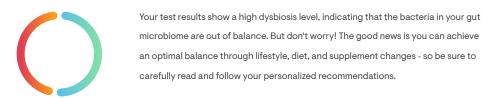
## **THORNE®**

Results Diet Products Download v

# Gut Health - Panel Analysis

# Overview 10/08/2023 (Most Recent) v



Normal pathogen screen

## **Gut Pillars**



Optimal Range: > 33.0 • Your **Digestion** score is 48.3, which is within the optimal range and is considered low risk for poor digestion.

You have an average or better level of bacteria present associated with ammonia production, increasing your digestion score

You have an average or better level of bacteria present associated with amino acid degradation, increasing your digestion score

## Insights 🖪

### Good news!

1 score

Your high Digestion Score means you are at low risk for poor digestion. Proper digestion supports normal motility, optimal absorption in the small intestine, and nutrient utilization for your body from the foods you eat.

Your Digestion Score is influenced by the relative abundance of beneficial microorganisms found predominantly in the colon, which are responsible for protein fermentation, and whose activity produces various metabolites, such as ammonia. A high Digestion Score reflects a

lower abundance of ammonia-producing bacteria from your stool sample; ammonia being a metabolite that you want to be low.

Your high Digestion Score and subsequent lower ammonia level is a reason that you aren't experiencing regular:

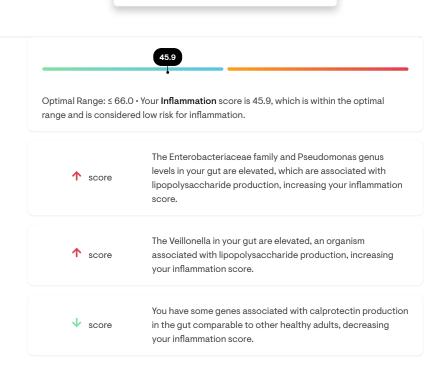
- Constipation
- · Nausea or vomiting
- Heartburn or acid reflux

Your diet plays an important role in the digestion process and fuels the abundance of beneficial microbes that reside in your colon. If your diet is low in nuts or seeds, then it can negatively influence your digestion and microbiome.

#### **Clinical Evidence**

- Richardson A, McKain N, Wallace R. Ammonia production by human faecal bacteria, and the enumeration, isolation and characterization of bacteria capable of growth on peptides and amino acids. BMC Microbiol 2013;13:6. Published 2013 Jan 11. doi:10.1186/1471-2180-13-6
- Oliphant K, Allen-Vercoe E. Macronutrient metabolism by the human gut microbiome: major fermentation by-products and their impact on host health. Microbiome 2019;7:91.
   Published 2019 June 13. doi: 10.1186/s40168-019-0704-8
- 3. Mills S, Stanton C, Lane J, et al. Precision nutrition and the microbiome. Part I: current state of the science. Nutrients 2019:11(4):923.
- 4. Panchal S, Müller-Schwefe P, Wurzelmann J. Opioid-induced bowel dysfunction: prevalence, pathophysiology and burden. Int J Clin Pract 2007;61(7):1181-1187. doi:10.1111/j.1742-1241.2007.01415.x
- Oliphant K, Allen-Vercoe E. Macronutrient metabolism by the human gut microbiome: major fermentation by-products and their impact on host health. Microbiome 2019; 7:91.
   Published 2019 June 13. doi: 10.1186/s40168-019-0704-8

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## Insights 🖪

Inflammation CA

## Good news!

Your results show your Inflammation Score is low, meaning you are at low risk for having intestinal inflammation, as well as subsequent lower risk for systemic inflammation. A low Inflammation Score means your GI tract has low levels of the bacteria known to produce inflammatory endotoxins called lipopolysaccharides and lower levels of an immunologically-derived protein called calprotectin. In elevated amounts, these inflammation responses can

disrupt the normal functioning of your GI tract and immune function, and manifest as undesirable symptoms with daily discomfort.

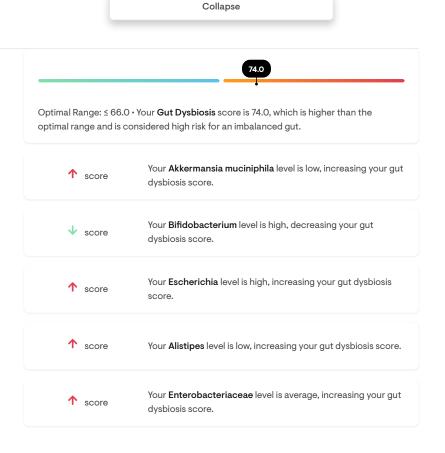
Your microbiome's low inflammation potential reduces your risk of experiencing frequent or severe:

- Acne
- · Hives or rashes
- · Fatigue or weakness
- Headaches

Your daily diet also impacts your inflammation levels. By consuming less than three vegetable servings a day, as you reported, you might not be providing the microbiome with the nutrients it needs to flourish and maintain minimal inflammation, which can cause your inflammation risk to increase.

#### **Clinical Evidence**

- Boer C, Radjabzadeh D, Medina-Gomez C, et al. Intestinal microbiome composition and its relation to joint pain and inflammation. Nat Commun. 2019 Oct 25;10(1):4881. doi: 10.1038/s41467-019-12873-4.
- 2. Hills R, Pontefract B, Mishcon H, et al. Gut microbiome: profound implications for diet and disease. Nutrients 2019;11(7):1613.
- 3. Boer C, Radjabzadeh D, Medina-Gomez C, et al. Intestinal microbiome composition and its relation to joint pain and inflammation. Nat Commun 2019 Oct 25;10(1):4881. doi: 10.1038/s41467-019-12873-4.
- 4. Hills R, Pontefract B, Mishcon H, et al. Gut microbiome: profound implications for diet and disease. Nutrients. 2019;11(7):1613.



## Insights 🖪

**Gut Dysbiosis** 

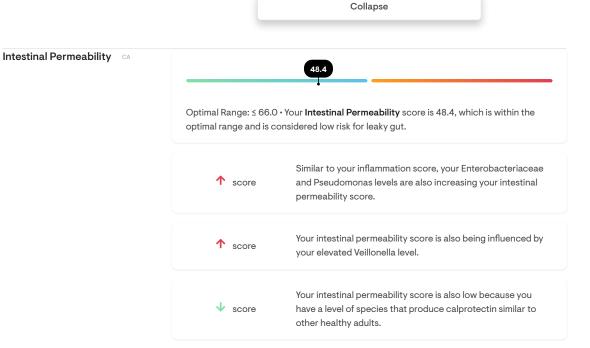
Your test results show some areas that need improvement.

Your Gut Dysbiosis Score is high, which is not ideal. This score is based on the number and type of good bacteria present in your gut compared to the number and kind of bad bacteria present. Your high score means you have a disproportionate number of bad bacteria present. A full list of

the good, bad, and conditional bacteria is in the Appendix, with details of their health benefits or risks for disease.

#### **Clinical Evidence**

- 1. Imhann F, Bonder M, Vich Vila A, et al. Proton pump inhibitors affect the gut microbiome. Gut 2016;65:740-748.
- Relman D. The human microbiome: ecosystem resilience and health. Nutr Rev 2012;70 Suppl 1(Suppl 1):S2-S9. doi:10.1111/j.1753-4887.2012.00489.x
- Dethlefsen L, Relman D. Incomplete recovery and individualized responses of the human distal gut microbiota to repeated antibiotic perturbation. Proc Natl Acad Sci U S A 2011;108 Suppl 1):4554-4561. doi:10.1073/pnas.1000087107
- Jacobs C, Coss Adame E, Attaluri A, et al. Dysmotility and proton pump inhibitor use are independent risk factors for small intestinal bacterial and/or fungal overgrowth. Aliment Pharmacol Ther 2013;37(11):1103-1111. doi:10.1111/apt.12304



## Insights 🖪

#### Good news!

Your Intestinal Permeability Score is low, meaning you are at low risk for experiencing a leaky gut. Your microbiome has a low level of the bad bacteria known to adversely affect the structural integrity of your gut cells and the gut's mucosal lining.

The GI tract has a semipermeable barrier that allows the absorption of nutrients, while limiting the transport of potentially harmful antigens and microorganisms. Its effectiveness is dependent on the structural integrity and molecular interactions of the intestinal mucosa, which operates synergistically to maintain the structure and immune homeostasis.

Too much high-intensity exercise or excessive longer duration moderate-intensity exercise can adversely impact your intestinal permeability and might increase your Intestinal Permeability Score. While regular exercise is beneficial for the microbiome, if you notice GI symptoms occurring more frequently or worsening, it might be related to your exercise volume and intensity.

Drinking less than one alcoholic beverage daily, as you reported, is helping you to maintain a lower risk for intestinal permeability. Alcohol decreases beneficial bacteria, making you more susceptible to leaky gut.

#### Clinical Evidence

- 1. Capurso G, Lahner E. The interaction between smoking, alcohol and the gut microbiome. Best Pract Res Clin Gastroenterol 2017;31(5):579-588.
- Pugh J, Impey S, Doran D, et al. Acute high-intensity interval running increases markers of gastrointestinal damage and permeability but not gastrointestinal symptoms. Appl Physiol Nutr Metab 2017;42(9):941-947. doi:10.1139/apnm-2016-0646

3. Huang C, Shi G. Smoking and microbiome in oral, airway, gut and some systemic diseases. J Transl Med 2019;17:225.



#### Nervous System CA

46.

Optimal Range: ≤ 66.0 • Your **Nervous System** score is 46.0, which is within the optimal range and is considered low risk for gut-brain axis miscommunications.

#### Insights **B**

#### Good news!

You have a low risk for an enteric nervous system (ENS) imbalance. A low score is desirable because it reflects a bacterial composition that is synergistically communicating with the brain to operate at a high level. An imbalance or dysregulation in the microbiome can impact mental capacity, cognitive function, and mood, including shifts in feelings of depression, anxiety, and stress.

Your low Nervous System Imbalance score makes you less susceptible to experiencing:

• Depression

The bacterial makeup of our gut microbiome impacts numerous channels of communication from the gut to the brain, often referred to as the gut-brain axis, influencing:

- Vagus nerve stimulation connecting the ENS with the autonomic nervous system (ANS) and the central nervous system (CNS), contributing to healthy blood pressure and heart rate regulation
- The release of short-chain fatty acids and secondary bile acids into the bloodstream to help regulate nutrient metabolism
- The production and release of positive neurotransmitters through the bloodstream, including GABA, serotonin, dopamine, and norepinephrine, which are responsible for mood and calmness
- The release of neuropeptides and hormones, such as ghrelin, leptin, cholecystokinin, and neuropeptide Y, which beneficially affect appetite, metabolism, and food cravings
- The production of anti- and pro-inflammatory cytokines, which activate the immune system and affect brain cells
- The variation of the hypothalamic-pituitary-adrenal (HPA) axis, which creates the stress response and releases cortisol.

An elevated nervous system imbalance score would begin to affect your ability to maintain stress levels and perhaps your sleep quality.

Your reported feelings of stress or anxiety can be a result of miscommunication from the gut to the brain.

#### **Clinical Evidence**

- Heiss C, Olofsson L. The role of the gut microbiota in development, function and disorders
  of the central nervous system and the enteric nervous system. J Neuroendocrinol
  2019;31(5):e12684. doi:10.1111/jne.12684
- De Vadder F, Grasset E, Mannerås Holm L, et al. Gut microbiota regulates maturation of the adult enteric nervous system via enteric serotonin networks. Proc Natl Acad Sci U S A 2018;115(25):6458-6463. doi:10.1073/pnas.1720017115
- 3. Smith L, Wissel E. Microbes and the mind: how bacteria shape and affect, neurological processes, cognition, social relationships, development, and pathology. Perspect Psychol Sci 2019;14(3):397-418. doi:10.1177/1745691618809379
- 4. Smith L, Wissel E. Microbes and the mind: how bacteria shape and affect neurological processes, cognition, social relationships, development, and pathology. Perspect Psychol

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## General Health

#### Diversity Score CA



#### Your Beta Diversity: 82%

Your Beta Diversity score is high

#### Insights **B**

#### Room for improvement!

Your beta diversity score indicates your microbiome is dissimilar to other healthy adults. Beta diversity is a measure of the quantity and the quality of microbes in your gut and compares it to other healthy adults. The higher the score, the more different your microbiome is. A lower score is better for your current health goals and future health risks.

A lower beta diversity score is associated with a better ability to maintain weight, immune health, and as opposed to alpha diversity - a measure of the number of microbes in your gut - beta diversity helps you understand the number and quality (good and bad bacteria) to better evaluate what is present.

Exercise can have a major impact on the beta diversity level. Your exercise routine is likely helping you maintain a better beta diversity percentile. Research shows the regular exercise you are getting can have profound positive impacts on microbiome diversity, significantly reducing your risk for microbiome-related health conditions.

#### **Clinical Evidence**

- 1. O'Sullivan O, Cronin O, Clarke S, et al. Exercise and the microbiota. Gut Microbes 2015:6(2):131-136. doi:10.1080/19490976.2015.1011875
- Monda V, Villano I, Messina A, et al. Exercise modifies the gut microbiota with positive health effects. Oxid Med Cell Longev 2017;2017:3831972. doi:10.1155/2017/3831972
- 3. Wu L, Zeng T, Zinellu A, et al. A cross-sectional study of compositional and functional profiles of gut microbiota in Sardinian centenarians. mSystems 2019 4:e00325-19. https://doi.org/10.1128/mSystems.00325-19.
- 4 . Mullish B, Williams H. Clostridium difficile infection and antibiotic-associated diarrhoea. Clin Med (Lond) 2018;18(3):237-241. doi:10.7861/clinmedicine.18-3-237
- Korpela K, Salonen A, Virta L, et al. Intestinal microbiome is related to lifetime antibiotic use in Finnish pre-school children. Nat Commun 2016;7:10410. Published 2016 Jan 26. doi:10.1038/ncomms10410

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#### Your Immune Readiness: 43

You have a sub-optimal combination of immune supporting bacteria and metabolites

Your Immune Readiness score needs improvement

↓ score

Your Akkermansia muciniphila level is low, decreasing your immune readiness score.

↑ score

Your **Bifidobacterium** level is high, increasing your immune readiness score.

↓ score

Your **Butyrate** level is low, decreasing your immune readiness

**↓** score

Your **Propionate** level is low, decreasing your immune readiness score.

↑ score

Your **Faecalibacterium prausnitzii** level is average, increasing your immune readiness score.

#### Insights 🖪

#### Needs attention!

Your Immune Readiness Score is low, which is not desirable. This score is calculated based on the microbes present in your gut that are responsible for a proper immune response to a foreign pathogens (virus, bacteria, parasites) and an appropriate down-regulation of your immune system after the response.

Your low Immune Readiness Score means you lack the necessary types and abundances of the specific microorganisms involved in:

- Maintaining gut integrity so pathogens, their components, or dietary triggers cannot leak from your GI tract into your bloodstream
- Reducing gut inflammation
- Minimizing a hyperactive immune response by supporting T cell production, the cells necessary for down-regulating the immune response
- Supporting the adaptive immune system including supporting naïve cells to be "trained" to identify new invaders in your body
- Short-chain fatty acid production
- The content and types of "good" bacteria which have healthy associations with various immune parameters and autoimmunity

Age is a factor that can change your immune capabilities. As a younger adult, you might already have an "older" microbiome affecting your immune cells. Referred to as immunosenescence, or age-related changes to immune cells and function, it's a situation that usually doesn't happen until later in life. The key is to modify behaviors and microbiota to reflect that of someone your age or younger, which can be achieved with your precise diet and lifestyle recommendations.

## Clinical Evidence

- Biagi E, Nylund L, Candela M, et al. Through ageing and beyond: gut microbiota and inflammatory status in seniors and centenarians. PLoS One 2010 May 17;5(5):e10667.
- 2. Biagi E, Franceschi C, Rampelli S, et al. Gut microbiota and extreme longevity. Curr Biol 2016 Jun 6;26(11):1480-1485.
- 3. Santoro A, Ostan R, Candela M, et al. Gut microbiota changes in the extreme decades of human life: a focus on centenarians. Cell Mol Life Sci 2018 Jan;75(1):129-148.
- 4. Ticinesi A, Lauretani F, Milani C, et al. Aging gut microbiota at the cross-road between nutrition, physical frailty, and sarcopenia: is there a gut-muscle axis? Nutrients 2017;Nov

5. Biagi E, Nylund L, Candela M, et al. Through ageing, and beyond: gut microbiota and inflammatory status in seniors and centenarians. PLoS One 2010 May 17;5(5):e10667.

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# **Pathogens**

Pathogens ST Normal Your Pathogen Screen is normal normal Your **Blastocystis** parasite level is normal Your **Campylobacter** bacteria level is normal normal normal Your **Clostridioides difficile** bacteria level is normal normal Your **Cryptosporidium** parasite level is normal normal Your **Dientamoeba fragilis** parasite level is normal normal Your **Entamoeba histolytica** parasite level is normal normal Your Escherichia coli O157:H7 bacteria level is normal normal Your **Giardia intestinalis** parasite level is normal normal Your <u>Helicobacter pylori</u> bacteria level is normal Your <u>Salmonella enterica</u> bacteria level is normal normal normal Your **Vibrio cholerae** bacteria level is normal

#### Insights 🖪

#### Looks good!

Although your pathogen screen has come back normal, this is not a diagnostic test. Most of what was screened for in your sample is typically present in the gut; it is just when it is at an elevated level that it can cause problems.

For future reference, you might come in direct or indirect contact with a pathogen, like touching a surface that contains it or from an insect that transfers it to you. Some pathogens can be transmitted through the air, like from a sneeze, or eating or drinking a contaminated food source. Be extra careful as you leave your house, travel, take public transportation, or try new foods, and do your best to avoid potential pathogen contact.

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## Recommendations



Personalized recommendations below are algorithmically generated from your individual test results and medical literature related to correlations between health and lifestyle changes.

We always encourage you to share your results with your health-care practitioner. Don't have one? <u>Find a practitioner.</u>

# Diet (3)



## Follow a Low-FODMAP Diet/Then Follow Mediterranean-Style Diet

Based on your microbiome and health history, it is recommended you follow a Low-FODMAP diet for 6 weeks before transitioning to a Mediterranean-style, whole food diet as your general way of eating.

Certain types of carbohydrates known as fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAPs) are poorly absorbed in the GI tract. FODMAPs are fermented by intestinal bacteria, which can lead to changes in both water and gas in the gut. Over time, symptoms such as bloating, flatulence, abdominal discomfort, and changes in bowel habits may occur.

Low-FODMAP diets have been well-studied for gastrointestinal concerns and work best when followed short-term (approximately 6 weeks) before transitioning to a whole foods diet. The goal with a Low-FODMAP diet is to reduce fermentable carbohydrate sources to help decrease intestinal bacteria and the gas they produce.

High-FODMAP Foods to avoid:

- Wheat, barley, or rye and prepared foods that contain these grains such as cereal, pasta, bread, crackers
- Vegetables such as garlic, onions, broccoli, cauliflower, cabbage, mushrooms, and sweet
   corn
- Fruits including apples, pears, watermelon, blackberries, and stone fruits (cherries, peaches, prunes, apricots, avocado, mango). Additionally, dried fruit, fruit juice, and fruit bars should be avoided.

- Beans, chickpeas, pistachios, cashews, and foods that contain them such as hummus or some nut butters
- · Cow, goat, or soy milk, yogurt, and ice cream
- Foods and beverages sweetened with high fructose corn syrup, agave, honey, or sugaralcohols such as sorbitol, mannitol, and maltitol

While the list of FODMAP foods to avoid may seem long, there are still many nutritious foods you can eat while on a Low-FODMAP diet, including:

- Oats, rice, cornmeal, or quinoa and prepared foods that contain these grains such as cereal, pasta, bread
- · Garlic-infused oil, olive oil, coconut oil, sesame oil, sunflower oil, ghee, butter
- Vegetables such as arugula, spinach, lettuce, collard greens, chard, kale, eggplant, tomatoes, cucumber, carrots, zucchini, yellow squash, radish, peppers, and potatoes.
   Green beans, peas, and sweet potatoes should be limited to small servings.
- Fruits including strawberries, blueberries, and cranberries, citrus fruits, grapes, pineapple, kiwi, guava, dragon fruit, bananas, papaya, honeydew, cantaloupe
- · Small portions of lentils, nuts, nut butters, and seeds other than pistachio and cashew
- Almond, coconut, or lactose-free dairy milk; brie and feta cheeses, hard cheeses
- Eggs, fish, poultry, and lean, unprocessed meats

Gastrointestinal symptoms often resolve within 2-6 weeks of starting a low-FODMAP diet. After week 6 the next step includes transitioning to a Mediterranean-style diet including reintroduction of FODMAP foods. The basic concept of a whole food diet is to eat foods in their most natural, least-processed state.

During this next phase, continue to follow a Low-FODMAP diet while reintroducing high-FODMAP foods one at a time, watching for any return of symptoms. This will help you determine which FODMAPS are not well-tolerated. Once all of the high-FODMAP foods you wish to challenge have been tested, continue eating a Mediterranean-style, whole food diet that includes well-tolerated FODMAP foods while limiting poorly tolerated foods to a level that provides adequate symptom relief.

The goal is to establish a minimally restrictive, long-term whole food diet that includes fresh fruits, vegetables, legumes, herbs, spices, nuts, seeds, healthy animal protein sources in modest amounts, and unprocessed whole grains. The bacteria in your gut feed on prebiotics, like fiber from fruits and vegetables, which benefit you directly and indirectly through microbial metabolism. Additionally, whole foods provide natural plant pigments, antioxidants, vitamins, and minerals that become incorporated into your cells and assist tissue health and function.

Prebiotics are both fiber and non-fiber substances that benefit health by affecting the gut microbiome. When gut bacteria feed on prebiotics, they produce certain by-products, like short-chain fatty acids, that are beneficial for human health. Of the main fiber types, soluble fibers feed gut bacteria and are specifically thought of as prebiotics, while insoluble fibers provide roughage and can aid in adding bulk to stools but are not used or digested by gut bacteria

Soluble fibers include gums, pectin, and mucilage, which become slurry, gummy, or gelatinous when combined with water. If you've ever eaten chia seed pudding, you know what this is like - chia seeds are mixed with water or other liquid and allowed to sit for several hours, forming a slurry or pudding-like texture. Other food sources high in soluble fiber include beans, peas, lentils, apples, citrus fruits, carrots, and oats.

It is worth noting that in the first few weeks of increased fiber consumption, gas production and bloating symptoms can worsen, followed by long-term symptomatic improvement. Feeding good bacteria with prebiotics is often a better solution than forever limiting what you eat. As your gut heals and your microbiome balance improves, dietary restrictions won't be as necessary.

#### Soluble Fiber Prebiotics

Along with increasing soluble fiber-rich foods, many prebiotic fiber supplements are readily available and can help with adding fiber to your diet. Here are some of the most common types of soluble fiber available in either food or supplement form:

Partially hydrolyzed guar gum (PHGG) is a water-soluble dietary fiber that is low FODMAP
and has been shown in studies to be well-tolerated without the excessive gas and bloating
that may accompany increased fiber use. Research studies have shown that PHGG

consumption can lead to an increase of healthy bacterial species, such as Bifidobacterium, when used regularly.

- Arabinoxylans are a type of fiber found in stabilized rice bran. Research studies show
  consumption of arabinoxylans positively impacts multiple beneficial bacterial strains
  including Bifidobacterium, Ruminococcus, and Prevotella species.
- Psyllium is a well-studied prebiotic fiber that is slow to ferment and provides support for Faecalibacterium and Lachnospira bacterial species in research studies. Psyllium husk is often used in gluten-free and/or egg-free baking to provide elasticity and flexibility to the dough.
- Pectin is a type of soluble fiber found in fruits and vegetables, with some of the highest concentrations in apples. In research studies, pectin has been shown to have a beneficial effect on many healthy bacterial strains.
- Inulin is the most extensively studied prebiotic fiber. Research studies show a positive
  effect on Lactobacillus species as well as a benefit to production of the short-chain fatty
  acid butyrate, a beneficial nutrient for colon health.
- Resistant starch is found in unmodified potato starch. This type of starch supports multiple beneficial bacterial strains, including strains that are correlated with slower intestinal transit time.

#### **Non-fiber Prebiotics**

Non-fiber prebiotics can also help to promote growth of beneficial bacterial species, enhance short-chain fatty acid production, and provide antioxidant support. The following is a list of some of the more common non-fiber prebiotics that have been studied for their beneficial effects:

- Bacteriophages are a non-fiber form of prebiotic that help to decrease less beneficial bacterial strains while supporting growth of healthy bacterial species like Bifidobacterium and Lactobacillus.
- Larch arabinogalactans are polysaccharides from Larix occidentalis, the Western larch tree.
   Larch arabinogalactans have been shown to have a positive impact on Bifidobacterium and
   Lactobacillus bacterial species, among others. It also promotes production of short-chain fatty acids, including butyrate.
- Polyphenols are natural compounds found in fruits, vegetables, grains, herbs, and spices.
   These non-fiber prebiotics are consumed by gut bacteria and when metabolized produce products that can activate short-chain fatty acids, promote beneficial bacteria, and produce antioxidant effects.
- Omega-3 Fatty Acids, such as fish oils, have many well-researched health benefits that include positively impacting beneficial bacterial species while limiting growth of less beneficial strains. Omega-3 fatty acids also promote production of specific short-chain fatty acids that are beneficial to gastrointestinal health.

If you are interested in adding prebiotics to your routine, consider Thorne's lineup of prebiotic products:

- FiberMend is a blend of soluble fibers and polyphenols that is flavorless and blends easily
  into water, juice, or your preferred beverage without leaving a gritty or unpleasant mouth
  feel.
- Prebiotic + combines bacteriophages with polyphenols in a quick-dissolving disc that mixes
  easily into your preferred liquid for easy to consume, packable, sugar-free beverage.
- Arabinex is a mild-tasting, highly soluble prebiotic powder that contain larch arabinogalactans and mixes easily with water or juice.
- Super EPA provides the highest quality, purest fish oil available from sustainably-sourced, cold water fish. It contains an optimal balance of the omega-3 fatty acids EPA and DHA.
- Omega Superb offers the benefits of omega-3 fatty acids derived from fish oil in a greattasting lemon-berry flavored liquid. It is lightly-sweetened with monk fruit extract and has a smooth, non-oily texture, an easy-to-take choice for both adults and children.

#### References

Barrett JS. How to institute the low-FODMAP diet. J Gastroenterol Hepatol. 2017;32 Suppl 1:8-10. doi:10.1111/jah.13686

Altobelli E, Del Negro V, Angeletti PM, Latella G. Low-FODMAP Diet Improves Irritable Bowel Syndrome Symptoms: A Meta-Analysis. Nutrients. 2017;9(9):940. Published 2017 Aug 26. doi:10.3390/nu9090940

Staudacher H, Whelan K. The low FODMAP diet: recent advances in understanding its mechanisms and efficacy in IBS. Gut 2017 Aug;66(8):1517-1527. doi: 10.1136/gutinl-2017-313750.

Epub 2017 Jun 7.

Syed K, Iswara K. Low-FODMAP Diet. In: StatPearls. Treasure Island (FL): StatPearls Publishing; September 9, 2021.

Halmos E, Christophersen C, Bird A, et al. Diets that differ in their FODMAP content alter the colonic luminal microenvironment. Gut 2015 Jan;64(1):93-100. doi: 10.1136/gutjnl-2014-307264. Epub 2014 Jul 12.

Yasukawa Z, Inoue R, Ozeki M, et al. Effect of repeated consumption of partially hydrolyzed guar gum on fecal characteristics and gut microbiota: a randomized, double-blind, placebo-controlled, and parallel-group clinical trial. Nutrients. 2019;11(9):2170. Published 2019 Sep 10. doi:10.3390/nu11092170

Vijay A, Astbury S, Le Roy C, Spector TD, Valdes AM. The prebiotic effects of omega-3 fatty acid supplementation: A six-week randomised intervention trial. Gut Microbes. 2021;13(1):1-11. doi:10.1080/19490976.2020.1863133

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#### Consume more nuts and seeds

Try to consume more fresh nuts and seeds, preferably raw, soaked, and dehydrated, which are high in beneficial phytochemicals, fiber, and oils. Avoid nuts and seeds with added flavorings. Whole seeds are preferable to already ground seeds, although freshly ground seeds, such as flax seeds, are a healthy and nutritious option.



## Avoid eating habits that interfere with sleep

Make a goal to get more restful sleep. In addition to sleep's daily beneficial effects on energy, performance, and mental focus, a lack of sleep is associated with several adverse health conditions. Proper gut function and an optimal gut microbiome generally lead to better sleep. Avoid eating three hours before going to bed and avoid caffeine after 3:00 pm to support a higher-quality night's sleep.

## Products (4)



Fibermend® \$40 \*\*

Learn more

Suggested Use: Mix 1 scoop with at least 8-10 ounces of water, juice, or preferred beverage daily. Be sure to drink plenty of water.

We recommend that you take FiberMend. This well-tolerated prebiotic fiber formula helps maintain regularity and good digestive function.\* FiberMend also supports healthy cholesterol and blood sugar levels.\* The soluble fiber blend produces little to no bloating, cramping, or gas.



Suggested Use: Take 1 capsule daily with a meal.

An imbalanced microbiome can have far-reaching effects. In addition to GI symptoms, due to what is called the gut-brain connection, you might even experience beneficial mental or emotional effects. Because of your test results, we recommend that you take FloraSport 20B – a unique probiotic blend of 20 billion active cultures per capsule – that have broad-ranging benefits.\*



Berbercap® \$25 ★★★★★

Learn more

Suggested Use: Take 1 capsule twice daily with a meal.

Because you have signs of dysbiosis – a disproportionate number of bad bacteria in relation to good bacteria – we recommend that you take Berbercap. Berberine is a constituent of several plants, including barberry. It supports beneficial bacterial balance in the large and small intestine, while helping eliminate not so beneficial bacteria, all to maintain a healthy microbiome.\*



Sacro-B™ \$40 ★★★★

Learn more

Suggested Use: Take 1 capsule twice daily between meals.

Because you reported diarrhea and/or your test results indicated a high level of Clostridium species, we recommend that you take Sacro-B. Saccharomyces boulardii (Sacro-B) is a yeast species that mitigates occasional diarrhea and supports the growth of beneficial intestinal flora.\* It also enhances immune function in the gut by increasing secretory IgA, the first-line defense immunoglobin of the gastrointestinal tract.\*

# **Additional Insights**

Good Bacteria ST

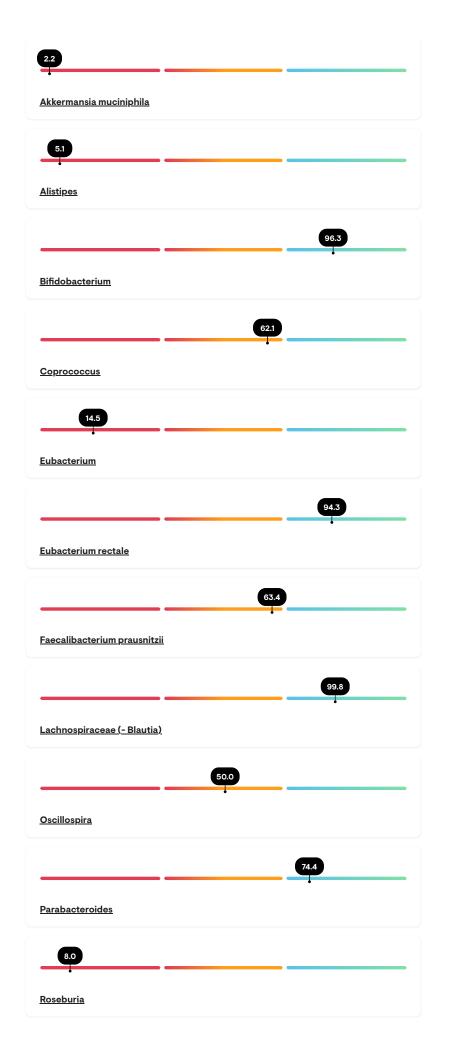
The "good bacteria" below are well-researched and found to be highly beneficial for health. Your goal is to have and maintain average or better levels for each strain. Your percentile is compared to healthy adults.

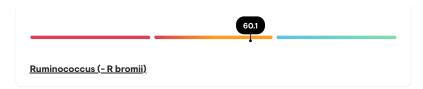
As someone who reported being diagnosed with IBS, you will want to pay attention to your levels of the following bacteria species, because research has associated these strains as being particularly beneficial to your condition: Alistipes, *Faecalibacterium prausnitzii*, Oscillospira, and Parabacteroides.

As someone who reported being diagnosed with mood issues or depression, you will want to pay attention to your levels of the following bacteria species, because research has associated these strains as being particularly beneficial to your condition:

Coprococcus and Faecalibacterium prausnitzii.

Faecalibacterium prausnitzii is also a bacterium to note with your reported anxiety.





60.3

## Conditional Bacteria ST

## Ruminococcaceae

Based on conditions you reported in your health profile, the Conditional Bacteria below have established associations with certain health conditions and are displayed based on the best levels for you. Similarly, your personalized dietary recommendations will help achieve optimal levels for you and the conditions you reported. Your percentile is compared to healthy adults.

As someone who is concerned about diarrhea, research suggests you want:

High Methanobacteria

High Ruminococcus bromii



65.7

<u>Prevotella</u>

Oscillibacter

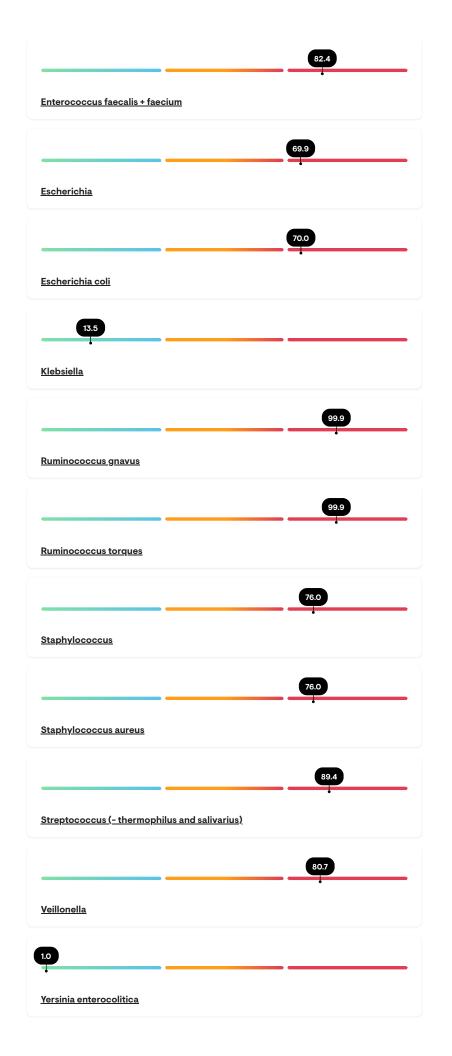
Ruminococcus bromii

## Bad Bacteria ST

The Bad Bacteria below are well-researched and are associated with various health conditions adverse to your overall health. Your percentile is compared to healthy adults; the goal is to maintain a level that is below the 85th percentile for best health associations.

bacteria levels you want as low as possible: Blautia, Ruminococcus gnavus, and Ruminococcus torques. 75.4 <u>Blautia</u> 84.2 Citrobacter freundii Clostridioides difficile 95.4 <u>Eggerthella</u> 95.4 Eggerthella lenta 56.2 **Enterobacteriaceae** Enterobacteriaceae + Pseudomonas 80.6 **Enterococcus** Enterococcus faecalis 88.9 Enterococcus faecium

Specifically, research shows the following to be associated with IBS, and therefore,

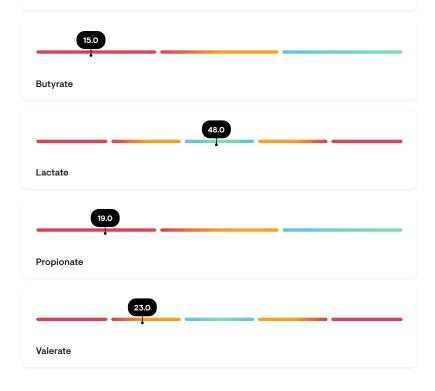


#### Short-Chain Fatty Acids ST

This section reports your gut's capability to produce short-chain fatty acids and lactate based on the microbes present that are known to produce them.

This is an area you can improve upon - your goal is to fall in the optimal range for each. Short-chain fatty acids have numerous health benefits and are known to have anti-inflammatory effects, improve gut motility, reduce gut permeability, reduce intestinal lumen pH, and provide an important energy source.

Lactate is an example of a biochemical byproduct produced by various microbes that, in excess, can negatively impact your health. Lactate at low levels can be normal in healthy individuals and have no significant impact. Still, as lactate begins to accumulate, it can further drive inflammatory and disease processes and lead to further complications of various conditions.



## Micronutrients ST

The list of micronutrients below reflects your gut's capability to produce the following B vitamins based on the bacteria present.

Your score means your gut bacteria are not optimal for producing one or more of the micronutrients below. Therefore, you should consider adding this micronutrient to your diet or using dietary supplements to support your daily needs until you have optimized your gut bacteria.



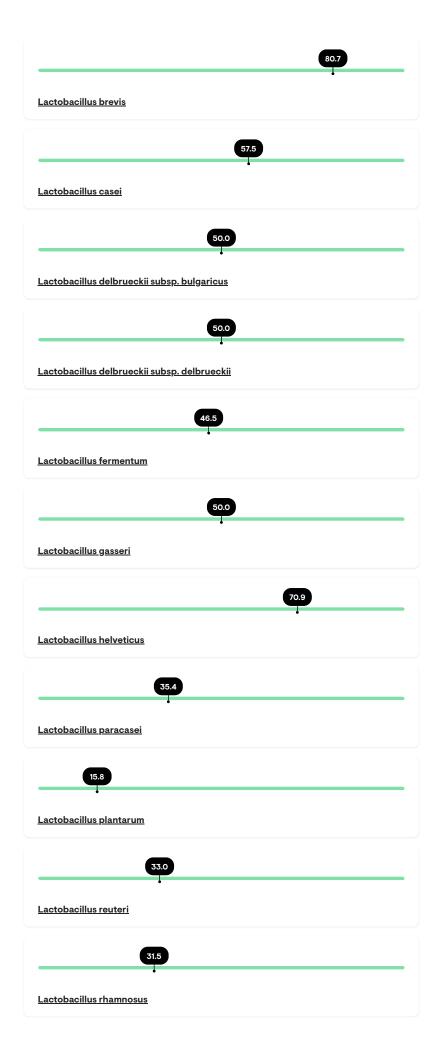
### Probiotics ST

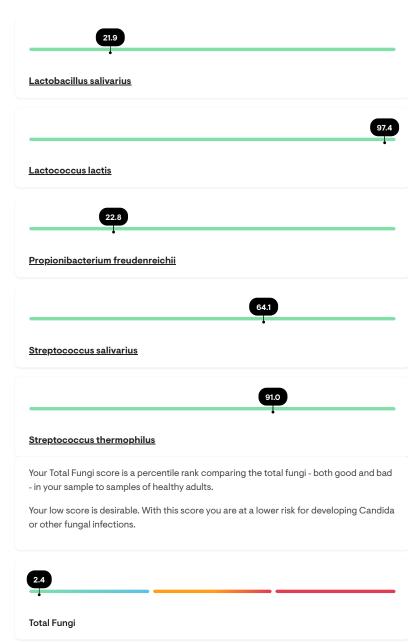
## Vitamin B12

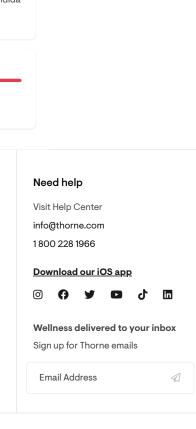
The list of probiotics below includes the majority of commercially available strains and provides insight into which are present or missing from your gut. Also, use this list to check that your current prebiotic or probiotic supplement regimen is working for you by supporting the strains you are now consuming. Your goal is to maximize the presence of species you have present because they have many associated health benefits.

It is important to note that not all of these probiotic strains are commercially available as supplements, although luckily, many can be increased in the gut through precise









Total Fungi ST

* These statements have not been evaluated by the Food	and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.	
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