Naglaa H. El-Abbadi, Meghan O'Hearn, Josh Erndt-Marino, William A. Masters, Paul Jacques, Peilin Shi. Jeffrey B. Blumberg & Renata Micha

Nature Food 2, 809-818 (2021) Cite this article



NOVA categories need to be assigned manually (for 8032 items) and in collaboration with Dr. Carlos Monteiro – the founder of the NOVA classification system.

Problem #4: some UPF are nutrient rich

- Classed as UPF are:
 - All fortified RTE cereals
 - All energy bars, nut bars, healthy snacks
 - All yogurts with fruit
 - All plant based milk/meat alternatives
 - Plant proteins (concentrates, isolates)
- Many UPF foods score high on nutrient profiling systems (Nutri-Score Health Star Rating, or NRF).





Mozaffarian et al 2021

What is nutrient profiling?

- Foods are rated (or ranked) based on their overall nutritional value per reference amount.
- Each food is awarded a single score based on:
 - Negative nutrients only (*energy*, fat, sugar, salt)
 - Positive nutrients only (Protein, fiber, vitamins and minerals).
 - A balance of positive and negative nutrients (compensatory)
- Nutrient profiling can be applied to foods and food groups but also to complete meals (breakfast) and to total diets.



The NRF index and Nutri-Score models

Nutri-Score point system

Negativepoints:N score Positive points:P score ded Fruits a Saturated Tota1 Total Fibers Proteins vege .oles, Energy Points dium sugar (kj/100g) legul es and (g/100g) (g/100g) (g/100g) (g/1 (mg, 00g) nuts ≤4,5 ≤90 <40 < 0.9 ≤1,6 < 335 <1 0 > 335 >1 >4.5 >90 >40> 0.9 > 1.6 1 >2 > 180 > 670 >9 > 60 >1.9 > 3.2 2 >13,5 >1005 >3 >270 >2.8 3 >4.8 >1340 >4 >18 > 360 > 3.7 > 6.4 4 >1675 >5 > 450 >80 >4.7 > 22,5 > 8.0 5 > 2010 6 >27 > 546 > 2345 >31 7 >8 36 > 720 > 2680 8 > 3015 >9 >40 > 810 9 > 3350 >10 >45 > 900 10

The Nutrient Rich Foods (NRF) Index

NRF9.3 = $\Sigma_{i=9}$ (%DV/100kcal) – $\Sigma_{i=3}$ (%DV100kcal)9 nutrients to encourage3 nutrients
to limit



Nutrition Reviews, Volume 66, Issue 1, 1 January 2008

Apply NRF9.3 to milk, yogurt, cheese

- Minimally processed:
 - Plain milk, plain yogurt, fresh cheese (no added ingredients), traditional cheese (no added salt)
- Processed:
 - Flavored yogurt with low added sugar or minimum flavorings (some fruit yogurts), processed cheese.
- Ultra-processed:
 - Flavored milks, fruit yogurts with more added sugar, processed cheeses, cheese spreads with flavorings and additives.

UPF Milk – defined by added sugar only



UPF yogurt – defined by added sugar only



NRF9.3 for milk and yogurt -sugar matters

NRF9.3 score and NR9 and LIM subscores



NOVA and NRFn.3 scores overlap



Drewnowski, Gupta, Darmon An Overlap Between "Ultraprocessed" Foods and the Preexisting Nutrient Rich Foods Index?, Nutrition Today: 3/4 2020 - Volume 55 - Issue 2 - p 75-81 doi: 10.1097/NT.00000000000000000

Problem #5: Plant-based milk alternatives

- Foods classified as UPF have been linked to a higher risk of obesity, diabetes, cancer, and all-cause mortality. This has led to calls for public health action.
- Plant-based diets have been linked to a lower risk of obesity, diabetes, cancer, and all-cause mortality. This has also led to calls for public health action.
- But most plant-based foods and beverages including all plant-based milk alternatives are classified by NOVA as ultra-processed.



Plant-based milk alternatives are all UPF





Adam Drewnowski 🖂

Advances in Nutrition, nmab089, https:, Published: 21 July 2021 Article his

CRIGINAL CATTACSE HER DISCOMPTING Dairy-Free. As It Should Be: Dairy-Free. As It Should Be: Barrisheeee Barrisheeee Barrisheeee Barrisheeee Barrisheeee

50% More Calcium than Dairy Milk*



ripple Dory-free As it Should be Be PARTEIN 1/2 Whit has upper 1/2 Whit has upper

> 50% More Calcient then Dairy Hill



ORIGINAL

480Z REFRIGERATED MILK INGREDIENTS:

WATER, PEA PROTEIN BLEND (WATER, PEA PROTEIN), CANE SUGAR, SUNFLOWER OIL, CONTAINS LESS THAN 1% OF VITAMIN A PALMITATE, VITAMIN D2, VITAMIN B12, TRICALCIUM PHOSPHATE, DIPOTASSIUM PHOSPHATE, SUNFLOWER LECITHIN, NATURAL FLAVOR, SEA SALT, GUAR GUM, GELLAN GUM.

32OZ SHELF STABLE MILK INGREDIENTS:

WATER, PEA PROTEIN BLEND (WATER, PEA PROTEIN), CANE SUGAR, SUNFLOWER OIL, CONTAINS LESS THAN 1% OF VITAMIN B12, VITAMIN D2, RIBOFLAVIN, VITAMIN A PALMITATE, SUNFLOWER LECITHIN, TRICALCIUM PHOSPHATE, DIPOTASSIUM PHOSPHATE, MIXED TOCOPHEROLS (TO PRESERVE FRESHNESS), MAGNESIUM CITRATE, SEA SALT, NATURAL FLAVOR, GUAR GUM, GELLAN GUM.

Ultra-processed foods and health

- Percentage energy from ultra-processed foods has been linked to higher risks of obesity, type 2 diabetes, metabolic syndrome, hypertension, cardiovascular disease, digestive issues, impaired gut microbiota, nutritional deficiencies, shorter telomeres, sleeplessness, impaired cognition, depressive symptoms, anxiety, addiction-like eating behaviors, cancer, and all-cause mortality.
- Headlines from Brazil claim that ultra-processed foods kill more people annually in Brazil than homicides, traffic accidents, and breast and prostate tumors.
- Various groups have called for mandatory front-of-pack labeling, taxation or outright ban on ultra-processed foods.



A final explanation: economics

- Ultra-processed foods are linked to adverse health outcomes.
- Dietary guidelines recommend minimally processed foods only.
- Politicians want to remove ultraprocessed foods from the food supply.
- What does science say?



EDITOR'S CHOICE

Ultra-processed food consumption is associated with increased risk of all-cause and cardiovascular mortality in the Moli-sani Study @

Marialaura Bonaccio ☎, Augusto Di Castelnuovo, Simona Costanzo, Amalia De Curtis, Mariarosaria Persichillo, Francesco Sofi, Chiara Cerletti, Maria Bendetta Donati, Giovanni de Gaetano, Licia Iacoviello on behalf of the Moli-sani Study Investigators

The American Journal of Clinical Nutrition, Volume 113, Issue 2, February 2021, Pages 446–455, https://doi-org.offcampus.lib.washington.edu/10.1093/ajcn/nqaa299 Published: 18 December 2020 Article history v





Leonie Elizabeth,¹ Priscila Machado,^{1,2} Marit Zinöcker,³ Phillip Baker,^{1,2} and Mark Lawrence^{1,2,*}

BJN	Consumption of ultra-processed foods and health status: a systematic review and meta-analysis					
UTRITON	Published online by Cambridge University Press: 14 August 2020					
	G. Pagliai, M. Dinu 🙆, M. P. Madarena, M. Bonaccio, L. Iacoviello and F. Sofi	Show author details \sim				
	Article Figures Supplementary materials Metrics					
sh Journal of	Save PDF A Share 66 Cite Rights & Permissions					

UPF results explained

- Many low-cost foods containing refined grains, vegetable oils, added sugars, and sodium fall into the UPF category.
 - We see an inverse correlation between NOVA and NRF nutrient density scores.
- Such foods are selected by lower-income groups.
 - Higher % energy from UPF is linked to lower incomes.
- Lower-income groups have cheaper diets and worse health outcomes.
 - Any links between UPF and health may be confounded by diet cost and by unobserved SES variables

Foods classed as UPF cost less per 100 kcal

Table 2 from Gupta et al 2019



Gupta S, Hawk T, Aggarwal A, Drewnowski A. Characterizing Ultra-Processed Foods by Energy Density, Nutrient Density, and Cost. Front Nutr. 2019 May 28;6:70. doi: 10.3389/fnut.2019.00070. PMID: 31231655; PMCID: PMC6558394.

Conclusion:

UPF are anything that you want them to be

- We need to have more objective criteria.
- We need to distinguish clearly between formulation and processing.
 - Formulation includes fortification and the use of fat/sugar/salt or their analogues
- The current UPF NOVA category does capture low-cost foods of high energy density and low nutritional value.
- But so do other nutrient profiling systems.
- The NOVA system is unnecessarily confusing and cannot be improved.
- We have no need for it.

Thank you

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