

Feeding Your Gut Garden: Ultra Processed Foods and the Gut Microbiome

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Oregon Health and Science University

August 27th, 2026

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DISCLOSURES

None



Other than I care A TON
about nutrition



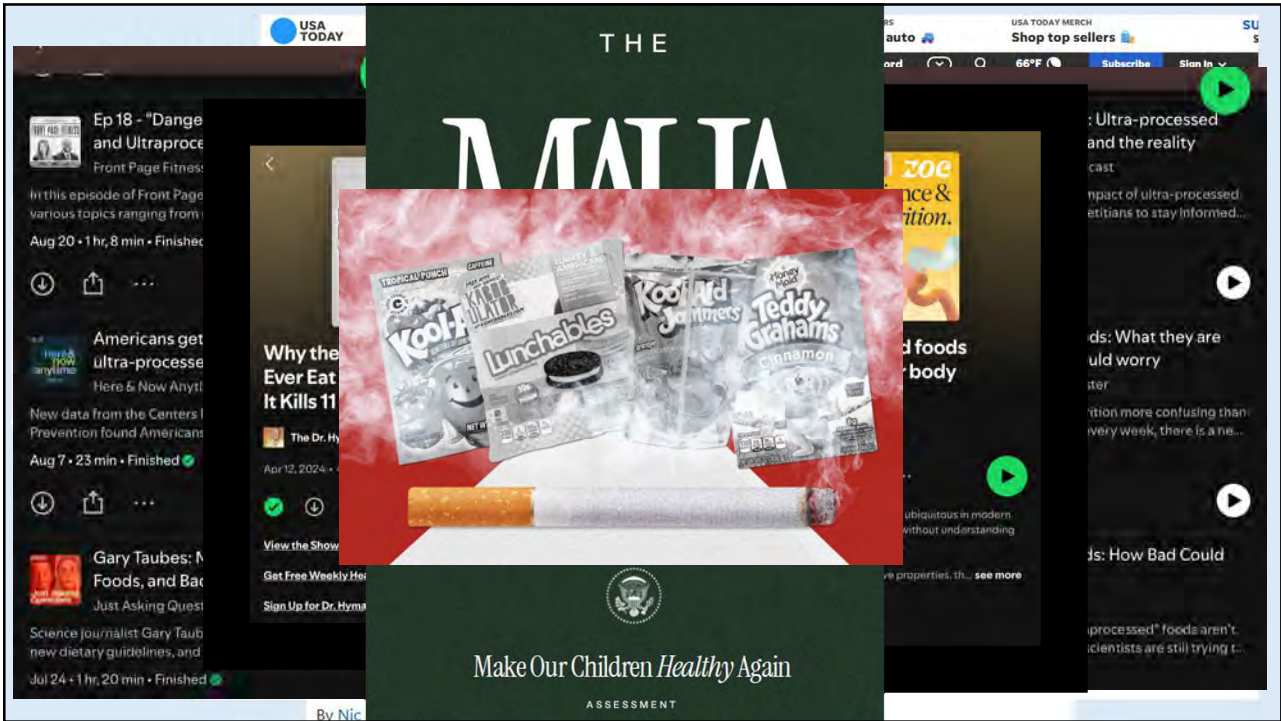
picture source

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Objectives

Review	Ultra processed foods
Tour	The gut microbiome
Link	Diet, gut microbiome, and disease
Highlight	Social determinants of health and food access

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SOME HISTORY

- Tobacco companies previously owned some of the largest food companies in the world (Nabisco, Hawaiian Punch, Kraft)
- Interested in the chemical patents for food colors and flavors
- Used the same marketing that worked for cigarettes for the foods they sold



"How the tobacco industry drove the rise of ultra-processed foods", Berkley Talks podcast, June 27th, 2025

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Globally, suboptimal diets accounted for 7.2 million deaths and 178 million disability-adjusted life-years in 2021

<https://doi.org/10.1038/s41575-025-01077-5>

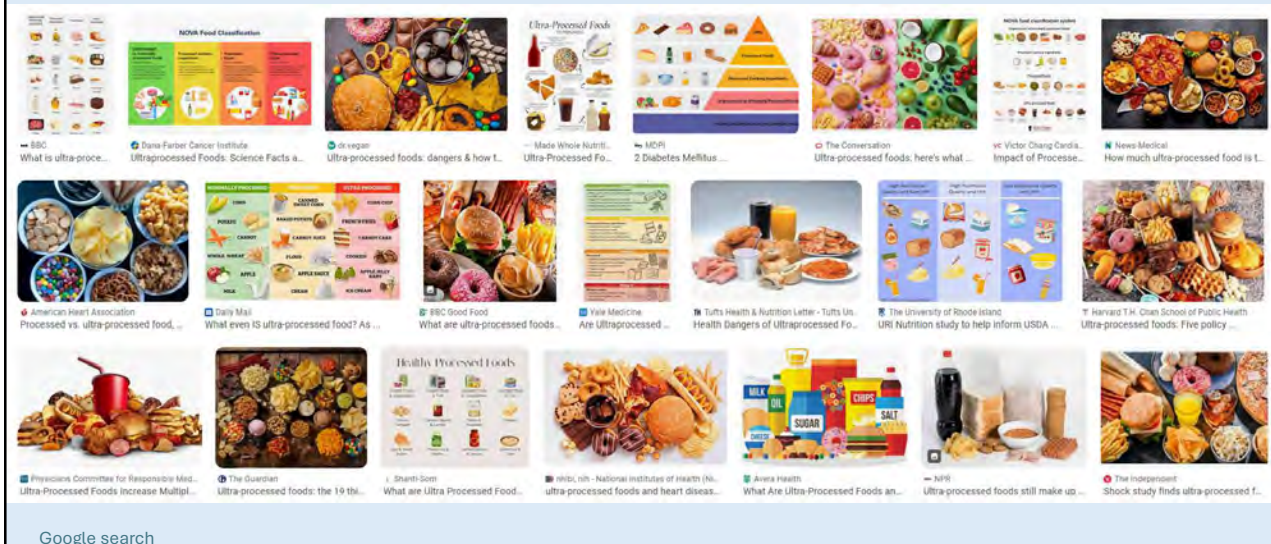
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Ultra Processed Foods make up 67% of the Standard American Diet- also abbreviated SAD- for children 2-19years old

doi:10.1001/jama.2021.10238

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What are Ultra Processed Foods?



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NOVA Food Classification

Unprocessed or minimally processed foods

Foods which did not undergo processing or underwent minimal processing techniques, such as fractioning, grinding, pasteurization and others.



Processed culinary ingredients

These are obtained from minimally processed foods and used to season, cook, and create culinary dishes.



Processed foods

These are unprocessed or minimally processed foods or culinary dishes which have been added processed culinary ingredients. They are necessarily industrialized.



Ultra-processed foods

These are food products derived from foods or parts of foods, being added cosmetic food additives not used in culinary.



Source

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Unprocessed or minimally processed foods

Foods which did not undergo processing or underwent minimal processing techniques, such as fractioning, grinding, pasteurization and others.



Group 1. Unprocessed or minimally processed foods

This first NOVA group of unprocessed and minimally processed foods includes fresh, squeezed, chilled, frozen or dried fruits and leafy and root vegetables; grains such as brown, parboiled or white rice, corn cob or kernel, wheat berry or grain; legumes such as beans of all types, lentils, chickpeas; starchy roots and tubers such as potatoes and cassava, in bulk or packaged; fungi such as fresh or dried mushrooms; meat, poultry, fish and seafood, whole or in the form of steaks, fillets and other cuts, or chilled or frozen without added salt or oil; eggs; milk, pasteurized or powdered; fresh or pasteurized fruit or vegetable juices without added sugar, sweeteners or flavours; grits, flakes or flour made from corn, wheat, oats or cassava; pasta, couscous and polenta made with flours, flakes or grits and water without added salt or oil; tree and ground nuts and other oilseeds without added salt or sugar; spices such as pepper, cloves and cinnamon and herbs such as thyme and mint, fresh or dried; plain yoghurt with no added sugar or artificial sweeteners; tea and coffee with no added sugar; drinking-water.

doi:10.1017/S1368980017000234

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Unprocessed or minimally processed foods

Foods which did not undergo processing or under minimal processing such as fractioning, pasteurization and of

Fresh fruit and vegetables

☒ **BUY**

- Whole, pre-cut, shredded or packaged
- Salads and greens in a bag
- Fresh herbs (like cilantro or

Frozen fruit and v

☒ **BUY**

- Whole, cut, or mixed
- Frozen beans are O

Eggs

☒ **BUY**

- Packages of one dozen only
- Any brand
- Any egg size
- White or brown chicken eggs

Whole wheat pasta

☒ **BUY**

- 16 oz. 32 oz. size
- Any shape of whole grain or whole wheat pasta
- Choose from these brands only:

Corn masa flour

☒ **BUY**

Hot Cereal

☒ **BUY**

Choose from these brands in the 9.8 oz. to 36 oz. size

- Any brand
- Skim Deluxe, Ultra, Creamy, Royale, Supreme, etc. are OK

Dry peas, beans and lentils

☒ **BUY**

- 16 oz. or 32 oz. bags only
- Any brand and type
- Organic is OK

Yogurt

☒ **BUY**

- 32 oz. (or 1 quart) containers only
- Buy the type of yogurt listed on your benefit list (whole, lowfat or nonfat)
- Choose from the brands and flavors listed

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Processed culinary ingredients

These are obtained from minimally processed foods and used to season, cook, and create culinary dishes.



Group 2. Processed culinary ingredients

This second NOVA group of processed culinary ingredients includes **vegetable oils** crushed from various seeds or nuts, or fruits such as olives; **butter** and lard obtained from milk and pork; starches extracted from corn and other plants; **sugar** and molasses obtained from cane or beet; **honey** extracted from combs and **syrup** from maple trees; and **salt** mined or from seawater.

doi:10.1017/S1368980017000234

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Processed culinary ingredients

These are obtained from minimally processed foods and used to season, cook, and create culinary dishes.



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Group 3. Processed foods

This third NOVA group of processed foods includes **canned or bottled vegetables, fruits and legumes**; salted or sugared nuts and seeds; salted, pickled, cured or smoked meats and other animal foods; **canned fish**; **fruits in syrup**; **cheeses**; and unpackaged freshly made breads.

doi:10.1017/S1368980017000234

Processed foods

These are unprocessed or minimally processed foods or culinary dishes which have been added processed culinary ingredients. They are necessarily industrialized.



14

Canned Fish

BUY

- Fruit packed in water
- Any type of container

Cheese

BUY

- 8, 16, or 32 oz. packages only, made



Peanut, Nut and Seed Butters

Peanut butter
Almond butter
Sunflower butter
Tahini or Sesame Seed

Processed foods

These are unprocessed or minimally processed foods or ingredients which have been added to foods, which have been added culinary ingredients. They are industrialized.

Sunflower butter



Natural
No Sugar Added

Tofu



Tahini or sesame seed

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Group 4. Ultra-processed foods

This fourth NOVA group of ultra-processed food products includes carbonated drinks; sweet or savoury packaged snacks; ice cream, chocolate, candies (confectionery); mass-produced packaged breads, buns, cookies (biscuits), pastries, cakes and cake mixes; breakfast 'cereals'; 'cereal' and 'energy' bars; margarines and spreads; processed cheese; 'energy' drinks; sugared milk drinks, sugared 'fruit' yoghurts and 'fruit' drinks; sugared cocoa drinks; meat and chicken extracts and 'instant' sauces; infant formulas, follow-on milks and other baby products (which may include expensive ingredients); 'health' and 'slimming' products such as powdered or 'fortified' meal and dish substitutes; and many ready-to-heat products including pre-prepared pies and pasta and pizza dishes; poultry and fish 'nuggets' and 'sticks'; sausages, burgers, hot dogs and other reconstituted meat products; and powdered and packaged 'instant' soups, noodles and desserts.

doi:10.1017/S1368980017000234

Ultra-processed foods

These are food products derived from foods or parts of foods, being added cosmetic food additives not used in culinary.



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100% Whole Wheat Bread Products

BUY

- 12 oz. to 32 oz.
- Any brand
- Loaf of bread, muffin or bagel
- Must say "100" on the front label

Similac ADVANCE
Complete nutrition for baby's first year
BRAIN NOURISHING DHA | EYE HEALTH LUTEIN | GROWTH & DEVELOPMENT VITAMIN E
OptiCRO
MILK-BASED POWDER INFANT FORMULA WITH IRON
NET WT. 12.4 OZ (352 g)

Enfamil
Infant Formula
Milk-based Powder with Iron
BRAIN BUILDING expert-recommended DHA
IMMUNE SUPPORT
0-12 Months
NET WT. 12.5 OZ (354 g)

BUY

- 12 oz. to 32 oz.
- Choose from these brands only:

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Cereal

Shopping for cereal

Look for these symbols in this food list to find cereal that has extra folic acid, is made with whole grains, or is gluten-free.

F 100% Daily Value (DV) for folate

G Company states cereal is gluten free

W Made with whole grains and is a good source of fiber

The smallest package you can buy is:

- 12 oz. cold cereal
- 9.8 oz. hot cereal

You need at least 9.8 oz. in your cereal benefit to use it.

Ultra-processed foods

These are food products derived from foods or parts of foods, being added cosmetic food additives not used in culinary.

18



FAMILY SIZE
Kellogg's
CORN FLAKES
— THE ORIGINAL & BEST —
4 SIMPLE INGREDIENTS
18 oz

VS



HONEY BUNCHES OF OATS
with ALMONDS
12 oz

Ingredients:
Milled Corn, Sugar, Malt Flavor, Contains 2% Or Less Of Salt, Vitamins And Minerals: Iron (Ferric Phosphate), Niacinamide, Vitamin B₆ (Pyridoxine Hydrochloride), Vitamin B₂ (Riboflavin), Vitamin B₁ (Thiamin Hydrochloride), Folic Acid, Vitamin D₂, Vitamin B₁₂

Corn, Whole Grain Wheat, Sugar, Whole Grain Rolled Oats, Almonds, Rice, Canola and/or Soybean Oil, Wheat Flour, Malted Barley Flour, Corn Syrup, Salt, Molasses, Honey, Caramel Color, Barley Malt Extract, Cinnamon, Natural and Artificial Flavor, Annatto Extract (color), BHT added to preserve freshness.

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Ultra Processed Foods

"Ultra-processed foods...are not modified foods but **formulations made mostly or entirely from substances derived from foods and additives**, with little if any intact Group 1 food. Ingredients of these formulations usually include those also used in processed foods, such as sugars, oils, fats or salt. But ultra-processed products also include other sources of energy and nutrients not normally used in culinary preparations...

Additives in ultra-processed foods include some also used in processed foods, such as **preservatives, antioxidants and stabilizers**. Classes of additives found only in ultra-processed products include those used to imitate or enhance the sensory qualities of foods or to disguise unpalatable aspects of the final product. These additives include dyes and other colours, colour stabilizers; flavours, flavour enhancers, non-sugar sweeteners; and processing aids such as carbonating, firming, bulking and anti-bulking, de-foaming, anti-caking and glazing agents, emulsifiers, sequestrants and humectants...

The overall purpose of ultra-processing is to create branded, convenient (durable, ready to consume), **attractive (hyper-palatable) and highly profitable (low-cost ingredients)** food products designed to displace all other food groups. Ultra-processed food products are usually packaged attractively and **marketed intensively**."

doi:10.1017/S1368980017000234

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ULTRA PROCESSED FOODS

Contain ingredients that aren't food.

Source: Briza's brain

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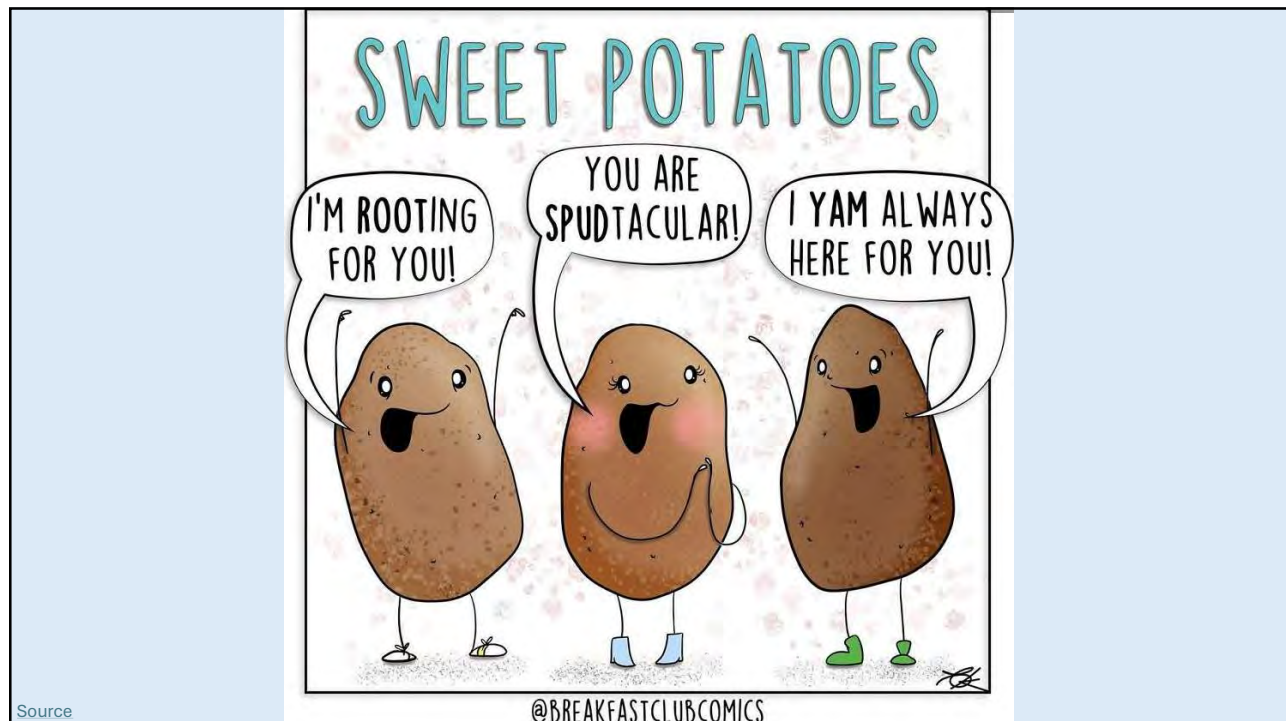
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DIETITIANS AND IDENTIFICATION OF UPFs

- January 2025 paper of UK Dietitians and their assessment of 3 different products
- "For each product, the largest proportion of respondents classified processing levels for tinned tomatoes as 'minimally processed' (n = 198, 54%), mycoprotein mince as 'highly/ultra-processed' (n = 210, 57%) and wholemeal bread as 'processed' (n = 167, 46%)"
- Answers:
 - Tinned tomatoes considered processed foods NOVA 3
 - Mycoprotein mince considered ultra-processed NOVA 4
 - Wholemeal bread considered ultra-processed NOVA 4

<https://pmc.ncbi.nlm.nih.gov/articles/PMC11814369/pdf/JHN-38-0.pdf>

23



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Ingredients:
Broccoli, olive oil,
sea salt, ground
pepper



25

Ingredients: Bread: Unbleached Whole Wheat Flour, Enriched Unbleached Flour (Wheat Flour, Malted Barley Flour, Niacin, Ferrous Sulfate, Thiamin Mononitrate, Riboflavin, Folic Acid), Water, Sugar, Yeast, Contains 2% Or Less Of: Wheat Gluten, Soybean Oil, Salt, Dough Conditioner (Mono And Diglycerides, Sodium Stearoyl Lactylate, DATEM, Enzymes, Ascorbic Acid, Calcium Peroxide). Peanut Butter: Peanuts, Contains 2% Or Less Of: Fully Hydrogenated Vegetable Oils (Rapeseed And Soybean), Mono And Diglycerides, Molasses, Sugar, Salt. Grape Spread: Grapes, Sugar, Water, Fruit Pectin, Citric Acid, Locust Bean Gum, Potassium Sorbate (Preservative), Calcium Chloride.



26

Ingredients: Whole grain wheat, canola oil, sea salt



27

Ingredients: Whole grain wheat flour, canola oil, sugar, cornstarch, malt syrup (from corn and barley), salt, refiner's syrup, leavening (calcium phosphate and baking soda)



28



29

Ingredients:
 Cultured
 Pasteurized Milk,
 Salt, Enzymes,
 Annatto



30

Ingredients: Cheddar Cheese (Cultured Milk, Salt, Enzymes), Skim Milk, Milkfat, Milk Protein Concentrate, Whey, Calcium Phosphate, Sodium Phosphate, Contains Less than 2% of Modified Food Starch, Salt, Lactic Acid, Milk, Sorbic Acid, Oleoresin Paprika, Enzymes, Cheese Culture, Annatto



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Ingredients: Water, modified food starch, coconut oil, calcium citrate, salt, natural flavor, citric acid, beta-carotene, cyanocobalamin



32

Ingredients: Whole Grain Oats, Corn Starch, Sugar, Salt, Tripotassium Phosphate, Vitamin E (mixed tocopherols), Vitamins and Minerals: Calcium Carbonate, Iron and Zinc (mineral nutrients), Vitamin C (sodium ascorbate), A B Vitamin (niacinamide), Vitamin B6 (pyridoxine hydrochloride), Vitamin A (palmitate), Vitamin B1 (thiamin mononitrate), A B Vitamin (folic acid), Vitamin B12, Vitamin D3



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Ingredients: Water, Corn Maltodextrin, Blend of Vegetable Oils (Soy, High Oleic Safflower), Sugar, Milk Protein Concentrate, Soy Protein Isolate, Vitamins & Minerals (Potassium Citrate, Calcium Phosphate, Potassium Chloride, Magnesium Phosphate, Potassium Phosphate, Calcium Carbonate, Ascorbic Acid, Choline Chloride, Ferrous Sulfate, dl-Alpha-Tocopheryl Acetate, Zinc Sulfate, Niacinamide, Calcium Pantothenate, Manganese Sulfate, Thiamine Hydrochloride, Pyridoxine Hydrochloride, Riboflavin, Vitamin A Palmitate, Copper Sulfate, Folic Acid, Chromium Chloride, Potassium Iodide, Sodium Molybdate, Sodium Selenate, Biotin, Phylloquinone, Vitamin D3, Vitamin B12, Menaquinone-7), Natural & Artificial Flavors, Cellulose Gel, Tuna Oil, Cellulose Gum, Monoglycerides, Soy Lecithin, Carrageenan, Potassium Hydroxide, Inositol, Salt, Taurine, Stevia Leaf Extract, L-Carnitine, and Lutein.



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Eggs-cuse me!
What is this dietit-hen saying?

This is egg-hausting!
She's got me walking on eggshells.
I might be having an egg-sistential crisis.

(okay but really, stringing this many egg puns
together is poultry in motion)

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Less processed
does not necessarily mean
more healthy

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Not all
UPFs
are
created
equal

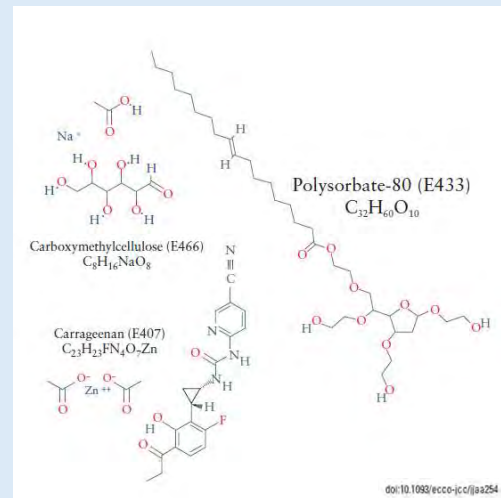


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I'm still worried about
certain ingredients,
such as
carrageenan,
maltodextrin,
polysorbate 80, and
carboxymethylcellulose



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ABOUT 1 YEAR AGO

USDA Food and Nutrition Administration
U.S. DEPARTMENT OF AGRICULTURE

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Request for Information: Ultra-Processed Foods

HOME

Publication Date
Friday, July 25, 2025

Comment Period End Date
Tuesday, September 23, 2025

Resource Type
Policy
Federal Register Notices
Comment Request

Link
<https://www.fna.usda.gov/usda/fr-072525>

Extension of Comment Period
In response to requests for an extension, we are extending the comment period until Oct. 23, 2025, to allow interested persons additional time to submit comments.

Summary
FDA and USDA (we) are requesting data and information to help develop a uniform definition of ultra-processed foods (UPF or UPFs) for human food products in the U.S. food supply. A uniform UPF definition, developed as part of a joint effort by federal agencies, would allow for consistency in research and policy to pave the way for addressing health concerns associated with the consumption of UPFs.

Request for Comments
Either electronic or written comments on the notice must be submitted by Sept. 23, 2025.

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Recently, some U.S. states have sought to establish their own definitions of “ultra-processed foods,” with proposed definitions varying. These proposed state definitions include, among others:

- Proposals to define UPFs as foods that include substances intended to have a certain effect on food (such as stabilizers and thickeners, coloring or flavoring agents) (see, e.g., Pennsylvania, 2025 Bill Text PA H.B. 1132; California, 2025 Bill Text CA A.B. 1264);
- Proposals to define UPFs as foods that have undergone certain processing steps (such as hydrogenation of oils or hydrolysis of proteins) (see, e.g., Massachusetts, 2025 Bill Text MA H.B. 539); and
- Proposals to define UPFs as foods that include one of anywhere between 10 and 15 listed ingredients (see, e.g., Florida, 2025 Bill Text FL S.B. 1826 (seeking to define UPFs as foods that include one of 11 listed ingredients); Louisiana, 2025 Bill Text LA S.B. 117 (seeking to define UPFs as foods that include one of 15 listed ingredients); North Carolina, 2025 Bill Text NC H.B. 874 (seeking to define UPFs as foods that include one of 11 listed ingredients); Arkansas, 2025 Bill Text AR H.B. 1962 (seeking to define UPFs as foods that contain one of 10 listed ingredients); Alabama, 2025 Bill Text AL H.B. 580 (seeking to define UPFs as foods that contain one of 11 listed ingredients); South Carolina, 2025 Bill Text SC S.B. 589 (seeking to define UPFs as foods that contain one of 11 listed ingredients); Kentucky, 2025 Bill Text KY H.B. 439 (seeking to define UPFs as foods that contain one of 11 listed ingredients)).

Additionally, some third-party organizations are starting to develop their own definitions for UPFs.

There is a clear need for a uniform definition of UPFs to allow for consistency in research and policy. With this Request for Information, we seek data and information that would enable us, as part of a joint federal agency effort, to define UPFs.

<https://www.fna.usda.gov/usda/fr-072525>

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CALIFORNIA'S ASSEMBLY BILL 1264

- Signed October 8th, 2025
- Ultra Processed foods are defined as food containing at least one **functional ingredient** combined with a **nutrient threshold**
 - **Functional ingredient:** emulsifiers, non-natural colors, non-natural flavoring agents, flavor enhancers, stabilizers, or non-nutritive sweetener
 - **Nutrient Threshold:** 10% or more of calories from saturated fat, 10% or more from added sugar, or sodium in milligrams equal to or exceeding the calorie count

<https://foodindustryexecutive.com/2026/08/the-fda-sent-its-upf-definition-to-omb-as-a-white-paper-not-a-rule/>

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HOT OFF THE PRESS AUG 3, 2026: ULTRA PROCESSED FOODS

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EXECUTIVE OFFICE of the PRESIDENT

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Pending EO 12866 Regulatory Review

RIN: 0910-ZD60	Received Date: 08/03/2026
Title: White Paper: Proposed Definition of Ultra-Processed Food	Stage: Notice
Agency/Subagency: HHS / FDA	Economically Significant: No
Legal Deadline: None	Affordable Care Act [Pub. L. 111-148 & 111-152]: No
International Impacts: No	Dodd-Frank Wall Street Reform and Consumer Protection Act, [Pub. L. 111-203]: No
Pandemic Response: No	

[View EO 12866 Meetings](#) [Request EO Meeting](#)

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HOT OFF THE PRESS AUG 10, 2026: ULTRA PROCESSED FOODS

FOR IMMEDIATE RELEASE
August 10, 2026

Contact: HHS Press Office

202-690-6343

[Submit a Request for Comment](#)

SECRETARY KENNEDY ANNOUNCES LANDMARK FOOD POLICY REFORMS TO ADVANCE PRESIDENT TRUMP'S MAHA AGENDA

WASHINGTON, D.C.—AUGUST 10, 2026—The U.S. Department of Health and Human Services (HHS) today announced two landmark actions to modernize federal oversight of food ingredients and establish a stronger scientific foundation for future nutrition policy. HHS proposed a rule requiring manufacturers to notify the U.S. Food and Drug Administration (FDA) when concluding that the use of a substance added to human or animal food is Generally Recognized as Safe (GRAS) and, alongside the U.S. Department of Agriculture (USDA), submitted for final review the federal government's first proposed definition of ultra-processed foods (UPFs).

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SO WHAT DOES THIS ALL MEAN

Defining ultra processed foods is difficult

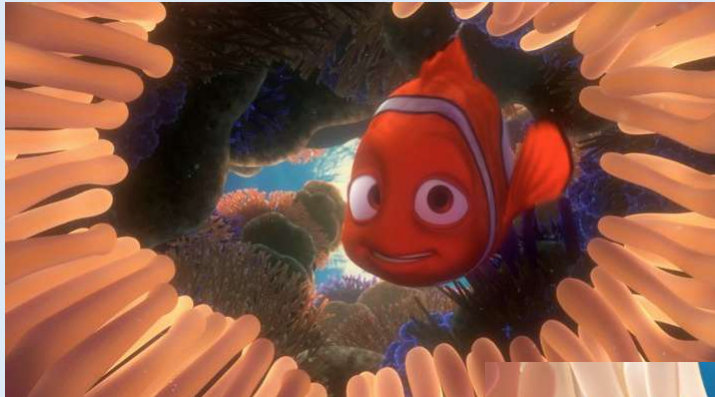
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But doesn't mean that we shouldn't try to define UPFs

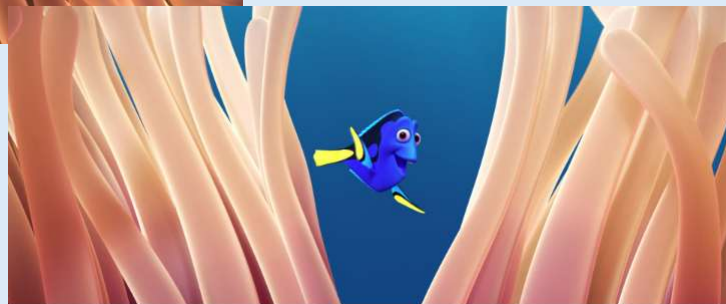
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Maybe we should work on a definition of what a whole food is too?

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LET'S TOUR
THE GUT
MICROBIOME



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FIRST, SOME HISTORY

"Although the capacity of the large intestine may preserve a mammal in emergencies, it is attended with disadvantages that may shorten the actual duration of life. The accumulation of waste matter, retained in the large intestine for considerable periods, becomes a nidus for microbes which produce fermentations and putrefaction harmful to the organism. Although our knowledge of the subject is far from complete, it is certain that the intestinal flora contains some microbes which damage health, either by multiplying in the organism, or by poisoning it with their secretions."

"The Prolongation of Life: Optimistic Studies" by Elie Metchnikoff,
1908

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YOGURT!

Metchnikoff recommended daily doses of probiotics in the form of "sour milk" prepared by pure cultures of Bulgarian bacillus (*Lactobacillus bulgaricus*) to counter this putrefaction and prolong life

Today, we recommend using a yogurt starter culture that includes *L. bulgaricus* to make Specific Carbohydrate Diet (SCD) allowed yogurt

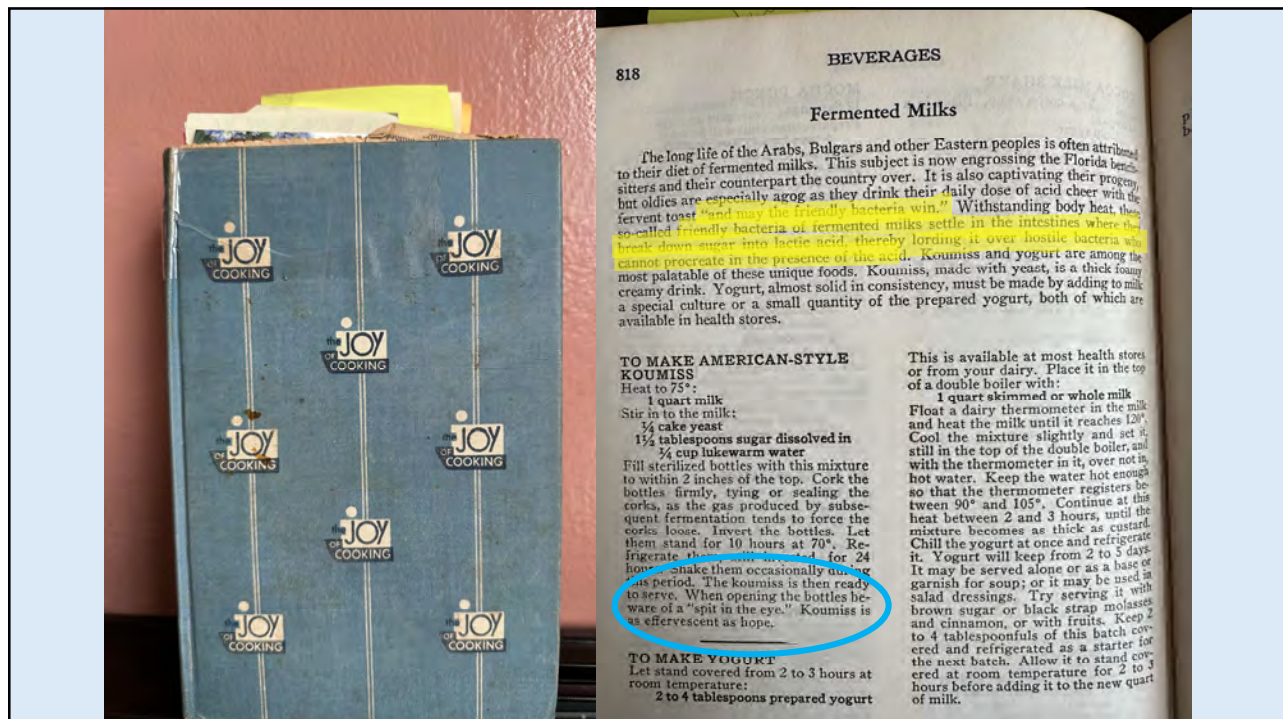
doi: 10.3389/fpubh.2013.00052

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"Metchnikoff's concepts laid the foundation for fecal transplantation, predicted the existence of bacterial translocation from the intestinal lumen into the blood stream and lymphatic system, and anticipated theories linking chronic inflammation with the pathogenesis of atherosclerosis"

doi: 10.3389/fpubh.2013.00052

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THE GUT MICROBIOME



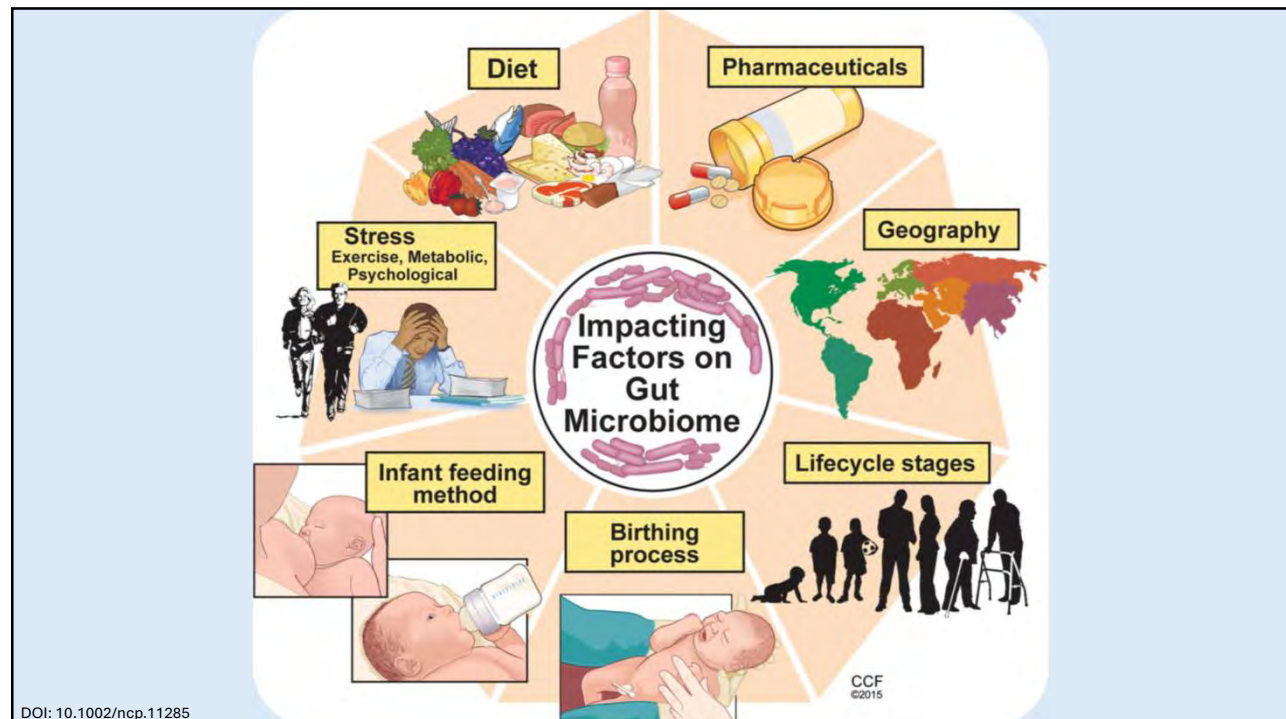
Composed of bacteria, fungi/yeasts, viruses, protozoa, archaea, parasites, and phages

About 100 TRILLION microbes

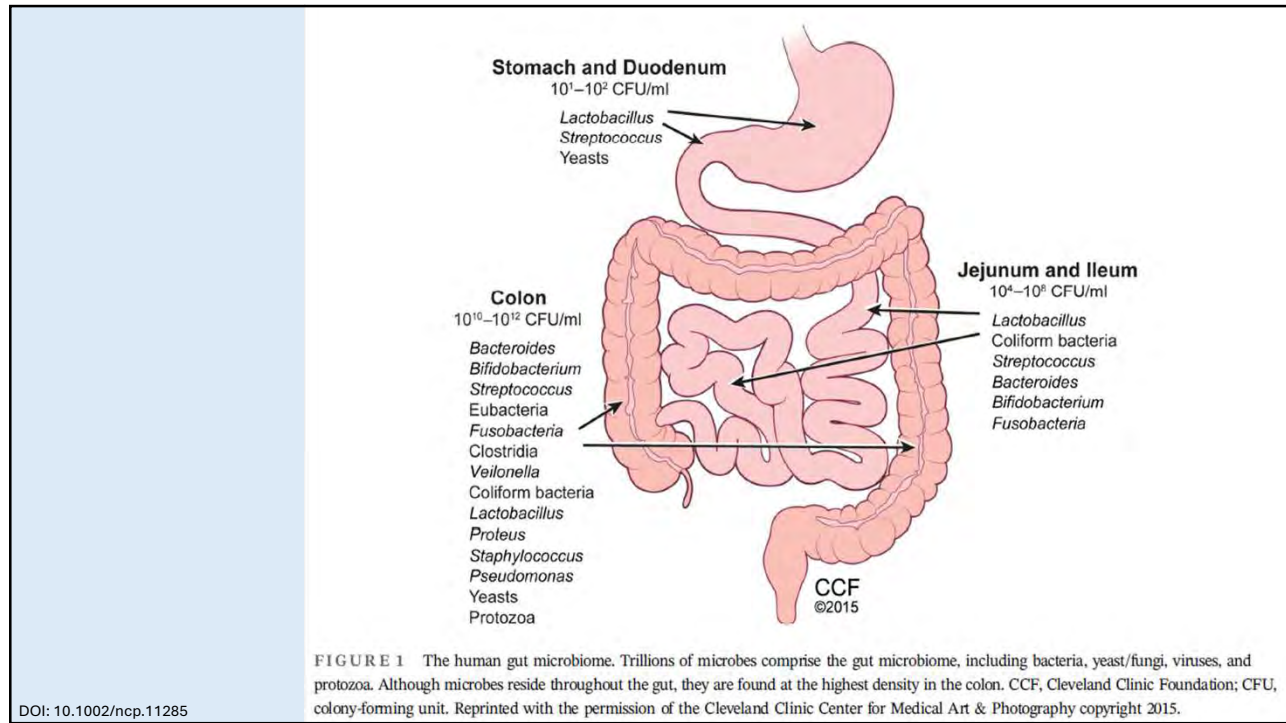
Adult humans have about 1,000 different species of bacteria*

We have more gut microbes than human cells in our entire body

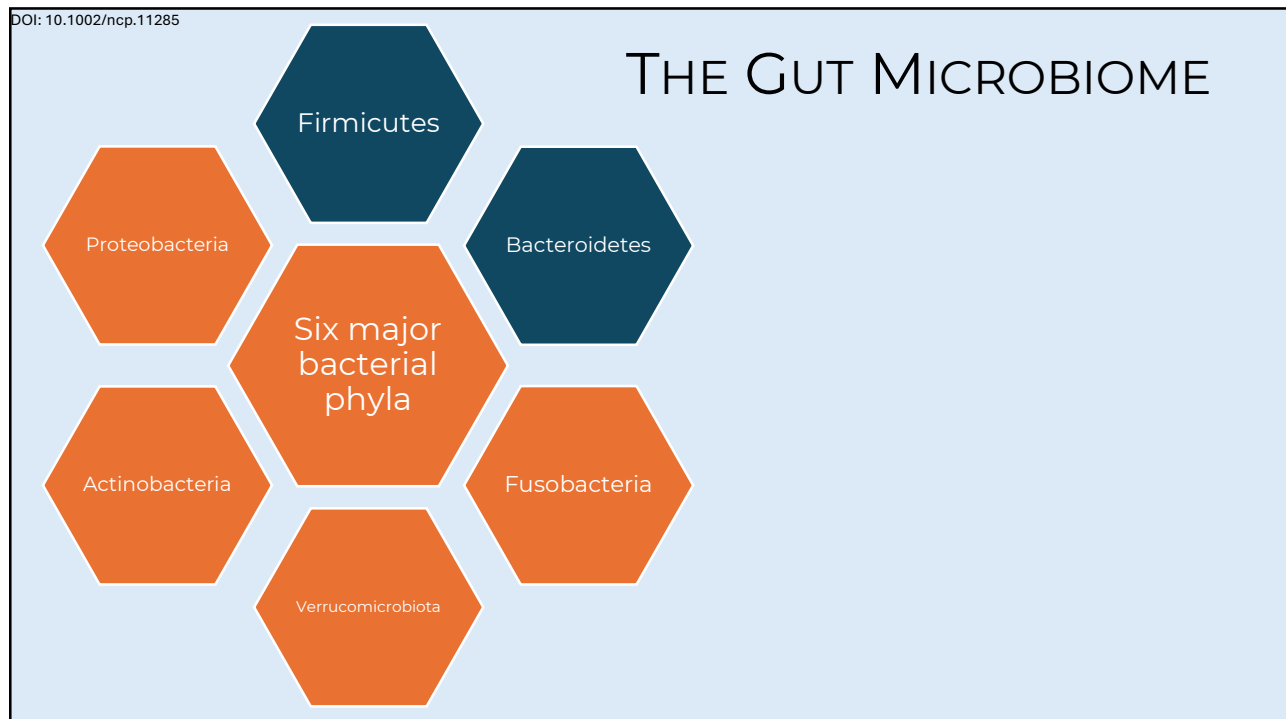
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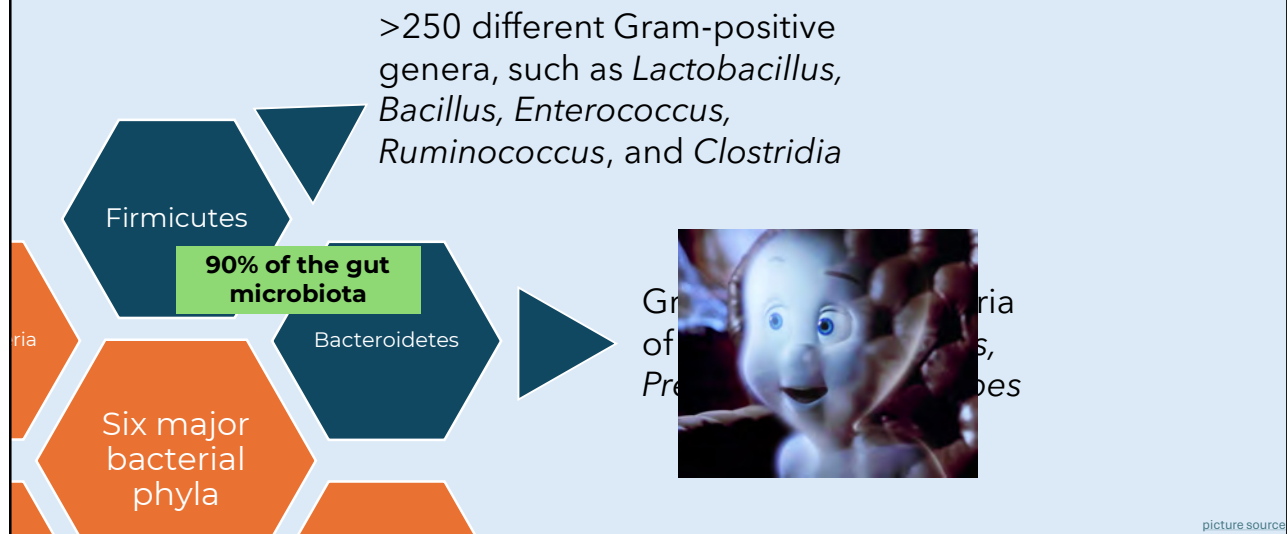
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DOI: 10.1002/necp.11285

THE GUT MICROBIOME



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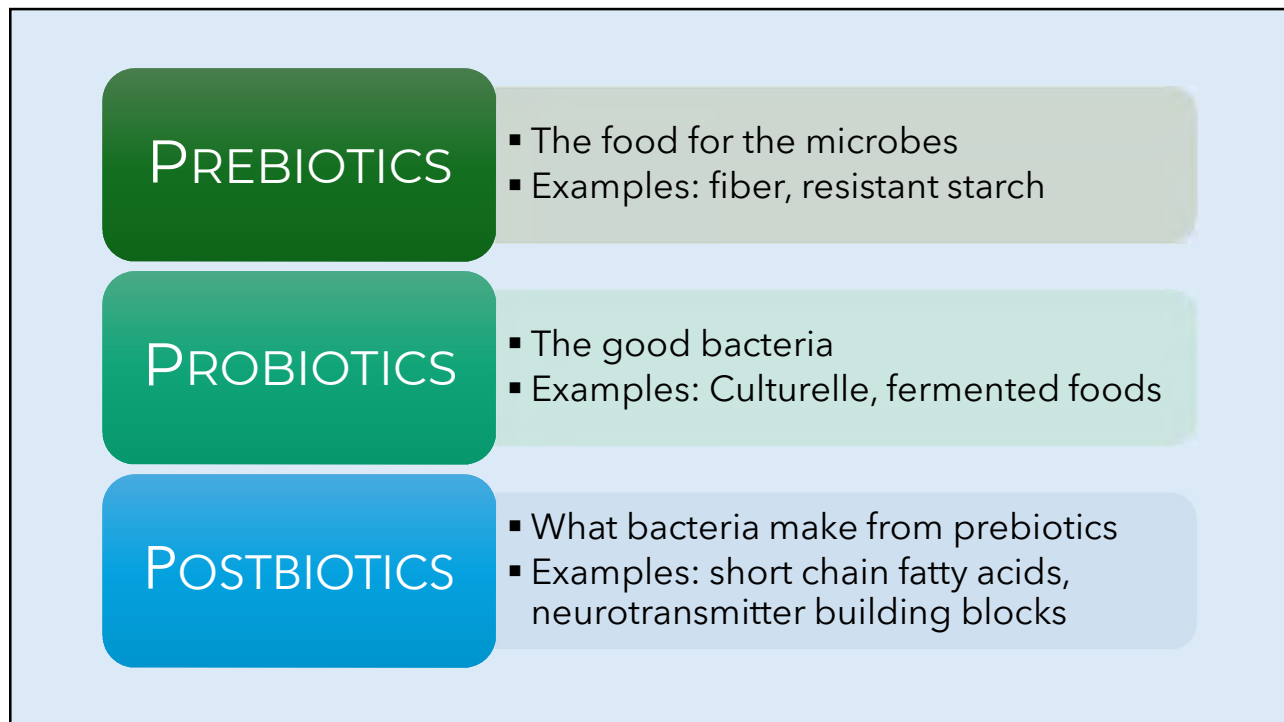
WHAT IS A HEALTHY GUT MICROBIOME?

We aren't quite sure

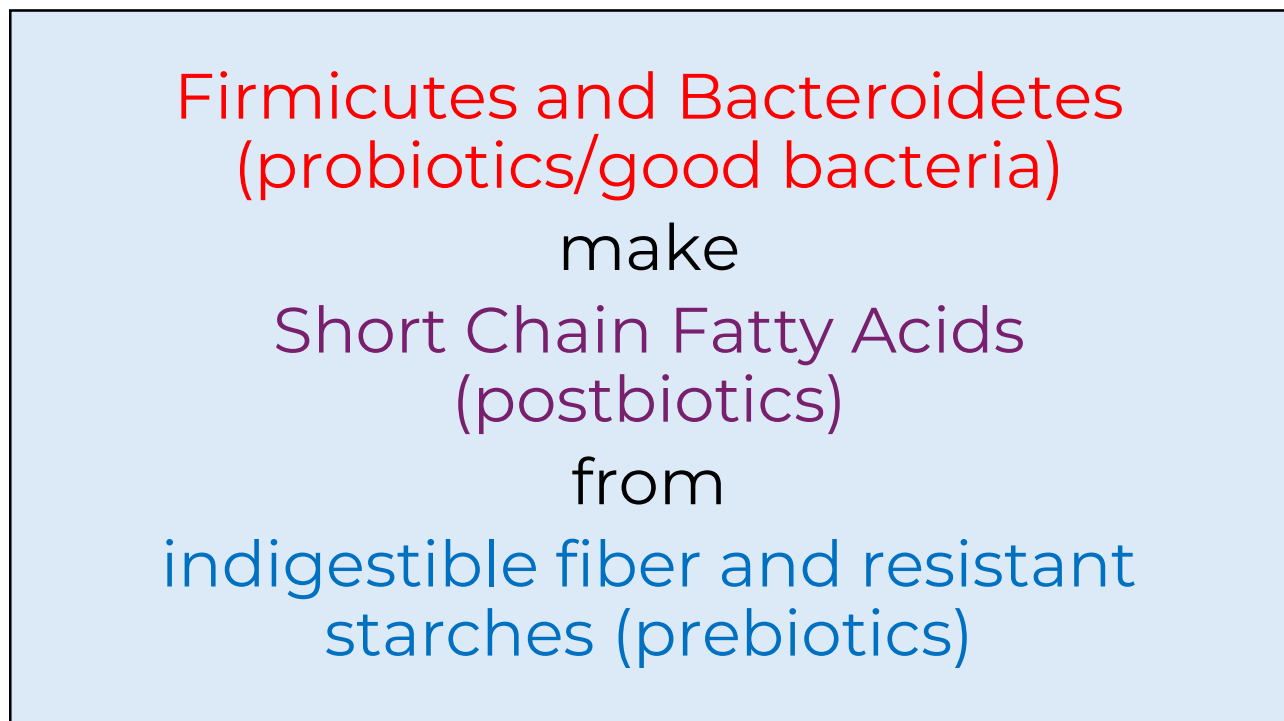
A more diverse and richer/complex (higher alpha diversity) microbiota is deemed more favorable as it has been related to improved resilience and resistance to change. The gut microbiota varies between individuals (beta diversity), and variations may occur within the same individual.

We know certain aspects of what dysbiosis looks like

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PREBIOTIC EXAMPLES

FOS

GOS

Inulin

Resistant

Starch

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Inulin

Inulin is a polysaccharide, highest in chicory root which is used for supplements. Other sources: Sunchoke, garlic, onion, banana, wheat

"Short-term inulin supplementation during cancer therapy can enhance responses to conventional therapy, relieve symptoms, shorten recovery, and improve surgical healing and quality of life. However, inulin can also **drive intestinal inflammation, increase the proliferation of genotoxin-producing bacteria, and aggravate IBD and colitis-associated CRC**. Both positive and negative effects of inulin are **dependent on the initial gut microbiota composition** and further studies are required to better identify patients who may benefit from or be harmed by inulin supplementation, based on whether they harbor specific microbial taxa capable of degrading inulin"

<https://doi.org/10.1093/gastro/goae058>

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PREBIOTIC EXAMPLES

FOS

GOS

Inulin

Resistant

Starch

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FOS

Stands for
Fructooligosaccharides,
which are short chain and
highly fermentable higher
up in the GI tract. Sources:
wheat, watermelon, beans

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PREBIOTIC EXAMPLES

FOS

GOS

Inulin

Resistant

Starch

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GOS

Stands for
Galactooligosaccharides,
which are long chains
fermented lower in the gut.
Structurally similar to
Human Milk Oligosaccharides.
Sources: cashews, pistachios,
lentils, beans

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PREBIOTIC EXAMPLES

FOS

GOS

Inulin

Resistant

Starch

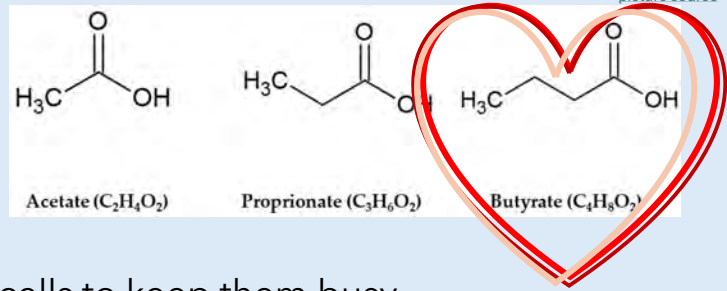
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Previously more prevalent in our diet, processing food converted most resistant starch to easily digestible starch. Food sources: cooked and then cooled potatoes, rice, and pasta (okay to reheat before eating)

Resistant
Starch

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SHORT CHAIN FATTY ACIDS



- SCFAs bind to immune cells to keep them busy
- SCFAs are food for our gut cells
- Butyrate specifically is known to have anti-inflammatory and immunomodulatory effects

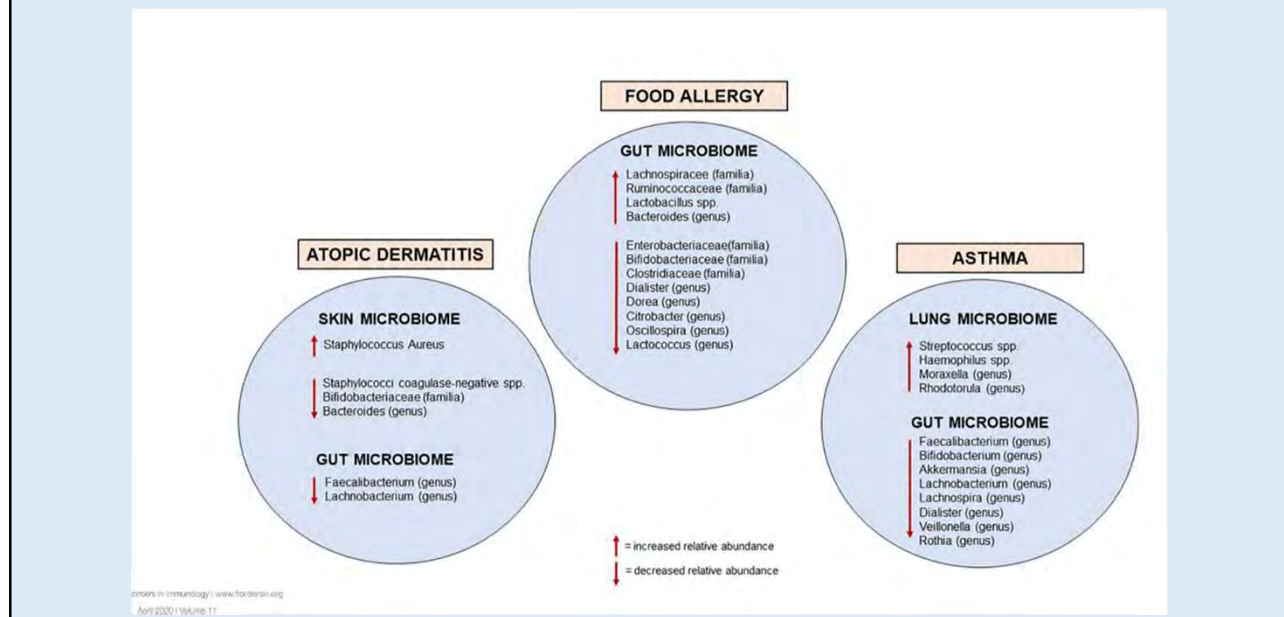
67

If we don't have prebiotics feeding our microbiome, gut bacteria start to eat the protective mucous layer on the gut wall

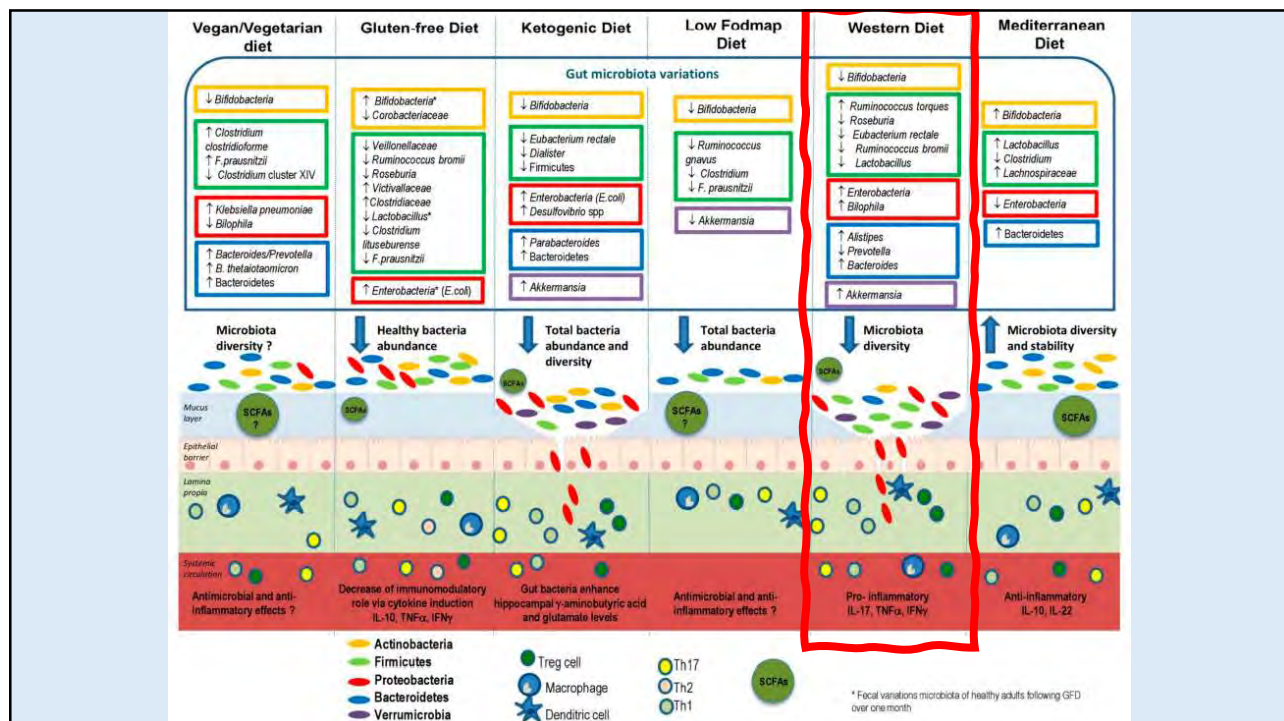
This can lead to increased interaction between the microbiome and the immune system

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H'OKAY LET'S RELATE ALL OF THIS TO DISEASE



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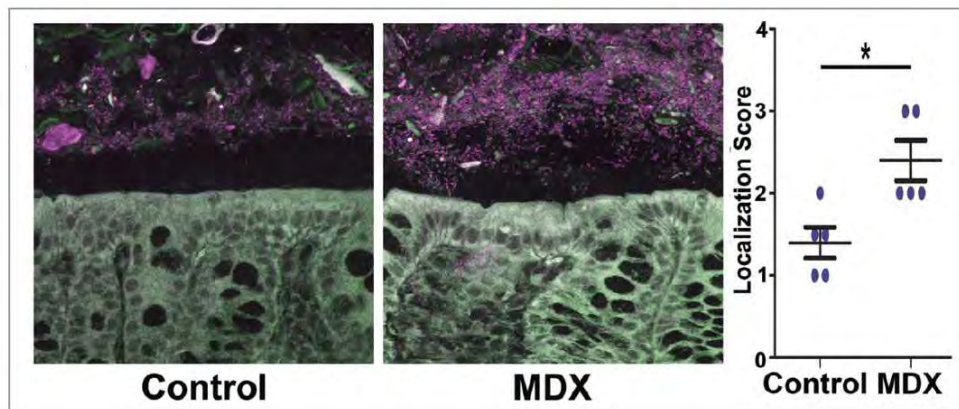
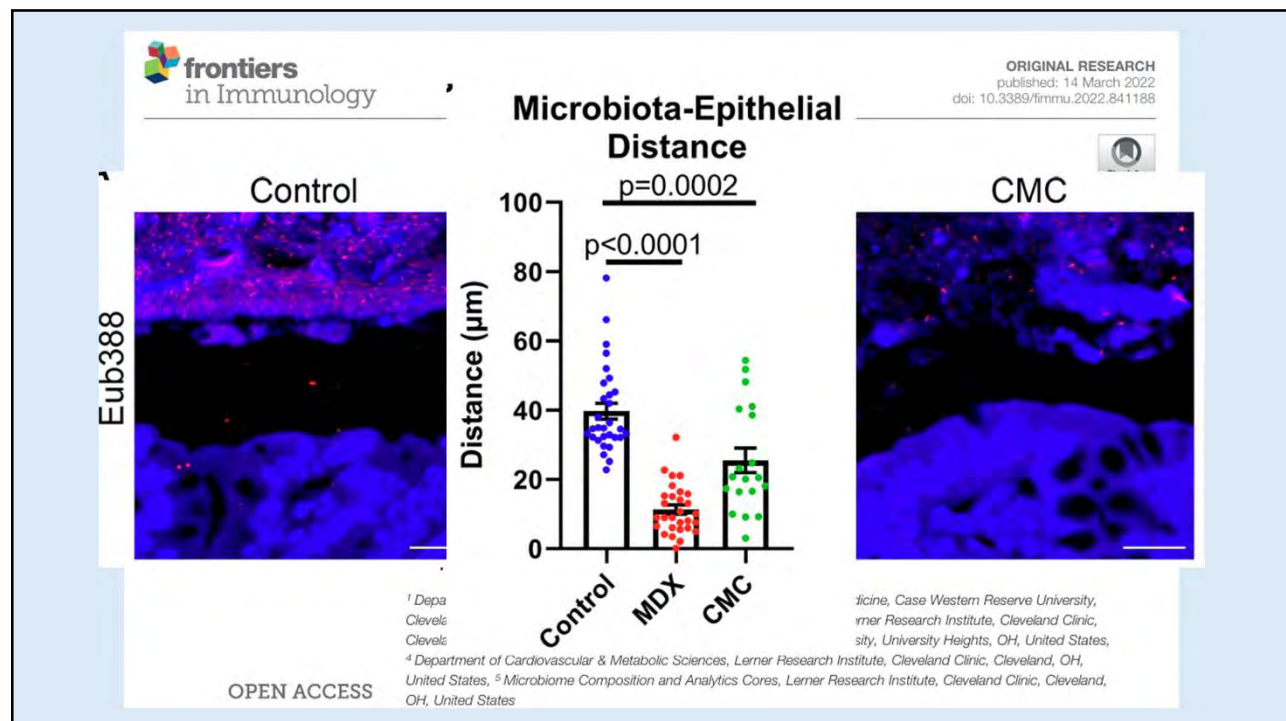


Figure 3. Consumption of MDX decreases the mucosal barrier of the intestine and increases the proximity of commensal bacteria to the epithelial layer. Confocal images of fluorescent *in situ* hybridization using a universal Eubacteria probe on uninfected proximal colon sections from mice that consumed either water or MDX-supplemented water for 2 weeks. Bacterial localization scores were assessed on a 4-point scale (1= preserved mucus layer and no bacterial contact with the epithelium, 2= bacterial penetration into mucus layer without epithelial contact, 3= some bacteria in contact with epithelium, and 4= extensive epithelial contact with the epithelium).⁴⁵ Figure modified with permission from.²³

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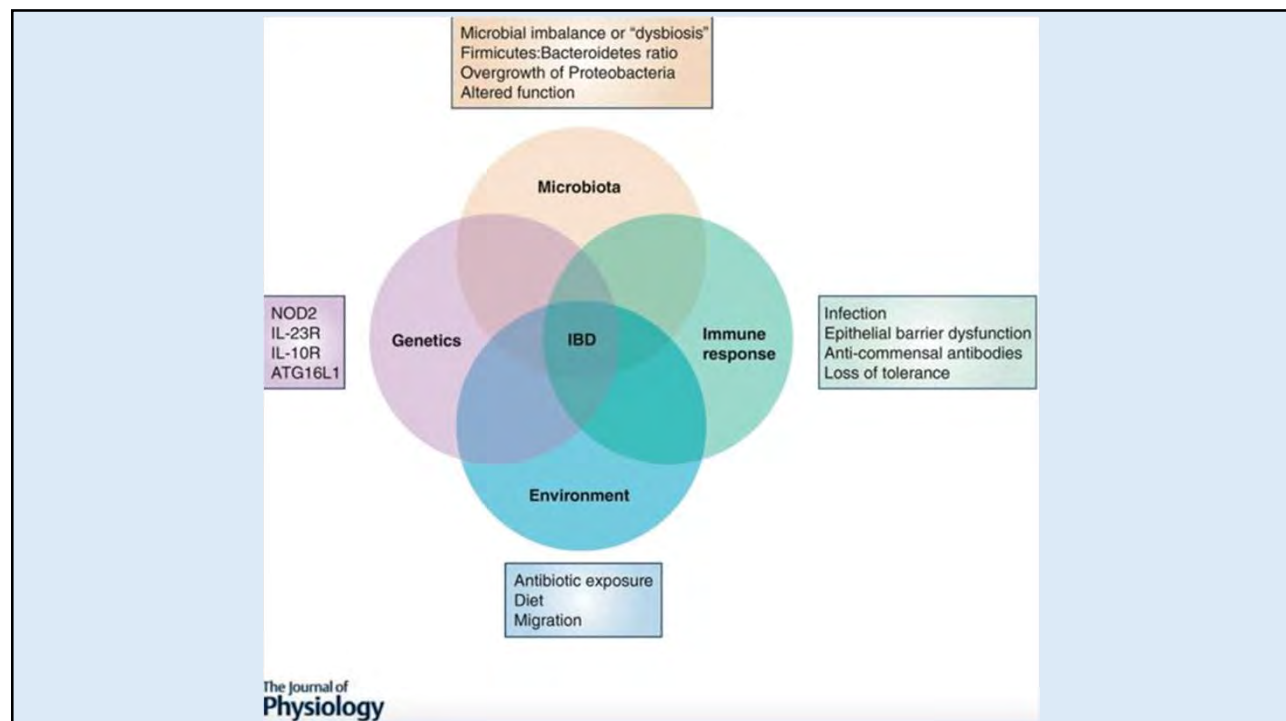
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INFLAMMATORY BOWEL DISEASE (IBD)

- Disorders that cause chronic inflammation of the gastrointestinal tract
- Two main types: Crohn's Disease and Ulcerative Colitis
- "Symptoms vary from person to person, but usually include persistent diarrhea, abdominal pain or cramping, rectal bleeding, unintentional weight loss, fatigue, stool urgency"
- Diagnosed by blood and stool tests, with endoscopy/colonoscopy and tissue biopsy

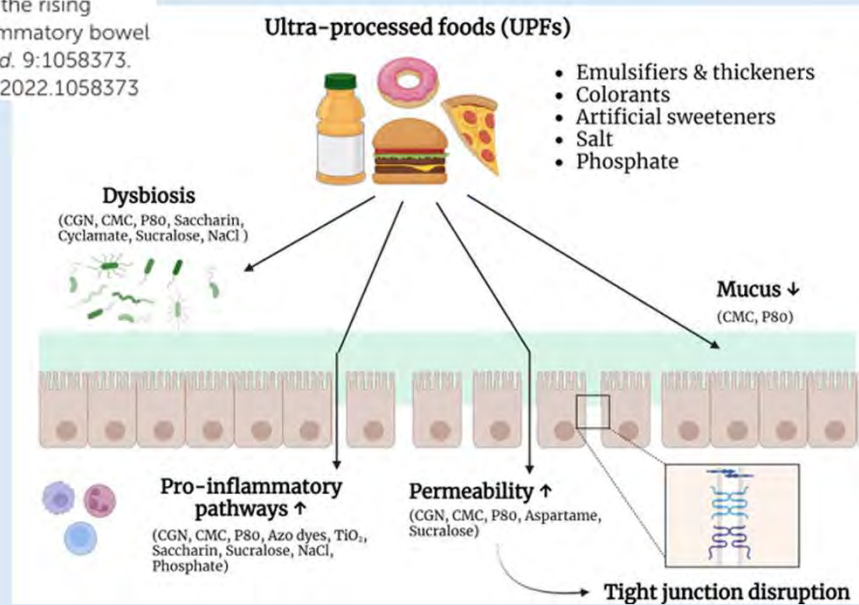
<https://www.ginutritionfoundation.org/inflammatory-bowel-disease>

73



74

Visser E, Wellens J and Sabino J
(2022) Ultra-processed foods as a
possible culprit for the rising
prevalence of inflammatory bowel
diseases. *Front. Med.* 9:1058373.
doi: 10.3389/fmed.2022.1058373



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Microbial imbalance or "dysbiosis"
Firmicutes:Bacteroidetes ratio
Overgrowth of Proteobacteria
Altered function

Microbiota

Important to remember that there is no ONE thing that caused a patient to develop IBD

We have the genes we have

We are a product of our environment

We are not in full control of our food choices

We need antibiotics if we have a bacterial infection

Diet
Migration

The Journal of
Physiology

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Enteral Nutrition for Crohns

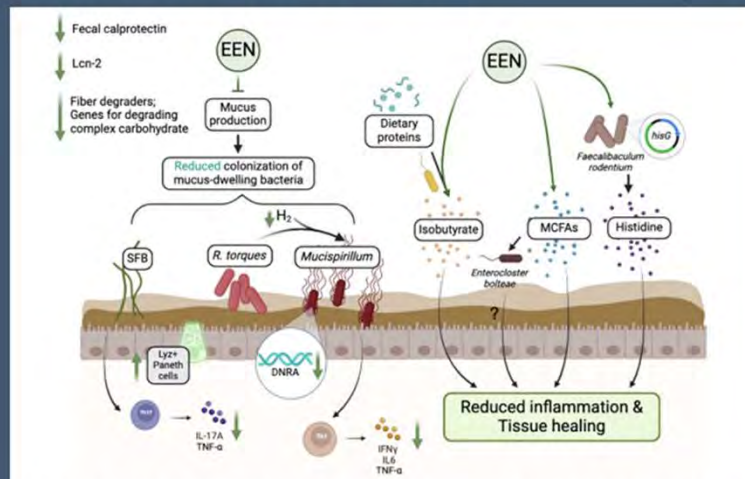


Fig. 2 Putative protective mechanisms of EEN through the modulation of gut microbiota and metabolites in mouse studies. An EEN-

Source: Krammel T, Nie J, Häcker D, Schwerdt T, Aguanon D, Haller D. Therapeutic mechanisms of exclusive enteral nutrition in Crohn's disease. *Semin Immunopathol.* 2025;47(1):28.

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AGA CLINICAL PRACTICE UPDATE ON DIET AND NUTRITIONAL THERAPIES IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: EXPERT REVIEW, 2024

"BEST PRACTICE ADVICE 1: Unless there is a contraindication, **all patients with IBD should be advised to follow a Mediterranean diet** rich in a variety of fresh fruits and vegetables, monounsaturated fats, complex carbohydrates, and lean proteins and **low in ultra processed foods**, added sugar, and salt for their overall health and general well-being."

<https://doi.org/10.1053/j.gastro.2023.11.303>

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WHAT ABOUT PROBIOTICS?



picture source

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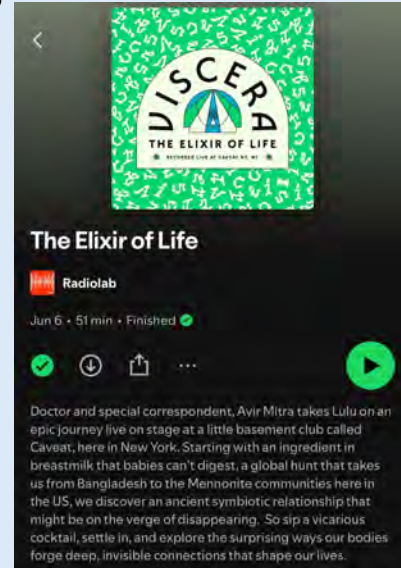
“You can’t out
supplement a bad diet”

Dr. Will Bulsiewicz,
Gastroenterologist
(and he owns a supplement company)

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ONE BIG CAVEAT FOR OUR SMALLEST PATIENTS: NECROTIZING ENTEROCOLITIS

Probiotics are showing impressive evidence in NEC prevention



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SOCIAL DETERMINANTS OF HEALTH AND FOOD ACCESS

- Food insecurity increases UPF consumption
- Food insecurity is more common among children with a chronic medical condition (doi:10.1001/jamanetworkopen.2025.33953)
- UPF consumption is greater among non-Hispanic whites or non-Hispanic blacks, those with less education, younger individuals, and lower-income strata (doi:10.1136/bmjopen-2017-020574)

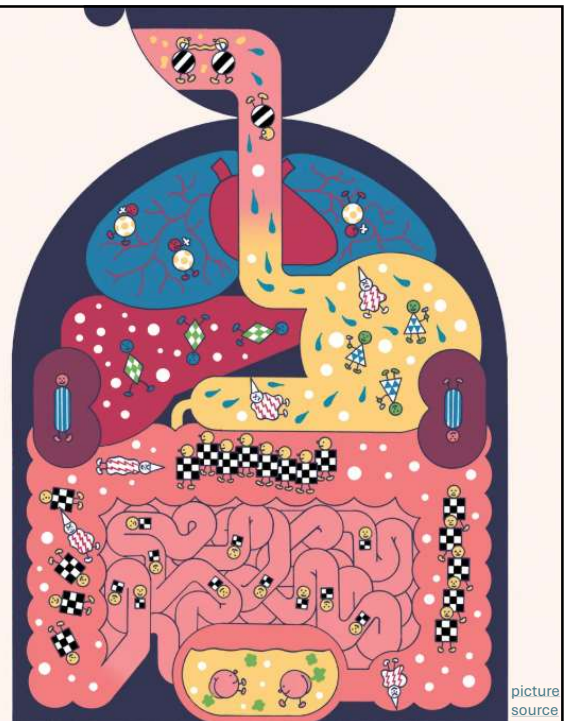
82

SOCIAL DETERMINANTS OF HEALTH AND FOOD ACCESS

- Food deserts make it difficult for people to access healthy food choices
- National food insecurity data needs to be collected
- WIC and SNAP need to be fully funded, expanded, and utilized

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NUTRITION RECOMMENDATIONS FOR A HEALTHY GUT MICROBIOME



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AAP's "ADVOCACY FOR IMPROVING NUTRITION IN THE FIRST 1000 DAYS TO SUPPORT CHILDHOOD DEVELOPMENT AND ADULT HEALTH"

"A role for the intestinal microbiome in brain development and behavior is supported by increasing evidence, and human milk and breastfeeding produce a microbiome with increased beneficial microbial communities"

<https://doi.org/10.1542/peds.2017-3716>

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AGA CLINICAL PRACTICE UPDATE ON DIET AND NUTRITIONAL THERAPIES IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: EXPERT REVIEW, 2024

"BEST PRACTICE ADVICE 12: Breastfeeding is associated with a lower risk for diagnosis of IBD during childhood. A healthy, balanced, Mediterranean diet rich in a variety of fruits and vegetables and decreased intake of ultra processed foods have been associated with a lower risk of developing IBD."

<https://doi.org/10.1053/j.gastro.2023.11.303>

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ESPEN GUIDELINE ON CLINICAL NUTRITION IN INFLAMMATORY BOWEL DISEASE, 2023

"Recommendation 1: A diet rich in fruit and vegetables, rich in n-3 fatty acids, and low in n-6 fatty acids is associated with a decreased risk of developing IBD and is therefore recommended."

<https://doi.org/10.1016/j.clnu.2022.12.004>

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ESPEN GUIDELINE ON CLINICAL NUTRITION IN INFLAMMATORY BOWEL DISEASE, 2023

"Recommendation 2: Ultra-processed food and dietary emulsifiers such as carboxymethylcellulose could be associated with an increased risk of IBD and, therefore, generally, such exclusions can be recommended."

<https://doi.org/10.1016/j.clnu.2022.12.004>

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BRIZA'S TIPS FOR EVERYONE:

- 🥄 Use olive oil as the primary oil to cook with
 - 🥄 canola oil is next best, more budget friendly
- 🥄 Have fruits and veggies as snacks in addition to at each meal
- 🥄 Think of meat as a spice to flavor a dish, not the main
- 🥄 Batch cook pasta, potatoes, rice to increase resistant starch
- 🥄 Make your own salad dressings
- 🥄 Begin to be thoughtful about the ingredients in foods you eat

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BRIZA'S TIPS FOR EVERYONE:

Be a food cheerleader

Encourage diverse diet

Recommend what TO EAT



picture source

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BRIZA'S TIPS FOR EVERYONE:

You don't have to eat perfectly every day



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Gut check:

Are we feeling okay?

Good news:
The gut microbiome
changes quickly, within
1-3 days of diet change



iStockphoto.com

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Thank you!

Questions?

Contact: yorkb@ohsu.edu

Avo good day.



picture source