

11 FOODS THAT **KILL** YOUR GUT



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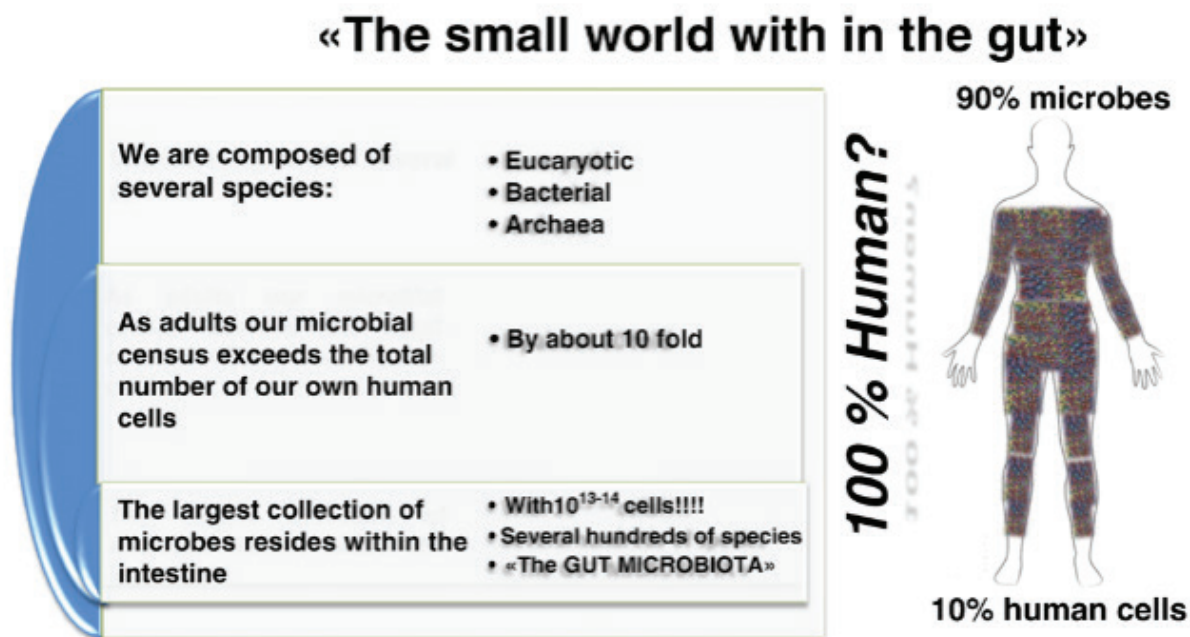
By Tim Skwiat, Pn2

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WHAT ARE PROBIOTICS?

According to the International Scientific Association for Probiotics and Prebiotics (ISAPP), probiotics are defined as “living microorganisms that, when administered in adequate amounts, confer a health benefit on the host.”¹

The digestive tract alone contains roughly 100 trillion bacteria. To put that into perspective, we have 10 trillion cells that make up our bodies. In other words, the bacterial ecosystem that makes us who we are outnumbers our cells on the order of 10 to 1. From a DNA perspective, the genes of the microbes that inhabit our bodies exceed the amount of human DNA we each have by a factor of 100.



Adapted from Cani PD, Delzenne NM. Pharmacol Ther. 2011;130(2):202-212.²

Building and maintaining a healthy gut flora—which involves optimizing the balance of “good” to “bad” bacteria—is critical to digestive system health and function, overall health, immune system function, mental health and wellbeing, metabolism and weight

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management, respiratory (i.e., lungs) and integumentary (i.e., skin) systems, and more. When the gut flora is at a healthy balance, it provides immense support to digestive function, immune system, metabolism, skin health, mental wellbeing, and more.

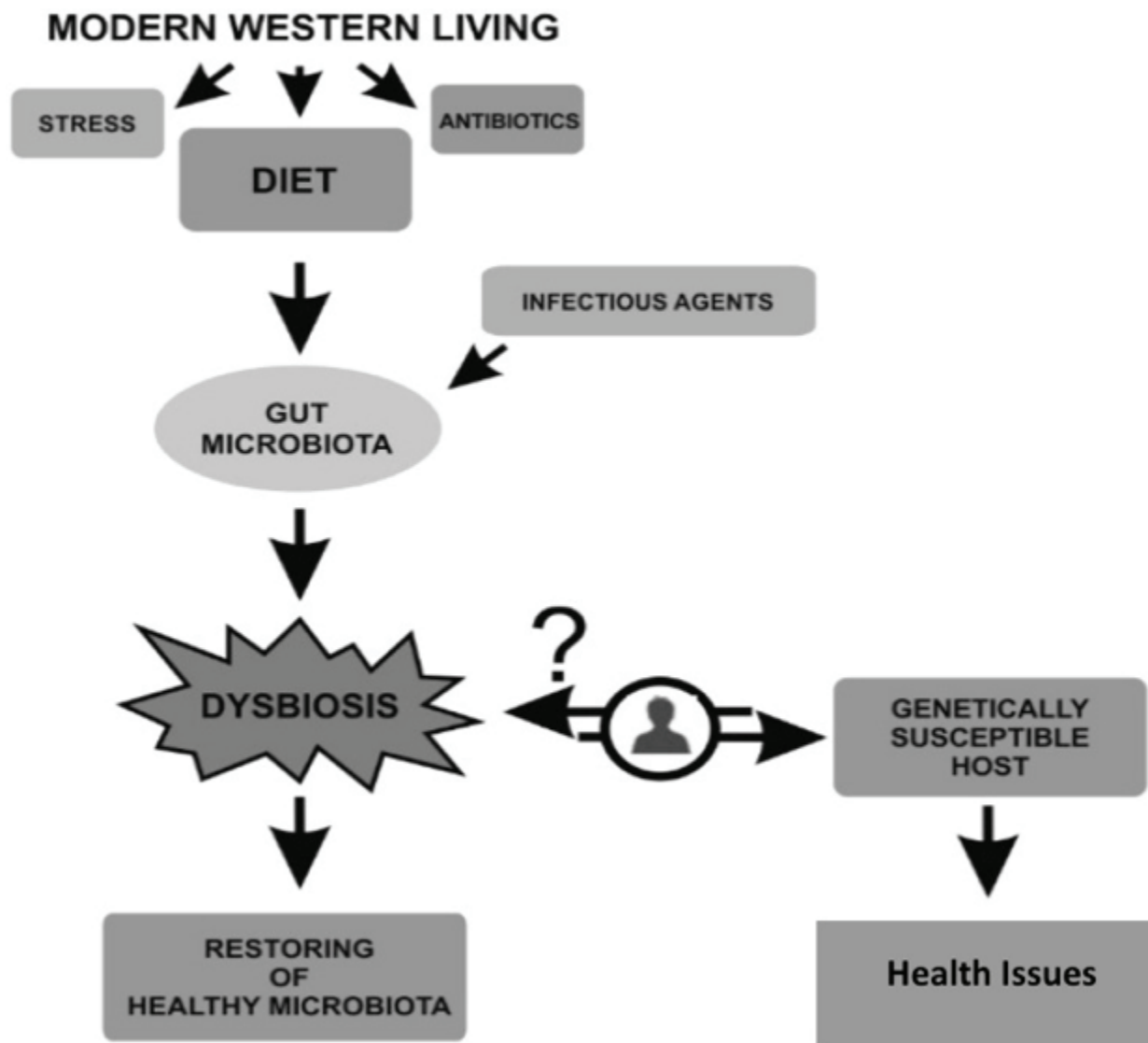
In fact, you may have heard of the gut being called the “second brain,” describing the connection between the gut and the brain (which influences satiety, food intake, regulation of glucose and fat metabolism, insulin secretion and sensitivity, bone metabolism, and more) as well as the fact that the gut houses its own entire nervous system called the enteric nervous system (ENS).³

However, when the gut is unbalanced and unhealthy, a number of issues can ensue. In fact, research suggests that having inadequate levels of healthy bacteria in your gut may contribute to over 170 different health issues, including weight gain and difficulty with weight management, as well as digestive-, skin-, and mental wellbeing-related issues. Along these lines, there are many common factors that can upset the balance of gut bacteria, including:

- Aging
- Environmental factors (e.g. pollutants)
- Food choices (e.g., artificial sweeteners⁴)
- Stress
- Medications (e.g., antibiotics⁵)
- Smoking

In other words, a modern lifestyle—characterized by poor food choices, stress, and antibiotics, as well as factors outside of your control like nutrient-depleted soil, environmental toxins, and pollutants—can wreak havoc on the gut flora. The great news is that there is a solution to an unhealthy gut, and you’re on the right track to begin restoring your gut health by supplementing with Pro-X10.

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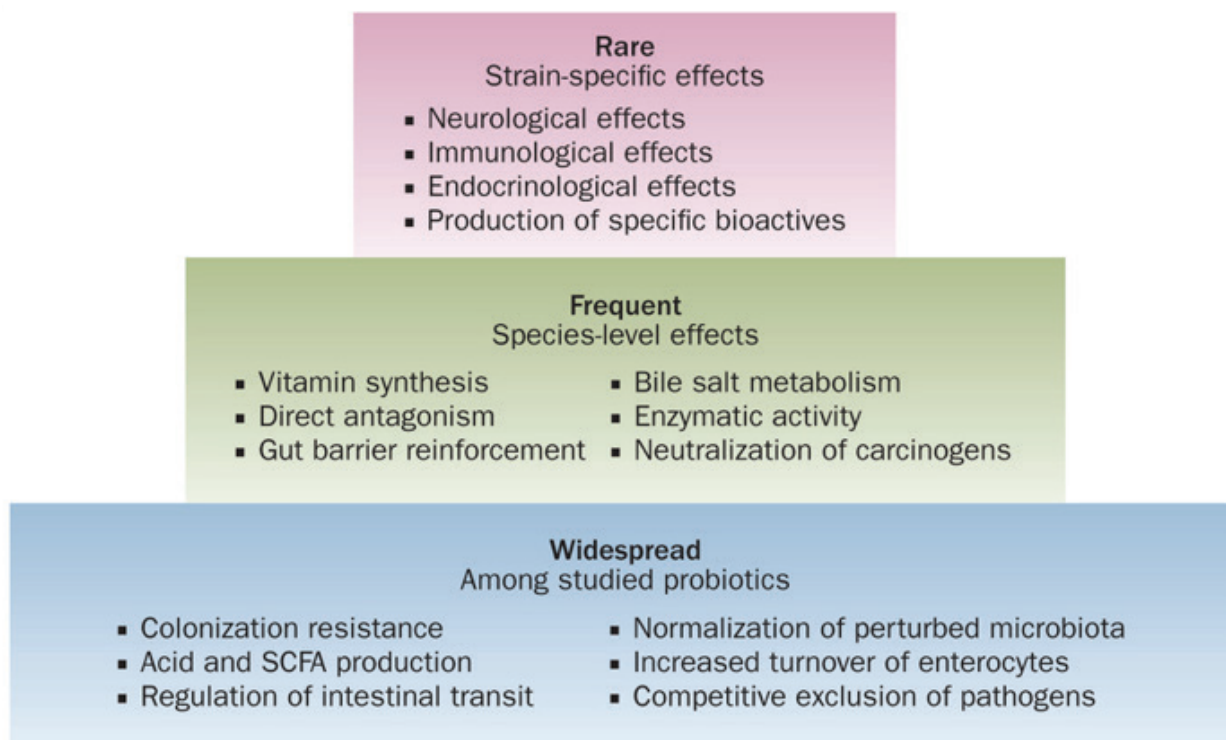
Adapted from Schippa S, Conte M. Nutrients. 2014;6(12):5786-5805.⁶

In the GI tract, probiotics serve a number of important functions, as they:

- Support a balance of healthy bacteria in the gut
- Keep pathogenic bacteria from settling and growing
- Help digest and absorb nutrients and support a healthy GI tract
- Help regulate and support a healthy immune system
- Produce key nutrients (e.g., B & K vitamins, short-chain fatty acids)
- Keep the system moving

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- Help metabolize chemicals and phytonutrients
- Synthesize polyamines
- Produce coagulation and growth factors
- Promote a healthy balance of cytokines
- Regulate secretion and use of intestinal mucus
- Help regulate blood flow to internal organs
- Provide gut barrier reinforcement



Adapted from Hill C, Guarner F, Reid G, et al.¹

A LESSON IN PROBIOLOGY

Symbiosis refers to a “mutually beneficial relationship between two different organisms living in close approximation.” Pertinent to the conversation on probiotics, humans have evolved intimate symbiotic relationships with gut microbes. In fact, human beings can be considered “superorganisms” as a result of their close symbiotic associations with

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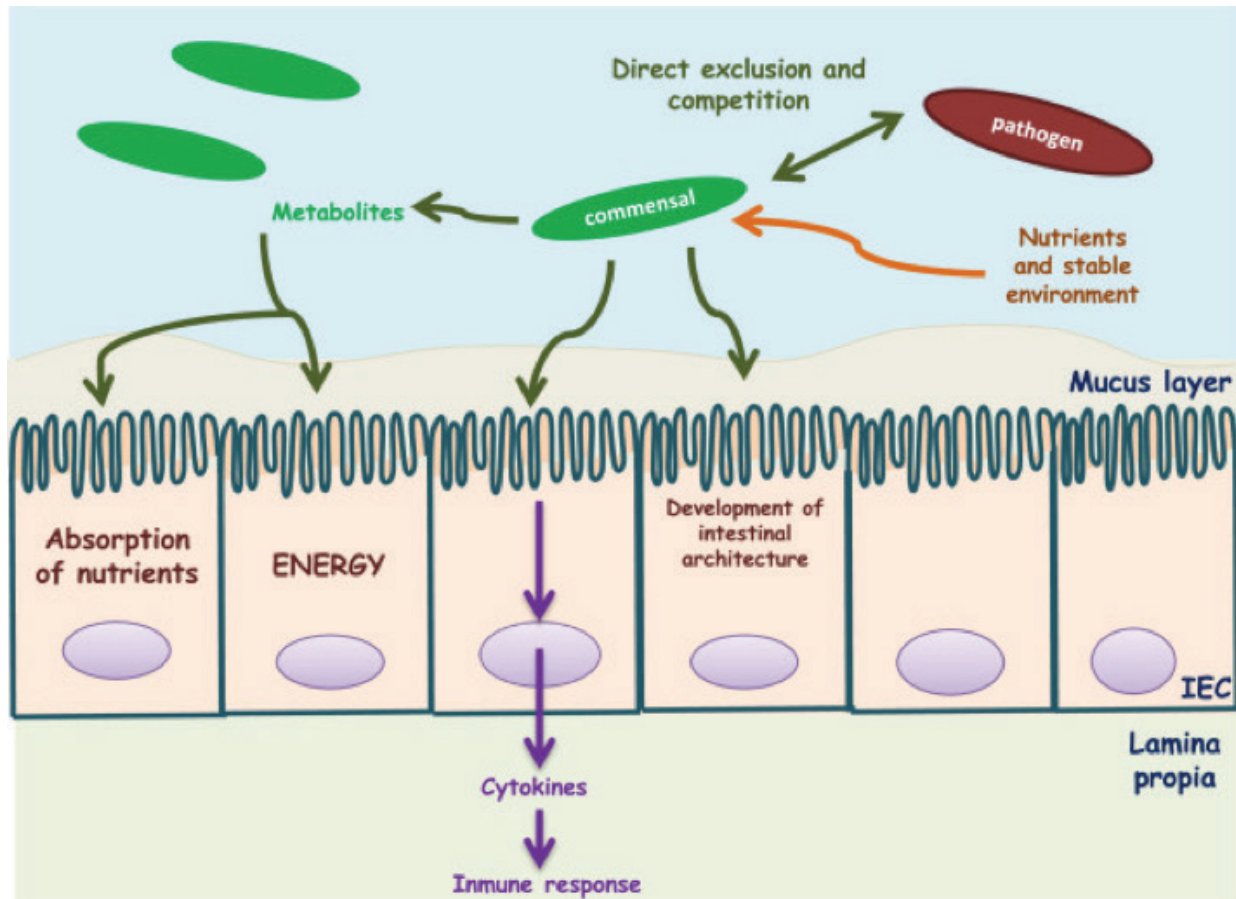
the gut microbiota.⁷ Optimal human health and homeostasis revolves heavily on this symbiotic relationship, which entails maintaining a healthy balance of bacteria in the gut.

Along these lines, **dysbiosis** refers to microbial imbalances on or within the body. In other words, dysbiosis describes the state of an unhealthy imbalance of bacteria in the gut flora, characterized by excessive levels of pathogenic bacteria, inadequate amounts of commensal and probiotic bacteria, and/or reduced bacterial diversity. Fundamentally, gut dysbiosis destroys the symbiotic relationship between humans and microbes; in fact, gut dysbiosis has been linked to numerous human health issues, including **obesity**.^{6,8–12}

This leads us to why probiotics are critical to restoring gut health and fortifying the gut microbiome. By their very definition, probiotics are non-pathogenic, healthy bacteria that confer a clear beneficial effect on the host (i.e., humans). Supplementation with these commensal bacteria—which supply essential nutrients and defend against pathogens—helps restore a normal, healthy microbiome. Beyond restorative and reactive measures, probiotics help to prevent a normal, healthy individual from acquiring dysbiosis in the future.

In both cases, probiotics promote **probiosis** (i.e., an association of two organisms that enhances the life processes of both) and support and fortify the symbiotic relationship between humans and gut microbes.

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The symbiotic relationship between humans and gut bacteria. Commensal bacteria supply the host with essential nutrients and defend the host against opportunistic pathogens. They are involved in the development of the intestinal architecture and immunomodulatory processes (i.e., healthy immune system function). On the other hand, the host provides the bacteria with nutrients and a stable environment.¹³

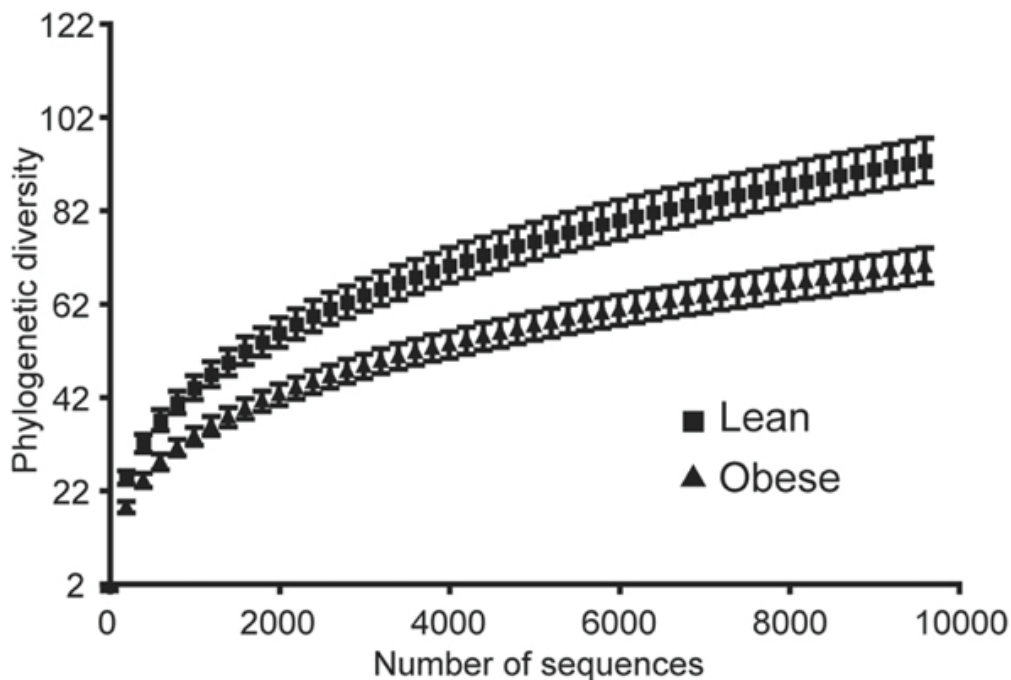
PROBIOTICS AND WEIGHT MANAGEMENT

With regard to weight management, the evidence that gut bacteria contribute to energy balance is so strong that Dr. Patrice Cani and her colleagues at the Metabolism and Nutrition Research Group in Belgium have coined the term “MicrObesity” to describe the relationship between gut “dysbiosis” and obesity.²

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Among the many fascinating discoveries that researchers have found connecting gut microbiome to weight management include:

- A research team led by Dr. Jeffrey Gordon at the Washington University School of Medicine showed that obese and lean human twins have clear differences in their gut microbial communities. Most notably, the gut flora in obese twins contains less diverse bacterial species.^{11,13}
- Not only that, Dr. Gordon and his research team demonstrated that when fecal material (rich in gut bacteria) from an obese human is transplanted into the gut of a healthy lab rat, the animal will gain a significant amount of weight despite the fact that its diet remains unchanged.¹³
- In a study performed at the Obesity, Metabolism & Nutritional Institute at Massachusetts General Hospital, researchers found that changes in the gut flora are partially responsible for the weight loss and reduced body fat following gastric bypass surgery.¹⁴
- Gut dysbiosis can *increase* the number of calories you absorb from food.¹⁰



This graph depicts the reduced bacterial diversity found in obese (compared to lean) individuals.¹¹

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With that in mind, taking steps to improve the balance of healthy gut bacteria—including the use of probiotics to support and fortify the symbiotic relationship between humans and gut microbes and dealing with dysbiosis—has tremendous implications for reducing body fat and optimizing weight management.

WHAT DOES THIS MEAN FOR YOU?

Building and maintaining a healthy gut flora—which involves optimizing the balance of “good” to “bad” bacteria—is critical to digestive system health and function, overall health, immune system function, mental health and wellbeing, metabolism and weight management, respiratory (i.e., lungs) and integumentary (i.e., skin) systems, and more. When the gut flora is at a healthy balance, it provides immense support to digestive system and immune system function, metabolism, skin health, mental wellbeing, and more.

With that in mind, we consider Pro-X10, our advanced probiotic and GI health formula, “foundational” for nearly everyone to support optimal levels of probiotics, establish and maintain a healthy balance of bacteria in the gut, promote a healthy digestive system, and support a robust immune system. Along with probiotic supplementation, you can also fortify your gut by eating plenty of traditionally fermented foods:

- Kefir, yogurt
- Sauerkraut, pickles, and other properly fermented vegetables
- Miso, tempeh
- Kombucha
- Red wine

Establishing a healthy gut microbiome is a balance between what’s there and what’s not there. Along those lines, it’s also advised to be mindful of and reduce exposure to the controllable factors (e.g., diet, stress, medications) that may negatively impact the composition of the microflora, gut health, and every other aspect of human health and function mentioned above.

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In particular, the food choices that you make can have a tremendous impact on the state of your gut health, and in this report, we're going to explore some of the top foods, ingredients, and chemicals that contribute to dysbiosis and to destroying gut health.

Before we delve in, we feel that it's important to remind you that, in the grand scheme of things, looking, feeling, and performing your best are all contingent on your entire body of "nutrition work"—not an individual food or single meal. In other words, there's no "magic bullet." Instead of viewing foods in isolation as "good" or "bad," think about weight management and "deep health" as the product of practicing healthy eating habits, creating a positive food environment, and choosing high-quality, nutritious foods in appropriate amounts relative to your goals and activity levels **regularly** and **consistently** over time. Good nutrition takes practice, and just like getting better and mastering anything in life, it's about progress—not perfection.

Start where you are and make small changes that you are ready, willing, and able to take on; focus on **mastering** those new behaviors one step at a time. With that being said, let's get to it!

PROBABLE SUSPECTS

While we'll cover specific categories of foods that may contribute to gut dysbiosis and declining gut health, it may first be very helpful to cover some of the "probable suspects" that can negatively influence gut health.

When it comes to **artificial sweeteners**, what good news *have* you heard about them recently? Emerging evidence suggests that they may have a negative effect on the gut microbiome. In a study published in the *Journal of Toxicology and Environmental Health*, Duke University researchers found that consumption of the artificial sweetener sucralose for 12 weeks altered the gut microbiome in rats by significantly reducing the amount of good bacteria (i.e., probiotics). Even after a 12-week recovery period, the number of beneficial microbes still remained significantly depressed.⁴

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In a recent study published in the journal *Nature*, a team of researchers led by Dr. Eran Elinav from the Weizmann Institute of Science in Israel found that humans fed a commonly-used artificial sweetener (i.e., saccharin) for JUST 5 days demonstrated significant reductions in carbohydrate tolerance (i.e., glucose intolerance), as well as significant changes in the composition and function of their gut microbiome (i.e., gut dysbiosis).¹⁵

This research is very important for numerous reasons. With regard to weight management, we've highlighted some of the important connections between the gut microbiome, bacterial diversity, and obesity in the section titled *Probiotics and Weight Management* above. In addition to those fascinating findings, research has even shown that **gut dysbiosis can increase the number of calories you absorb from food.**¹⁰

While **gluten** may not be the devil that some make it out to be, the research from Dr. Alessio Fasano, one of the world's leading researchers and experts in the area of gluten sensitivity, has also shown that gluten contributes to **intestinal permeability**, more commonly known as "**leaky gut**"; in fact, Dr. Fasano's work has shown that, after gluten exposure, intestinal permeability increases in all individuals—not just those with gluten sensitivity.¹⁶

Gluten is one of the most potent stimuli that can trigger the body to release a protein called *zonulin*, which "loosens" the normally "tight" junctions of the cells that line the intestinal tract.¹⁷ This increase in intestinal permeability can lead to undigested proteins entering the blood stream, triggering an immune response from the body that may be associated with a wide range of symptoms (some acute, some chronic and appearing long after the culprit food is ingested).¹⁸

- Autoimmune flare-ups (e.g., joint pain/inflammation, thyroiditis)
- Skin inflammation (e.g., eczema, acne, hives)
- Respiratory inflammation (e.g., mucus, sniffles, sinusitis)
- GI irritation (e.g., constipation, diarrhea, cramping)
- Gas, bloating, flatulence

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- Headaches, migraines
- Mood issues, depression, brain fog
- Difficulty with weight management
- Menstrual cycle disruptions

[Note: This list applies to any food sensitivity, not just gluten. More on food sensitivities and likely offenders below.]

Again, this is not to say that everyone has to avoid gluten-containing foods or other plant-based foods with similar hard-to-digest proteins (e.g., prolamins, glycoproteins), which includes foods that most would consider healthy like oatmeal, quinoa, and corn. However, this is something to consider for anyone who may be looking to optimize gut health and/or experiencing any of the issues above.

While gluten is highlighted above, the fact of the matter is that **any food sensitivity** could potentially contribute to declining gut health through activation of the immune system and unhealthy levels of inflammation. While not everyone has food sensitivities, there are some likely offenders, including grains (e.g., wheat), soy, dairy, shellfish, FODMAP-containing foods, nightshades, and histamine-containing foods.

As mentioned above, this does not mean that everyone needs to avoid these foods. Rather, this is simply meant to raise awareness that a variety of foods—even foods that are frequently viewed as healthy—may be an issue for some folks. While consuming a diet of whole, minimally-processed foods is a huge step in the right direction, a more personalized approach may be necessary for some people, and that involves identifying and eliminating suspect foods.

Since we mentioned **leaky gut** above, it may be worth expanding on a bit more. In addition to allowing systemic access to food antigens (e.g., gliadin in gluten), a more porous intestinal barrier also increases permeability to **environmental toxins** like **polychlorinated biphenyls (PCBs)**, which can further compromise the integrity of the intestinal lining and disrupt the integrity of the blood-brain barrier.^{19,20}

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Even more, exposure to PCBs may negatively influence memory and learning as well as be an independent risk factor for depressive symptoms.²¹ Numerous studies have found connections between PCBs and multiple adverse human health outcomes including reproductive, developmental, immunologic, and neurologic effects.²⁰

While PCBs, commercially produced toxicants, have been banned since the late 1970s, environmental exposure to PCBs is ongoing as a result of continued use and disposal of products containing these toxicants, widespread bioaccumulation of PCBs in the atmosphere, and bioconcentration in the food chain.^{22,23} Fish, meat, dairy, and eggs are the primary dietary sources of PCB exposure for most adults and account for consistent PCB accumulation within human tissues.^{23,24}

The good news is that probiotics from the *Bifidobacterium* and *Lactobacillus* families have been shown to reduce the absorption of environmental toxins by facilitating their removal (i.e., excretion) from the GI tract.²⁵ Thus, researchers have concluded that probiotics may suppress the adverse effects of environmental toxins on human health.

Leaky gut also leads to increased exposure to **lipopolysaccharide (LPS)**, which is a component of the cell walls of the “bad” (pathogenic) bacteria that reside in the gut.²⁶ LPS, which is essentially secreted by the pathogenic bacteria in the body, is considered an endotoxin. When LPS is absorbed into the circulation, it induces a systemic inflammatory response, and there are a number of potential negative health outcomes associated with excess levels of LPS.

For instance, these endotoxins can increase the body’s production of ghrelin, which is an important appetite-stimulating hormone.²⁷ What’s more, these endotoxins can result in decreases in neurotransmitters like serotonin.²⁸ Serotonin is a “feel-good” neurotransmitter that soothes, calms, and reduces anxiety, and it is heavily involved with food intake and carbohydrate cravings. For instance, refined sugars and starches result in a rush of serotonin.²⁹

Serotonin plays a crucial role in the regulation of appetite and satiety, as it acts in both

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the brain and the gut to induce feelings of fullness and satisfaction.^{30,31} In fact, serotonin works opposite of ghrelin. That's right, while high levels of ghrelin stimulate appetite, high levels of serotonin induce satiety and reduce appetite.

This is all important to note because, just like healthy bacteria require prebiotics to thrive and proliferate, pathogenic bacteria also require nutrients for their survival. Not surprisingly, these “bad” bacteria tend to thrive on “unhealthy” foods like **sugar**. That's right, **sugar cravings and overeating junk food can actually be a sign that your gut microflora is out of balance.**

The potential ability of microbes to control eating behaviors is so profound, in fact, that one group of researchers called them “microscopic puppetmasters.” That's right, microbes may be able to affect reward pathways, alter mood, change taste receptors, and even hijack key neurotransmitters that impact appetite.³² This once again highlights the importance of *probiosis* and a *symbiotic* relationship between us and our gut microbes.

Under the umbrella of sugar, **fructose** has been shown increase LPS by 40%.³³ Given the massive rise in **high-fructose corn syrup** (HFCS) consumption, which now represents 42% of all caloric sweeteners, it's very important to highlight the direct microbial influence that fructose appears to have.³⁴ Generally speaking, HFCS is 55% fructose and 45% glucose. Table sugar (which often goes by the name ‘sucrose’) is not a far cry from that: 50% fructose and 50% glucose.

Once again, there's good news. A number of studies, including randomized control trials, have shown that **probiotics significantly decrease LPS** concentrations in the gut.^{35,36} But that's not all. Research has also shown that probiotics, from both the *Lactobacillus* and *Bifidobacterium* families, help **prevent intestinal permeability** (i.e., “leaky gut”).³⁶

You may be wondering about fruit, which is a naturally-occurring source of fructose. Whole fruits (and vegetables) contain both fiber and antioxidant phytonutrients (most notably, polyphenols), which have both been shown to exert beneficial effects on the gut microbiota, including promoting the growth of probiotics from the *Lactobacillus* and

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Bifidobacterium families.^{36,37}

The types of fat that you eat can also heavily impact your gut health. Experts estimate that throughout human history the optimal ratio for consumption of omega-6 fatty acids (e.g., linoleic acid) to omega-3 fatty acids (e.g., alpha linolenic acid, DHA, EPA) was about 1:1. With the contemporary diet, this ratio has shifted dramatically in favor omega-6 fatty acids to 20:1.³⁸

Researchers attribute this imbalanced intake of omega fatty acids to an increase in virtually all inflammation-related conditions including mood disorders, mental illnesses, obesity, and cardiovascular disease.³⁹ As it pertains to the present discussion, **excessive omega-6 fatty acid consumption** is also associated with multiple inflammation-related gut issues including irritable bowel syndrome (IBS) and inflammatory bowel disease (e.g., Crohn's disease, ulcerative colitis).^{40,41}

That's right, despite the fact that we've been fed the advice to opt for refined vegetable oils rich in omega-6 polyunsaturated fatty acids for the past half century, research now shows that this advice is misguided, leading to increased rates of death from all causes, coronary heart disease, and cardiovascular disease. As mentioned above, this misguidance appears to play a major role in the development of inflammatory bowel disease (IBD).⁴²⁻⁴⁵

While there are multiple explanations for this heavy imbalance of omega fatty acids—including a decrease in omega-3 fatty acid consumption from freshwater fish—researchers attribute this in large part to the ubiquity of **refined vegetable oils** (e.g., soybean, safflower, sunflower, and corn oil) present in the Western diet.⁴⁶ It's not just the vegetable oils found rampant in processed foods. Also contributing to the omega imbalance is the consumption of meat from **farm animals raised on oil seeds rich in omega-6 fats** (e.g., corn, soy).^{46,47}

Research has shown that high omega-6 fatty acid intake leads to significant increases in several types of pathogenic bacteria that promote inflammation.⁴⁸ In other words,

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omega-6 fats may directly affect the microbiota by inducing dysbiosis. Not only that, researchers found that mice fed a diet high in corn oil (i.e., omega-6 fatty acids) showed excessive intestinal barrier damage. However, they also found that supplementation with omega-3 fats (e.g., fish oil) protected against intestinal permeability. What's more, not only did the fish oil help prevent dysbiosis, it also enriched the gut with beneficial microbes from the *Lactobacillus* and *Bifidobacterium* families.

Speaking of omega-3 fats, researchers have found that an omega-3 deficient diet increases **small intestinal bacterial overgrowth** (SIBO).⁴⁹ This is an important finding, as there are a number of adverse outcomes common with SIBO including bloating, diarrhea, abdominal discomfort, malabsorption, malnutrition, and difficulty with weight management, and SIBO is a hallmark of a number of gut-related issues including IBS and IBD.⁵⁰

An interesting side note that pertains to SIBO is that the use of **proton pump inhibitors** (PPI)—which are commonly referred to as “acid reducers” and are frequently used to treat heartburn—are an independent risk factor for SIBO and fungal overgrowth (i.e., *Candida*).^{51,52} You see, the body's secretion of gastric acid (i.e., stomach acid) is a defense mechanism for preventing the overgrowth of pathogenic bacteria in the stomach and small intestine. However, by inhibiting the body's gastric acid production, PPI may facilitate the survival and colonization of pathogenic bacteria. Not good, especially considering that SIBO may enhance intestinal permeability and promote increases in LPS (i.e., endotoxemia).⁵³

Further, diets that are rich in omega-3 fats may have a beneficial influence on the intestinal barrier and limit the detrimental effects of LPS, particularly when compared with diets that are rich in saturated fats.⁵⁴ In other words, diets disproportionately high in **saturated fats** may negatively influence the intestinal barrier (i.e., leaky gut) and lead to increased concentrations of LPS, particularly when combined with a high sugar (e.g., fructose) intake.

In one recent crossover study published in the journal *Gastroenterology*, researchers

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from The Rockefeller University in New York found that after just one month of following a **Western-style diet** (a high-fat—particularly high in saturated fat—and high-carb intake) participants experienced a whopping 71% increase in blood levels of LPS.⁵⁵ On the contrary, the same participants experienced a 38% *decrease* in LPS endotoxin levels after following a more “prudent-style” diet (i.e., moderate-fat, low saturated fat, high-fiber).

Speaking generally, a “Western-style” diet is characterized by highly processed and refined foods and particularly high contents of sugars, fat, and salt.⁵⁶ Another distinctive feature of the Western-style diet is the consumption of **trans fatty acids** (i.e., *trans* fats), the result of frequent consumption of processed and “fast” foods. Altogether, a Western-style diet has been connected to an increase in inflammatory autoimmune conditions including IBD—not to mention leaky gut.^{57,58}

While it’s beyond the scope of this report to fully discuss the negative health outcomes associated with the intake of *trans* fatty acids—a significant risk factor for cardiovascular disease, inflammation, insulin resistance, obesity, endothelial dysfunction, and an unfavorable blood lipid profile (e.g., cholesterol, triglycerides)—researchers have found that consumption of trans fats can negatively impact the gut microbiota (i.e., more pathogenic bacteria, fewer beneficial microbes). This shift toward gut dysbiosis results in an increase in pathogenic bacteria rich in LPS; thus, it’s not surprising that this results in a significant increase LPS levels.⁵⁹

One additional probable suspect to mention is **alcohol**. As is typically the case when discussing alcohol, it’s not as cut and dry as some of the other factors discussed above—say, for instance, *trans* fatty acids.

For example, in a recent study published in the *American Journal of Clinical Nutrition*, researchers from Spain found that daily consumption of red wine for 4 weeks significantly increased the amount of beneficial microbes (e.g., *Enterococcus*, *Prevotella*, *Bacteroides*, *Bifidobacterium*, *Bacteroides uniformis*, *Eggerthella lenta*, and *Blautia coccoides*–*Eubacterium rectale*) in healthy human participants. The researchers

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attributed this to the prebiotic-like effects of the polyphenols found in wine (much like those antioxidant phytonutrients in fruit mentioned above).

In a recent study published in the journal *Science*, a group of researchers led by Professor Jeroen Roes of the University of Leuven in Belgium discovered that beer intake had a key positive influence on the composition of the gut microbiota among a group of nearly 4,000 participants.⁶⁰ Like red wine, beer contains polyphenols (e.g., xanthohumol) that may stimulate the growth of beneficial bacteria and inhibit pathogen bacteria, exerting prebiotic-like effects.^{61–63}

While moderate consumption of certain types of beverages containing alcohol may have a beneficial effect on the gut microbiota, as with most things alcohol-related, when alcohol consumption is excessive, problems arise. For instance, excessive alcohol consumption may contribute to dysbiosis, leaky gut, SIBO, and high levels of the endotoxin LPS.^{64–66} The relationship between excessive alcohol consumption and the gut microbiota is so strong, in fact, emerging research suggests that the gut microbiome may be a target for the treatment of alcoholic liver disease.⁶⁷

While there's an awful lot of information covered in the above section, the following is a list of "probable suspects" that appear to contribute to gut dysbiosis, poor gut health, leaky gut, excessive levels of endotoxins (i.e., LPS), and SIBO:

- Artificial sweeteners
- Gluten
- Food sensitivities (e.g., wheat and other grains, soy, dairy, shellfish, FODMAP-containing foods, nightshades, and histamine-containing foods)
- Environmental toxins (e.g., PCBs)
- Sugar, especially fructose and high-fructose corn syrup
- Refined vegetable oils (i.e., excessive omega-6 fatty acid consumption)
- Meat from farm animals raised on commodities rich in omega-6 fats (e.g., corn, soy)
- Western-style diet, which is characterized by highly processed and refined foods

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and particularly high contents of sugars, fat, and salt

- *Trans* fatty acids, which are also characteristic of a Western-style diet
- Excessive alcohol consumption

PUTTING IT ALL TOGETHER

Based on the above section, you may already have an idea of what types of foods that you'd be best off avoiding—or limiting—in order to optimize your gut flora and gut health. However, we won't leave you hanging, and we want to help provide you with some actionable steps that you can begin to take right away. With that in mind, here are some foods and categories of products that are some of the most common sources of the “gut offenders.”

1. Regular and Diet Sodas, Energy Drinks, and Juices

Obviously, regular sodas are a concentrated source of sugar, often high-fructose corn syrup, and as a result, they fit the bill for this list of gut offenders. What may not be as obvious is that researchers also tend to include fruit juice in the same category as soda, called sugar-sweetened beverages (SSB). Also in this category is energy drinks.

SSB have been linked to weight gain, diabetes, metabolic syndrome, and dental caries (i.e., cavities).^{68–75} Studies have shown that excess consumption of fruit juice is associated with higher calorie intakes, weight gain, and the development of cavities.^{76–79} Despite the fact that observational



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studies have shown a decrease in sugar consumption and SSB intake in the US (but not globally, where intake of SSBs has been on the rise), SSBs continue to be the largest contributor to added sugar and top sources of calories in the US diet.⁸⁰ It's been estimated that Americans consume, on average, over 75 grams of added sugar (that's over 18 teaspoons, or 6 tablespoons) per day, making up 15% or more of total daily caloric intake.

That's appalling. So much so, in fact, that the editors of the journal *Public Health Nutrition* went so far as to call SSBs the “dietary version of the cigarette.”⁸¹ SSB consumption has become such an issue of public concern that one popular option that has been discussed in peer-reviewed research is imposing an excise tax on SSBs. In a systemic review with meta-analysis (i.e., a comprehensive statistical review of all articles published on a specific topic meeting criteria), researchers from South Africa found that taxing SSBs may reduce their consumption and lead to lower rates of obesity and overweight.⁸²

This category also includes diet sodas and energy drinks as well as “low-calorie” drinks (e.g., tea, juices, cocktails), which are frequently sweetened with artificial sweeteners along with or in place of sugar.

2. Fried Foods and “Fast” Food

Many restaurants use partially hydrogenated oils when they fry foods because these types of oils, which are the major dietary source of industrial-produced trans fats, can be used many times in commercial fryers.

If you're not completely familiar with *trans* fatty acids, a good starting point is the recent



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determination by the United States Food and Drug Administration (FDA) that partially hydrogenated oils are **not safe for human consumption**.⁸³ Nutritionally speaking, trans fatty acids serve no purpose, and as Erin Russell, Assistant Editor of the *Canadian Medical Association Journal*, puts it, “Partially hydrogenated oils are entirely artificial and would not be in our food supply if they weren’t economically attractive to the food industry.”⁸⁴

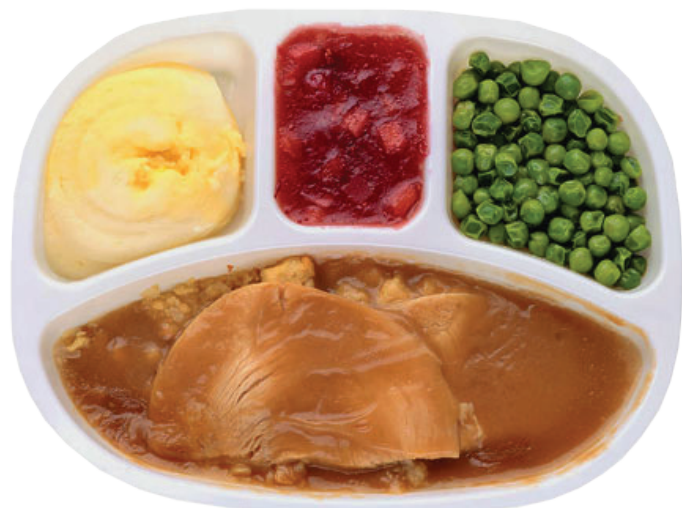
Why are partially hydrogenated oils so attractive to the food industry? Production of partially hydrogenated vegetable oils (like those mentioned above) was developed because of low cost, long shelf life, and suitability for commercial frying and transport.⁸⁵

In addition to their *trans* fat content, fried foods and “fast” foods are distinct components of the very Western-style diet that was described above as having a major negative impact on gut health. These foods tend to be high in both fat and heavily processed, refined carbohydrates (e.g., flour, sugar) as well as salt.

3. Frozen “Weight Loss” Meals and “Diet” Foods

This is a rather broad category that encompasses many food products that are often marketed as healthy including frozen dinners, ready-to-drink diet shakes, meal replacement bars, calorie-control snack packs, soups, and more.

This is not to label all products in this category as gut offenders; however, it’s important to check the ingredient labels to look for the litany of probable suspects including:



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- *Trans* fats (i.e., partially hydrogenated vegetable oils)
- Refined vegetable oils (e.g., soybean, corn, canola, safflower, sunflower oils)
- Added sugar (e.g., high-fructose corn syrup, corn syrup)
- Potential food sensitivities (e.g., gluten, soy protein)
- Artificial sweeteners (e.g. sucralose, aspartame, acesulfame K, saccharin)

If you do a little investigating, you may be shocked at how many offending ingredients you'll find on the ingredients list.

4. Farmed Salmon

With an understanding and appreciation of the significance of balancing omega-6 and omega-3 acids, it's now time to break the news as to why farmed salmon may be such an inferior option compared to its wild-caught counterpart. Because farmed salmon are typically fed commodities like soy and corn, which have much higher concentrations of omega-6 fats compared to omega-3 fats, the fatty acid profiles of the salmon change markedly relative to wild-caught salmon, which feed on other omega-3-rich fish (e.g., sardines, anchovies) lower on the food chain.



The ratio of omega-3 to omega-6 fats (i.e., more omega-3 fats, fewer omega-6 fats) in wild-caught salmon is upwards of 266% higher than that of farmed salmon, which is lower in omega-3 and higher in omega-6 content.⁸⁶ But that's not all; farmed salmon also contain high concentrations of potentially environmental contaminants including PCBs, dioxins, chlorinated pesticides. Hmmm...fewer omega-3 fatty acids and more omega-6 fatty acids and contaminants; how does that sound to you? Not very good to us either.

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5. Meat from Feedlot Animals

Perhaps you've heard the saying, "You are what you eat"; well, that extends to "You are what you eat ate." In other words, the food fed to the animals (e.g., cattle) that you consume has a direct impact on its nutrition content. Considering that corn and soy are a staples of animal feed, there are similar concerns with meat and dairy from grain-fed animals as there are with farmed salmon.

In other words, not all meat and dairy is created equally. Depending on the breed of cow, grass-fed beef contains up to 5 times more omega-3 fatty acids than grain-fed beef.⁸⁷ The average ratio of omega-6 to omega-3 fatty acids in grass-fed beef is 1.5:1, which is much closer to what's often considered "ideal." On the contrary, this ratio jumps all the way up to nearly 8:1 in beef from grain-fed cows.



6. Non-Organic Dairy

Similar differences in fatty acid profiles are noted in organic dairy from pasture-raised (i.e., grass-fed) cows compared to those that are fed substantial quantities of grains, particularly corn.^{88–91} In one study published in the journal *PLOS One*, researchers from the United States and United Kingdom compared samples of dairy from organic (i.e., pasture-raised) versus conventional (i.e., grain/corn-fed) cows, and they found that organic dairy (e.g., milk, yogurt, butter) contains:⁹²



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- 25% fewer omega-6 fatty acids
- 62% more omega-3 fatty acids
- 2.5 times lower omega-6 to omega-3 fatty acid ratio, which is much closer to what's considered to be “optimal”
- 32% more EPA and 19% more DHA, which are two omega-3 fatty acids crucial for nervous system function, cardiovascular health, pain management, hormonal regulation, body composition, feelings of wellbeing, and more

In a previous section, we reported that in addition to fish, meat and dairy are two of the primary sources of dietary PCB exposure. Unfortunately, the research shows that PCBs are found in both conventional and organic forms of dairy as the amount depends largely on environmental and soil conditions.^{93–95} Interestingly—but not surprisingly—omega-3 enriched dairy may be higher in organic pollutants (e.g., PCBs) as these products are usually fortified with fish oils that may be contaminated.⁹⁶

While this section covers all non-organic dairy, it may be worth highlighting “light” and “fat-free” flavored yogurts, which tend to also contain added sugar (e.g., fructose, high-fructose corn syrup) and/or artificial sweeteners.

7. Store-Bought Salad Dressings, Sauces, and Condiments

Store-bought salad dressings are one of the most common sources of refined vegetable oils (e.g., soybean, corn, canola, safflower, sunflower oils), which heavily contribute to excessive omega-6 fatty acid consumption. In addition to salad dressings, mayonnaise is another offender that is often a concentrated source of these oils, particularly soybean oil.



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This category also extends to various store-bought sauces and condiments, which frequently contain refined vegetable oils, added sugar (often in the form of high-fructose corn syrup), and *trans* fats. Be wary of “low-calorie,” “reduced sugar,” or “sugar-free” products in this category as well; it’s quite possible that the added sugar has been replaced by artificial sweeteners.

8. Sugar-Free Chewing Gums and Mints

These breath-freshening products may seem harmless, but they can be a hidden source of artificial sweeteners. Used in small amounts, they are likely not to pose a tremendous problem; however, it’s important to be mindful of them and their ingredients.



9. Breakfast Cereals, Breads, and Granola Bars

This is a category that includes foods that are often masquerading as healthy. While they may not be the devil that some zealots may make them out to be, they do tend to contain many of the ingredients that have been rattled off as common gut offenders including:



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- Heavily processed and refined carbohydrates like flours and added sugars
- Potential food sensitivities (e.g., gluten, soy)
- Refined vegetable oils
- *Trans* fats
- Artificial sweeteners

This category of foods falls directly in line with what would be expected of a traditional Western-style diet.

This is not to say that grains are evil or that everyone needs to avoid them all the time. Rather, it's best to choose whole, minimally processed, intact grains (rather than foods made from processed flours), including whole or steel-cut oats; wild, brown, or red rice; quinoa, amaranth, or buckwheat groats; sprouted grains; kamut or spelt grains; maize; millet; and barley.

10. Junk Foods and Snack Foods

This is another broad category that includes cookies, chips, crackers, baked goods, snack packs, and more. Much like the “weight loss” and “diet” foods category discussed above, there may be any number of probable suspects in these foods:

- *Trans* fats (i.e., partially hydrogenated vegetable oils)
- Refined vegetable oils (e.g., soybean, corn, canola, safflower, sunflower oils)
- Added sugar (e.g., high-fructose corn syrup, corn syrup)
- Potential food sensitivities (e.g., gluten, soy protein)
- Artificial sweeteners (e.g. sucralose, aspartame, acesulfame K, saccharin)



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Junk foods marketed as “low-calorie” or “sugar-free” may also contain artificial sweeteners—not to mention refined vegetable oils and even *trans* fats. Thus, it’s important to read food labels. Truth be told, when in doubt, it’s best to limit your consumption of “foods” that fit under this umbrella.

11. Excessive Alcohol and Sugary Alcoholic Drinks

In the *Probable Suspects* section, we discussed the potential deteriorating effects that excessive alcohol consumption may have on gut health and the gut microbiome. At the same time, we highlighted that moderate consumption of fermented polyphenol-rich beverages (containing alcohol) may enhance gut health and the gut microbiome.

Thus, the intention is not to condemn occasional moderate consumption of the alcoholic-containing beverages mentioned, nor is to condone excessive alcohol consumption. Further, if you don’t currently drink beverages containing alcohol, this would not be a recommendation to start. Just like is the case with most things alcohol-related, problems arise when consumption is excessive.

As a reminder, “moderate” consumption is defined as 1 – 2 drinks per day, with 1 drink being equivalent to:

- 12-ounce beer (5% ALC)
- 5-ounce glass of wine (12% ALC)
- 3-ounce fortified wine (e.g., sherry, port; 18% ALC)
- 1.5-ounce liquor (e.g., vodka, whiskey; 40% ALC)

That being said, we highlighted red wine and beer as two fermented polyphenol-rich beverages that may have a beneficial effect on gut health. It’s important to point out



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that we don't know if this extends to other alcoholic drinks (e.g., liquor), and it's equally important to mention that sugary alcoholic drinks (e.g., mixed drinks, fruity drinks) may be a very concentrated source of added sugar—an ingredient that has already been covered *ad nauseum*.

TAKE YOUR GUT HEALTH TO THE NEXT LEVEL

Now, all of this information is not shared to prevent you from ever eating again, although it is pretty scary. Instead, we simply want to educate you and to help you understand that what you're putting into your body has the potential to have a significant effect on your gut flora and gut health, which impacts nearly every corner of your life.

Obviously, some of these foods and categories of products are easier to avoid than others, and for most people, most of the time, it's about making the best choices as often as possible on consistent basis. As you may recall from the beginning of this report, optimizing the gut flora and gut health is contingent on a number of variables including what you do and don't eat as well as stress, lifestyle choices, medications, and a number of environmental factors.

As has been highlighted a number of times throughout this report, probiotics can



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be extremely helpful in fortifying gut health and the gut microbiome. There's even evidence that probiotic supplementation can combat the ill effects associated with the consumption of many of these foods.

That's not to say that probiotic supplementation is a replacement for poor eating habits; rather, that's simply to say that on the occasion when you are exposed to one of these foods (e.g., a night of enjoying some wine and dancing with your partner), you may be well-advised to take an extra serving of your probiotics. This is what I do and what I recommend to all of my clients.

In sum, here are some helpful tips to help you rid your diet of gut-killing foods:

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- » Focus your nutrition on whole, minimally processed foods.
- » Minimize your sugar intake — shoot for 30 grams or less per day.
- » Avoid trans fats at all costs.
- » Opt for organic sources of dairy (i.e., no antibiotics) and choose yogurts that specify “live cultures.”
- » Steer clear of farm-raised salmon and other fish — instead, choose wild varieties.
- » Choose organic produce, especially when it comes to the Dirty Dozen.
- » Put back the pre-packaged frozen meals and other “diet” products.
- » Buy grass-feed beef, free-range chicken, and omega-3 enriched eggs.
- » Switch from heavily processed wheat products to whole grain, minimally processed foods.
- » Limit your alcohol consumption and nix the fruity drinks altogether.
- » Filter your water.

Cheers to your optimal gut and overall health!

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