VIOME

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RICHARD SPRAGUE'S SCORES & RECOMMENDATIONS

VIOME

Dear Richard Sprague,

The information on this report is for educational and informational use only. The information is not intended to be used by the customer for any diagnostic purpose and is not a substitute for professional medical advice. You should always seek the advice of your physician or other healthcare providers with any questions you may have regarding diagnosis, cure, treatment, mitigation, or prevention of any disease or other medical condition or impairment or the status of your health.

All My Scores

Let's improve these.

Anxiety & Stress Response

Not Optimal

Our body's gene expression may actually impact how we perceive and manage stress. While it is normal for the body to respond to short-term stress, prolonged stress can negatively impact our health. This score combines insights from human gene expression related to cortisol metabolism and feelings of anxiety. Cortisol, our body's main stress hormone, regulates physiological processes related to stress including immune function, cardiovascular function, and cognition. Additionally, an accumulation of unfavorable cellular reactions like DNA methylation, down-regulated DNA repair pathways, and inflammation are all common problems in individuals experiencing anxiety. A Good score reflects a healthy balance of cortisol production and pathways related to anxiety. If your score is Not Optimal, we will provide you with food and supplement recommendations that help manage stress and feelings of anxiety by positively influencing anxiety-related pathways and cortisol production.

LDL Cholesterol Pathways

Not Optimal

This score is an assessment of gene expression in the blood that evaluates the level of cholesterol accumulation. LDL cholesterol is thought to be pro-atherogenic (increasing the likelihood of fatty plaque build-up in the arteries) and the primary driver of cardiovascular disease. LDL cholesterol is derived from the conversion of very-low-density lipoproteins (VLDL) produced in the liver. The liver is primarily responsible for the clearance of LDL cholesterol from the blood via the LDL receptor (LDLR). A Good score reflects a healthy balance of LDL cholesterol. If your score is Not Optimal, decreasing foods high in saturated fat may be helpful.

Cortisol Pathways

Not Optimal

This score is an assessment of microbes that contribute to the accumulation of cortisol. Cortisol is a hormone produced in response to stress. You can think of cortisol as the first line of defense against danger, almost like the body's built-in alarm system. Over time, consistently high cortisol levels cause wear and tear on the body and contribute to many neurological and cardiovascular pathologies including, intermediary metabolism, immune function, skeletal growth, cardiovascular function, reproduction, and cognition. A Good score reflects a healthy balance of cortisol. If your score is Not Optimal, you may see recommendations for supplements or foods to help improve these high Cortisol Pathways.

Metabolic Fitness

Not Optimal

This score represents active microbial organisms and functions that are associated with your blood sugar, insulin resistance, or weight control. A good score (in the green zone) means high activity of microbes and their functions favorably associated with your metabolic fitness. It is important to note that a Metabolic Fitness score that falls within the red zone does not necessarily translate to excessive weight loss or gain. Follow your recommendations to support or improve healthy metabolic functions.

Cellular & Energy Efficiency

Not Optimal

When cells lack the nutrition they need and can't function properly or produce energy efficiently over time, your metabolism slows, your body ages faster, and illness may occur. Your Cellular & Energy Efficiency score offers a complete picture of what is happening in the human body on the cellular level and takes into account the aging of your cells, cellular stress, cellular inflammation, along with the health of your mitochondria. What a Not Optimal score means: A Not Optimal score can mean that cells are not functioning optimally (not efficiently producing energy, not repairing DNA damage, or clearing metabolic waste products), resulting in accelerated aging as well as poor metabolic, cardiovascular health, and brain health. Your cells could be undergoing stress due to oxidative stress, inflammation, or environmental toxins. To improve this score, we may recommend antioxidants or anti-inflammatory food and supplements, sufficient hydration, polyphenols to neutralize free radicals, and supplements that act as cofactors for these pathways. What a Good score means: A Good score means that your cells are producing enough energy to sustain your needs and your cells are efficiently “cleaning up” cellular waste products (such as free radicals). Did you know? Mitochondria are considered the powerhouse of the cell, supplying energy for basic cellular functions like care and repair of cells in the body. Each cell contains hundreds to thousands of mitochondria that have their own DNA, known as mitochondrial DNA. In addition to analyzing your microbial and human gene expression, Viome also analyzes the gene expression from your mitochondria.

Gas Production

Not Optimal

This score is an assessment of your overall gas production activity by the microbes in your gut. Overall high microbial gas production has been associated with digestive difficulties, discomfort, and gut inflammation. A good score means that your microbes are not actively engaged in gas production functions.

Methane Gas Production Pathways

Not Optimal

This score assesses the levels of activity of all microbial pathways that result in giving off methane gas in your gut. This kind of activity, when high, has been linked with some motility issues in the gut (how your food moves along the digestive tract), as well as pro-inflammatory patterns that can negatively affect your intestinal lining. A good score means that the activity of methane production pathways is low.

Sulfide Gas Production Pathways

Not Optimal

This score assesses the levels of activity of all microbial pathways that result in the production of hydrogen sulfide gas. It can be made from some proteins that contain sulfur amino acids or from ingested sulfate or sulfite molecules found in foods like dried fruit, preserved meats, and some alcoholic beverages. This kind of activity, when high, contributes to pro-inflammatory patterns potentially harmful to the gut lining, as well as slowing of your motility (moving the food down your digestive tract). A good score means that the activity of sulfide production pathways is low.

Putrescine Production Pathways

Not Optimal

This score assesses the levels of activity of all microbial pathways that lead to putrescine production. Putrescine is a molecular byproduct of protein fermentation - a microbial breakdown of protein. If the activities of putrescine production pathways are too high, it can be harmful to the gut environment and the intestinal barrier lining. It is also one of the signs that you may be eating too much protein that may not be digested properly.

Bile Acid Metabolism Pathways

Not Optimal

This score assesses the levels of activity of all metabolic pathways that include bile acids. Normally bile acids are made by the liver to help with fat digestion. Bile acids enter the colon in the form of bile salts. Your gut microbiota can change them back into bile acids, after which they can even be recycled back to the liver. If this activity is relatively high or excessive, it may be an indicator of your inability to break down fat or absorb nutrients properly, which can contribute to a pro-inflammatory environment or negative liver-related effects, as microbiome's bile acid pathways have been implicated in fatty deposits in the liver. A good score means these pathway activity levels are low in your sample.

Mitochondrial Health

Not Optimal

Your Mitochondrial Health score is an integrative score that assesses the efficiency of the functions of your mitochondria that are required to meet your body's energy and metabolic demands. If your Mitochondrial Health score is not optimal, it could mean that your cells are not receiving enough energy to function efficiently, resulting in accelerated aging, and poor metabolism, cardiovascular, and brain health. Your supplement recommendations may include nutrients to boost mitochondria production or other coenzymes needed to increase cellular energy (ATP). Scroll down below to the section titled "How We Calculate This Score" to learn more. Did you know? Mitochondria are considered the powerhouse of the cell, supplying energy for basic cellular functions like care and repair of cells in the body. Each cell contains hundreds to thousands of mitochondria that have their own DNA, known as mitochondrial DNA. In addition to analyzing microbial and human gene expression, Viome also analyzes the gene expression from your mitochondria.

Mitochondrial Biogenesis Pathways

Not Optimal

Your Mitochondrial Biogenesis Pathways score assesses the activity levels of molecular pathways needed to biologically generate and maintain the cellular functions of your mitochondria to meet your body's energy and metabolic demands. This includes PGC1-alpha signaling - known as the master regulator of mitochondrial biogenesis. If this score is not optimal it may imply insufficient activity in your mitochondria support functions, either due to too much oxidative stress or deficiency in specific nutrients that may serve as cofactors needed for your specific mitochondrial biogenesis pathways (such as PGC1-alpha activators or NAD+ precursors).

Energy Production Pathways

Not Optimal

Your Energy Production Pathways score evaluates the efficiency of your cell's ability to convert carbohydrates (glucose) into energy molecules that fuels our cells (otherwise known as ATP). If this score is not optimal it suggests that your mitochondrial metabolic activity may be relatively sluggish and could use a little boost from specific molecular targets or vitamin and cofactor or coenzyme supplements, such as CoQ10, NAD+ precursors, L-Carnitine, or various activators of AMPK (an activator of metabolic pathways, which stimulates mitochondrial ATP production).

Microbiome-Induced Stress

Not Optimal

Your Microbiome-Induced Stress score offers insights about those microbial activities that can lead to stress or inflammatory response not only in your gut, but also in your body. Toxins and other molecules produced by the gut microbiome may enter the bloodstream and contribute to cellular stress and pro-inflammatory pathways throughout your body. If this score is not optimal, it may suggest that these microbial activities need to be mitigated by either suppressing them, balancing them out with beneficial and protective microbial activities, or by strengthening your gut lining to prevent them from crossing the gut lining and affecting the rest of your body.

Immune System Activation

Not Optimal

Your immune system keeps you alive by activating the right pathways and functions to fight off any threat. Too much immune system activation can be damaging to your body, while too little is not optimal either. When your Immune System Activation score is high (in the high red zone), it means there is too much immune system activation that could be due to stress, fighting some infection, something that immune cells recognize as foreign (even if it is own body cell components), an allergic reaction or food sensitivity, or there may be too many pro-inflammatory (and not enough anti-inflammatory) responses telling your immune system to “let the guard down.” When there is too little expression (in the low red zone), it is also not optimal because it may suggest that too little activity is happening from the immune system side. Pathway themes combined into the Immune System Activation score include: • Antiviral or antibacterial defense response, needed to combat any foreign threat to the body by specialized immune system cells • Proinflammatory cytokine signaling (including IL-1, IL-6, IL-8, TNF-alpha, and multiple pathways of activation of NF-kappa B gene expression) • Tissue remodeling and wound healing (this can occur even in the absence of any wounds, when cellular conditions signal damage) • Histamine signaling an allergic response • Prostaglandin Biosynthesis (COX2), which can lead to increased inflammation and pain in various parts of the body

Gut Health

Good

Your gut microbiome is home to trillions of microbes that have a direct influence on everything from how you digest foods to how your immune system responds to infections or allergens. Because the gut microbiome influences how you metabolize nutrients like fats and carbohydrates from food, it also plays a leading role in the prevention and development of chronic diseases. Your Gut Health score integrates over 20 subscores that reflect the current state of your gut health. This score assesses things like the pathogenic status of the gut, both harmful and beneficial microbial activities of the gut, butyrate production, oxalate metabolism, intestinal barrier health (gut lining), and more. What a Not Optimal score means: A Not Optimal score means that your gut microbiome may be producing chemicals that are causing inflammation (such as LPS, sulfide, or ammonia) or not producing enough nutrients that your body needs (such as butyrate, serotonin, and other vitamins). When your microbiome is not functioning optimally, it can affect your immune system, metabolic function, and digestion. To support this score we may recommend specific probiotics for you and fermented foods to seed the gut with good bacteria, fiber-rich foods to feed the good bacteria and fuel butyrate production, and herbs, vitamins, and minerals to strengthen your gut lining. What a Good score means: A Good score conveys that the activities within the gut microbiome are overall

supportive of a healthy gut environment. Did you know? About 100 trillion bacteria, both good and bad, live inside your digestive system. Optimizing your microbial functions can help you achieve a healthy weight, boost energy, reduce stress, improve sleep, and strengthen your immunity.

Vascular Health

Good

This score assesses how the body is using Vitamin D and processing LDL cholesterol, both of which strongly influence the integrity and function of the vascular system. The vascular system consists of a system of tubes called arteries, capillaries, and veins, that carry blood away from and to the heart. These tubes are dynamic and are constantly responding to hormones, metabolites, and stress by expanding and contracting. The integrity of the vascular system can be harmed by low Vitamin D levels and the accumulation of LDL cholesterol, causing stiffening or obstruction of the arteries. A Good score indicates healthy Vitamin D levels and LDL cholesterol utilization. A score that is Not Optimal may indicate a need for increased Vitamin D in the diet and/or foods and supplements that help to manage LDL cholesterol.

Microbiome-Heart Health

Good

The health of your microbiome is tied to the health of your heart through your cardiovascular system. When inflammation is produced by the microbiome in the gut, it can enter the bloodstream and negatively impact blood vessels. This score assesses toxins and inflammatory products, such as TMA, p-cresol, and indol, that are produced by the gut microbiome. When reaching the bloodstream, they can increase the body's susceptibility to oxidative stress and plaque formation in the vascular system. A Good score indicates your gut microbiome is having little impact on your heart health from increased oxidative stress and proinflammatory activity in the gut. If your score is Not Optimal, we'll provide you with food and supplement recommendations designed to reduce the intake of nutrients used by the microbiome in the production of these inflammatory substrates.

Neurotransmitter Production

Good

There is an intimate two-way relationship between the gut and the brain. The thoughts we think can influence how our gut functions, while changes in our gut can influence our mood. You might even call the gut our second brain! If you've ever experienced the sensation of "butterflies" in your stomach, or a "gut-wrenching" feeling, this is the gut-brain connection in action. This bi-directional communication between the gut and the brain occurs through the vagus nerve, a very long, wandering nerve that connects the brain to the gut. Microbes in the gut can produce neurotransmitters, like GABA and serotonin. These neurotransmitters interact with the vagus nerve, sending signals to the brain that can affect your mood. A Good score reflects ideal microbial gene expression related to GABA and serotonin production. If your score is Not Optimal, we will provide you with food and supplement recommendations designed to aid in the synthesis and regulation of these key neurotransmitters.

Cognitive Health

Good

Your brain is under constant changes based on your metabolism, which can affect your ability to receive and process information. You may notice these effects through changes in your ability to focus, recall memories, and react to mental stimuli. This score provides insights into metabolic influences like ammonia and lactic acid accumulation that might negatively impact your ability to think and focus. These byproducts can cross both the gut lining and blood-brain barrier, impact the body's pH balance and when accumulated, are associated with chronic fatigue syndrome and neurocognitive dysfunction. A Good score reflects a healthy metabolism of ammonia and lactic acid in the gut. If your score is Not Optimal, we'll provide you with food and supplement recommendations designed to reduce substrates that lead to the production of these byproducts and provide bacteria with alternative energy sources.

Vitamin D Pathways

Good

Vitamin D is a fat-soluble vitamin found naturally in some foods and produced within the skin when exposed to sunlight. Vitamin D plays an important role in heart health by regulating immune and inflammatory activity, repairing damaged blood vessel walls, and suppressing genes related to high blood pressure. This score assesses the expression of genetic transcripts within the blood that are reflective of Vitamin D levels, such as those related to healthy cellular growth, blood pressure control, and immune response. While your results are not a direct measurement of your blood Vitamin D levels, a Not Optimal score suggests that supporting the body with additional Vitamin D (via food, sunlight, and/or supplementation) may be helpful.

Renin-Angiotensin Pathways

Good

This score analyzes gene expression associated with blood pressure management. The renin-angiotensin system is used by the body to regulate blood pressure in response to changes like hydration status and electrolyte levels. It is a critical link between the kidneys and the cardiovascular system, and while it's not the only system that manages blood pressure, it is often a target for medications designed to treat high blood pressure. Luckily, the renin-angiotensin system is also very responsive to diet and nutrition. A Good score reflects a gene expression profile associated with healthy blood pressure. A Not Optimal score reflects high renin-angiotensin activity which is associated with an increased risk for high blood pressure. If your score is Not Optimal you may see recommendations that directly address the renin-angiotensin system by impacting renin activity and/or other effects of renin activity. You might also see recommendations that support healthy blood pressure in general which can be protective against any negative cardiovascular effects.

TMA Production Pathways

Good

This score assesses microbial activities in the gut that result in the production of TMA (trimethylamine). TMA is created in the gut by microbes when certain compounds, such as choline and carnitine, are present. TMA can then be converted into TMAO in the liver and enter the bloodstream. High levels of TMAO are associated with unfavorable metabolic and cardiovascular effects. A Good score reflects a low level of microbial activity related to TMA production. If your score is Not Optimal, limiting or avoiding foods and supplements high in choline and carnitine may be helpful.

GABA Production Pathways

Good

This score assesses microbial activities which contribute to the production of gamma-aminobutyric acid (GABA). GABA is a neurotransmitter or signaling molecule, that can block certain signals in the central nervous system. This can have a calming effect on brain activity. There are many microbial species in the gut with the ability to create GABA, especially bacteria from the Bifidobacteria and Lactobacillus genus. GABA production in the gut stimulates the vagus nerve, the main nerve of the parasympathetic nervous system, that connects the gut to the brain. Stimulation of the vagus nerve influences mood and gastrointestinal motility. A Good score reflects a high level of microbial activity related to GABA production and a low level of microbial GABA consumption. If your score is Not Optimal, GABA production can be improved by providing the microbiome with GABA precursors (such as glutamate), supplying the microbiome with vitamin cofactors that aid in GABA synthesis, or eating foods that naturally contain GABA.

Serotonin Promoting Microbes

Good

This score is an assessment of microbial taxa which facilitates the accumulation of serotonin. You may know serotonin as a brain neurotransmitter, but it also plays a key role in gut health. Serotonin acts as a gastrointestinal signaling molecule that conveys signals from the gut to neurons, influencing digestion through intestinal peristalsis, motility, secretion, vasodilatation, and the absorption of nutrients. Serotonin is important in brain functions such as mood, sleep, and appetite regulation. A Good score reflects a healthy balance of serotonin. If your score is Not Optimal, you may see recommendations for foods containing L-Tryptophan, short-chain fatty acids, and alpha-tocopherol (Vitamin E) that can help with the regulation of serotonin in the gut.

Lactic Acid Pathways

Good

Commonly known as the main cause of muscle soreness, lactic acid is also a natural byproduct of microbial fermentation of carbohydrates. Lactic acid is able to cross the blood-brain barrier where it acts as a signaling molecule for brain functions and as an energy source for brain tissue. Lactic acid production is generally healthy, but when the lactic acid isn't easily converted into beneficial substrates, it can accumulate. High lactic acid accumulation has been linked to chronic fatigue syndrome and neurocognitive dysfunction. A Not Optimal Lactic Acid Conversion Pathways score may be improved by providing lactic acid-producing bacteria with alternative energy sources like fiber or arginine.

Digestive Efficiency

Good

This score is a comprehensive microbial reflection of your gastrointestinal (GI) tract functions. The score consists of multiple activity patterns related to digestion, such as the movement of food, specific macronutrient breakdown ability, and your gut lining health from your first bite of food to the time it leaves your body. When this score is suboptimal, it means that some of your digestive functions need support.

Immune System Health

Good

A healthy immune system is essential for fighting off outside invaders like viruses, bacteria, and fungi, neutralizing environmental toxins, and preventing changes within cells that lead to disease. Your Immune System Health score assesses your immune response based on the inflammatory activities throughout your body as well as inside of your gut. This score considers over 14 functional pathway scores, including those related to your body's ability to clear toxins from the gut, manage oxidative stress, and mitigate pro-inflammatory pathways. The Immune System Health score assesses immune system activity related to immune surveillance (innate immunity,) immune communication (cytokine and interleukin signaling), and immune response to microbial threats (adaptive immunity) or injury (wound healing). What a Not Optimal score means: A Not Optimal score means that your immunity is low and your immune system's preparedness to invading bacteria or viruses needs support. We may recommend specific foods or supplements that either address harmful microbial activities, stimulate anti-inflammatory nutrients (like the short-chain fatty acids produced by the gut microbiome), or suppress pro-inflammatory molecules or allergy-related reactions in the body. What a Good score means: A Good score indicates that your immune system is prepared to respond to pathogens, provides support for tissue remodeling/wound repair, and manages pro-inflammatory pathways in the body knowing also when to scale down immune activity while also calming immune responses when there is not a threat. Did you know? Your gut is home to 70% of your immune system, making it your largest immune organ and defense against the invisible invaders that seek to use you as a host to infect and reproduce. Your immune system may not be ready to fight the invading bacteria or viruses if it's dealing with inflammation caused by cellular stress, an overactive immune system, or toxins produced by your gut microbiome due to an unhealthy diet.

Gut Lining Health

Good

This score focuses on your gut lining (or intestinal barrier) and the health of the mucosal layer that protects it. When your gut lining is compromised, things from the outside environment, like toxins, medications, and harmful bacteria, can make their way into your bloodstream from your gut and negatively affect your immune system and overall wellbeing. A good score (in the green zone) means more optimal microbial functions that support your intestinal barrier and fewer disruptive or harmful functions are active in your gut. Follow your recommendations to address your specific pattern of microbial functions, and to prevent any intestinal permeability known as 'leaky gut'.

Inflammation Response

Good

A healthy inflammatory response is essential for our body's ability to defend against invading pathogens and repair damaged tissues. However, prolonged inflammation due to factors such as poor diet, increased stress, and environmental toxins pose a risk for the development of chronic disease. Your Inflammation Response score assesses the overall balance of your body's pro- and anti-inflammatory activity as well as your immune system's ability to resolve (or down-regulate) inflammation. What a Not Optimal score means: A Not Optimal score could mean that there are relatively more pro-inflammatory activities, as opposed to anti-inflammatory or protective ones. This inflammatory activity can actually be destructive when misapplied and also disrupts normal immune communication and response. Your recommended food and supplements will address your unique patterns of stress at a molecular level and may include antioxidants or anti-inflammatory nutrients, flavonoids that down-regulate inflammatory mediators, and vitamins and minerals that act as anti-inflammatory agents. What a Good score means: A Good score means your gut microbiome is contributing to anti-inflammatory activity and your immune system is able to efficiently respond to and regulate inflammatory activity from infection or injury so that it does not negatively impact your host cells. Did you know? Not all inflammation is bad. Inflammation is part of the immune system's natural response needed in times of acute stress or damage to facilitate the movement of immune cells to that area. This score assesses not only the bad types of inflammation but also the good kinds.

Gut Active Microbial Diversity

Good

This score is your percentile for the total count of active microbial species detected and sequenced from your stool sample. Both microbial richness (number of microbes) and evenness (the balance of microbial species) in your gut microbiome play a role in determining the value of Gut Active Microbial Diversity. These metrics are directly influenced by how much microbial RNA is picked up from a given sample compared to what we normally see from the population. A higher percentile indicates a more diverse gut microbiome compared to the Viome population. It is important to keep in mind that Gut Active Microbial Diversity represents the overall diversity of microbes in your gut, which may include both “good” and “bad” microbes. While greater diversity in the gut microbiome has been associated with health benefits, it is certainly not the only piece of the puzzle. This is why Viome also provides biological pathway scores, in other words, what the microbes are actually doing.

Heart & Metabolic Health

Good

The heart is central to our health, pumping vital oxygen and nutrients throughout the body. While many people simply think of managing their cholesterol to improve their cardiovascular health, in reality, there are many factors at play including oxidative stress, endothelial function, kidney function, and vitamin and mineral status. Your Heart & Metabolic score combines insights from microbial and cellular transcripts to give you a comprehensive view of how your diet and lifestyle may be impacting your cardiovascular health. What a Not Optimal score means: A score that is Not Optimal may indicate high oxidative stress in the body due to toxins or inflammatory molecules produced either by the microbiome or as a byproduct of normal metabolism which may promote inflammation, atherosclerotic plaque formation, or negative changes in blood pressure. To improve this score, we may recommend antioxidants, vitamins, herbs, or minerals within foods and supplements to help minimize oxidative stress and support metabolism and vascular function. What a Good score means: A Good score implies that your microbiome and diet are supporting your heart and metabolic health by limiting the impact oxidative stress, inflammation, and elevated blood pressure have on your biology. Did you know? The heart beats about 2.5 billion times during the average lifetime. This fist-shaped organ in the center of your chest delivers 5 to 6 quarts of freshly oxygenated blood, hormones, and nutrients to your cells every minute and removes metabolic waste. The healthy functioning of the heart is essential for human life.

Brain & Cognitive Health

Good

The brain is the master controller of our health, constantly monitoring and adapting to the world around us while coordinating activities between various organ systems. At the same time, it carries all the thoughts, emotions, and memories that make us individuals, making it arguably the most important organ in our body. The gut microbiome aids in the development of our brain and nervous system as well as the management of neurological functions. Many neurotransmitters produced in the gut like serotonin, GABA, and other microbial metabolites, can also strongly influence brain function. Other important factors that influence our brain and cognitive health come from cellular signals associated with stress management, circadian rhythm, and methylation. Your Brain & Cognitive Health score combines insights from microbial and cellular transcripts to give a comprehensive view of how your diet and lifestyle may be impacting your cognitive health. What a Not Optimal score means: A score that is Not Optimal may indicate that there are biological processes happening in the body that can contribute to poor cognitive health such as an imbalance of hormone production, accumulation of ammonia and/or lactic acid, upregulated DNA methylation, and down-regulated DNA repair pathways. To improve this score, we may recommend foods, vitamins, minerals, and herbs to boost your mood or cognitive health and support healthy pathways in the gut microbiome. What a Good score means: A good score implies that your microbiome and diet are supporting your brain and cognitive health through appropriate metabolism of harmful microbial metabolites, DNA maintenance, and the production of hormones and neurotransmitters. Did you know? The brain is nearly 60% fat, and those fats are critical for its functioning. Not supporting your body with the optimal amount of fats may not only leave you hungry and hurt your cognitive health, but it may also increase your risk for Alzheimer's. Supporting your brain health by eating healthy fats on your Superfood or Enjoy list can help your cognitive functioning and your overall health.

Flagellar Assembly Pathways

Good

This score assesses the levels of activity of all microbial pathways leading to the making of a structure called flagella. Flagellar structures serve as "fins" or "tails" for various microbes to help them move. A score that is not optimal suggests that these signaling pathway activities are high, indicating unrest in your microbiome as flagellar structures are helping beneficial organisms move away from a perceived threat. Higher than usual activity can also signal the presence of opportunistic organisms that are known to have these flagellar structures. This score is an important factor in assessing your inflammatory activity patterns.

Salt Stress Pathways

Good

This score assesses the levels of activity of all microbial pathways that signal excessive salt in the gut environment. This kind of signaling activity, when high, suggests that you may need to adjust your salt or sodium intake and/or your hydration levels. Too much salt for your gut microbiome makes your gut environment less favorable for some beneficial or probiotic organisms to thrive. A good score means that that pathway levels that signal microbial salt stress are low.

Cellular Stress

Good

Our Cellular Stress score measures pathway activities that either lead to or are reflective of cellular stress. Too much stress at a cellular level can contribute to damage and dysfunction, which can also expedite cellular aging. A score that is not optimal means that your body needs support in mitigating one or many of the following areas: • Oxidative stress: excessive reactive oxygen species (ROS) and insufficient antioxidant activities needed to remove them (including Sirtuins and NRF2) • Unfolded protein response (UPR) or Endoplasmic Reticulum (ER) stress which can be caused by inflammation, high-fat diet, environmental exposures or microbial sources of stress • Genotoxic stress: DNA damage caused by toxins, which can elicit biochemical responses that either signal the need for quick repair or cell death (if the damage is too high). • Hypoxia-induced stress: insufficient oxygenation levels in the blood, often accompanied by HIF1-alpha - pathway activation • Stress-induced pro-apoptotic signaling, such as overly active p38/JNK or Calcium signaling pathways, all of which can cause otherwise healthy cells to die via programmed cell death, or apoptosis • Antiviral or antimicrobial stress response (cell's lowered ability to defend and sustain itself from foreign invaders)

Cellular Senescence

Good

Your Cellular Senescence score assesses processes involved in progressive decline in your cells' vital functions usually associated with cellular aging such as: • Cellular proteostasis (ability to make, fold, deliver and degrade various proteins) • DNA damage markers and repair signaling • Regulation of telomeres and cellular immortalization • Oxidative and other stress-induced progressive functional decline • Autophagy, stem-cell and regenerative signaling decline A score that is not optimal suggests that your body is not providing the needed cellular activities to remedy the stress processes, restore homeostasis, and rid cells of debris in an efficient manner. Did you know? As cells age, they stop dividing. We call this cellular senescence. These aging cells become dysfunctional, excreting more and more of their harmful byproducts into your body and the bloodstream, causing further cellular inflammation, damage, and stress throughout the body.

Inflammatory Activity

Average

This score measures the activities of your microbes that can contribute to or reflect inflammation in your gut environment. Inflammation in your gut can be caused by harmful things your microbes produce when you are either inefficiently digesting your proteins, have excessive microbial gas production, or simply have a gut environment that your microbes perceive as threatening. A score in the red zone (not optimal) means that there are relatively more pro-inflammatory activities, as opposed to anti-inflammatory or protective ones. Everyone's pattern is unique, so if your score is in the red, some of your recommendations may focus on boosting more of the protective and healing anti-inflammatory functions, while others may focus more on controlling and balancing out the more harmful pro-inflammatory microbes and functions. Follow your recommendations to maintain a good range or improve this score.

Breath Odor

Average

Occasionally, the foods we eat can cause temporary bad breath that fades, but some individuals experience bad breath long after they've eaten. This score assesses the activity of microbial pathways that result in the production of volatile sulfides and polyamines, compounds that can worsen and prolong bad breath. A Good score indicates decreased production of these foul-smelling compounds. If your score is Not Optimal, we'll provide you with precise food and supplement recommendations designed to improve pathway activities related to the production of volatile compounds and bring your oral microbiome into balance.

Dental Health

Average

Scientists have long studied the microbes in our mouths and determined that the balance of oral microbes significantly impacts our dental health. While some bacteria contribute to plaque formation and tooth decay, others are actually protective. This score assesses the balance of microbes in the mouth and the activity of microbes that contribute to cavity formation. A Good score reflects a healthy balance between these microbes and might indicate a lower risk for cavities. If your score is Not Optimal, we'll provide you with food and supplement recommendations designed to balance the oral microbiome, targeting plaque formation and oral pH which is necessary to keep everything in balance.

Gum Health

Average

Within your mouth, certain harmful microbes can contribute to gum inflammation and poor gum health. This score assesses the activities of microbes in your mouth that contribute to inflammation and abnormal mucin degradation, a gel-like substance that aids in protecting the gums. A Good score reflects lower inflammatory activity and a healthy balance of microbes in the mouth that contribute to normal levels of mucin degradation. If your score is Not Optimal, we'll provide you with food and supplement recommendations designed to balance the oral microbiome, decrease inflammation, and further support the barrier function of your gums.

Kidney-Heart Health

Average

Your kidneys and heart work together to keep you feeling your best, and both can influence the health of the other. The kidneys impact heart health through their central role in the regulation of blood pressure as well as their ability to filter blood to remove metabolites that can injure your blood vessels and other tissues. Metabolites like homocysteine are produced by our cells as a part of normal metabolism but can cause oxidative stress if not recycled into beneficial glutathione (the master antioxidant) or filtered from the blood by the kidneys. A Good score reflects healthy human gene expression related to homocysteine metabolism as well as balanced renin-angiotensin hormone activity that influences blood pressure. If your score is Not Optimal, we'll provide you with food and supplement recommendations aimed to increase vitamins and minerals that aid in homocysteine breakdown and blood pressure management.

Oral Sulfide Production Pathways

Average

We all have bad breath from time to time. However, prolonged bad breath can be a sign that the oral cavity may be producing high levels of volatile sulfur compounds from the foods we eat. This score assesses the activity of all microbial pathways contributing to volatile sulfur compounds, which promote bad breath. Foods that contain sulfur compounds act as fuel for this activity. While we've all experienced certain foods causing temporary bad breath, if your Oral Sulfide Production Pathway score is high, these foods can contribute to prolonged bad breath. A Good score means that the activity of volatile sulfur-compound producing microbes is low and you're less likely to experience prolonged bad breath from these foods.

Oral Polyamine Production Pathways

Average

When it comes to bad breath, unpleasant-smelling polyamine compounds are one of the largest culprits. The amino acids ornithine, lysine, tryptophan, and citrulline are commonly found in foods and can be converted to volatile polyamines by microbes. These polyamines smell rotten, making breath smell worse when pathway activity is high. A Good score means that the activity of microbes producing volatile polyamines is low.

Cavity Promoting Microbes

Average

Cavities are a leading cause of tooth decay which is among the world's most common health problems. You can consider yourself lucky if you've never had one. The Cavity Promoting Microbes score assesses specific microbes that can contribute to dental cavities. Streptococcus Mutans (S. mutans) is commonly found in the mouth and can accumulate on the surface of teeth leading to tooth decay. Sugary foods, different types of starches, and poor oral hygiene can also contribute to the build-up of these microbes. The Cavity Promoting Microbes score generates food and supplement recommendations designed to balance the oral microbiome, targeting plaque formation, and neutralizing oral pH balance.

Cavity Promoting Pathways

Average

Cavities are a leading contributor to tooth decay and can impact the health of your mouth. They're considered one of the world's most common health problems. The Cavity Promoting Pathways score is an assessment of microbial activities which contribute to dental cavities, as well as activities that protect against dental cavities. This score also takes a deeper dive into cavity biofilm formation and acid production that can contribute to cavity formation. The Cavity Promoting Pathways score generates food and supplement recommendations designed to harmonize the oral microbiome, reduce plaque formation, and balance oral pH.

Oral Inflammatory Pathways

Average

Just as inflammation in the body is harmful to human health, acute or chronic inflammation of the gums can also have long-term health consequences. The Oral Inflammatory Pathways score assesses whether a mouth may contain periodontopathic bacteria (bacteria that cause gum inflammation) and if these bacteria are actively involved in gum inflammatory pathways. Inflammatory bacteria thrive in dental plaques and beneath the gums where they cooperatively form biofilms and produce signals that can trigger an inflammatory response. Chronic gum inflammation can cause loss of tooth enamel and dentin (the two outer layers of the teeth). A Good score reflects low inflammatory pathway activity in these areas. Nutritional recommendations for a Not Optimal score are designed to decrease levels of inflammatory bacteria and minimize the inflammatory activity of the oral microbiome.

Oral Mucin Degradation Pathways

Average

Mucin is a thick, gel-like substance that helps coat the gums, making it difficult for bacteria to latch onto them. Mucin protects your gums from bacteria that secrete acids capable of eroding holes in your gums. While it's normal to have some mucin degradation, high mucin degradation can be damaging. Over time, these holes can actually lead to 'leaky gums' allowing bacteria to slip into our bloodstream and contribute to inflammation. Long-term inflammation in the gums is a risk factor for gum disease, infection, cardiovascular disease, and may even disrupt brain function. A Good score reflects a healthy balance of microbes in the mouth that contribute to normal levels of mucin degradation. Your Oral Mucin Degradation Pathways score generates food and supplement recommendations designed to balance the oral microbiome and support the barrier function of your gums.

Homocysteine Pathways

Average

This score is an assessment of gene expression in the blood that impacts the accumulation of homocysteine. Homocysteine is an amino acid that is a normal byproduct of cellular metabolism. Homocysteine is typically recycled to support beneficial folate metabolism, protein synthesis, or antioxidant glutathione production. However, if the production of homocysteine is significantly increased or recycling is impaired, then homocysteine can accumulate. High homocysteine levels are associated with blood vessel damage and an increased risk for cardiovascular disease. Fortunately, homocysteine balance can be addressed with nutrition. A Good score reflects a healthy balance in homocysteine pathways. If your score is Not Optimal, increasing foods high in Vitamin B12, Vitamin B6, and folate may be helpful.

Uremic Toxin Production Pathways

Average

This score assesses microbial activities in the gut that cause the production of uremic toxins. Uremic toxins, like p-cresol and indoxyl sulfate, are created in the gut by microbes when certain compounds, such as tryptophan and tyrosine, are present. Uremic toxins then enter circulation where they can cause oxidative stress and harm the cells that line the vascular system. Uremic toxins are associated with an increased risk of cardiovascular disease, especially when coupled with impaired kidney function. A Good score reflects a low level of microbial activity related to uremic toxin production. If your score is Not Optimal, limiting or avoiding foods and supplements high in tryptophan and tyrosine may be helpful.

Anxiety Associated Pathways

Average

This score assesses host pathway activities associated with anxiety. This includes pathways involved in DNA methylation, cell cycle signaling, histone packaging, circadian rhythm, neutrophils, calcium signaling, and stress which are commonly dysregulated in individuals experiencing symptoms of anxiety. A score that is Not Optimal does not equate to an anxiety diagnosis, but it does indicate increased pathway activities that may contribute to anxiety. To improve this score, you may see nutritional recommendations rich in polyphenols or vitamins which support improvements in these anxiety-associated pathways.

Ammonia Production Pathways

Average

This score assesses the levels of activity of all microbial pathways that result in the production of ammonia. Ammonia gas can be made from amino acids as a byproduct of the breaking down of protein or from ingested nitrate or nitrite molecules found in things like food preservatives or additives. This kind of activity, when high, contributes to pro-inflammatory patterns potentially harmful to the gut lining and gut motility (the movement of food through your digestive tract.) Ammonia produced in the gut also contributes up to 50% of ammonia found in the blood which can negatively impact neurotransmitter production and cognitive function. A Good score means that the activity of ammonia production pathways is low.

Protein Fermentation

Average

This score reflects whether or not you are digesting your proteins properly. Protein digestion begins when you first start chewing and continues down in your stomach. If the protein is not fully broken down through this process, your microbes will digest the excess protein available and may convert it into harmful byproducts. Overly high microbial protein fermentation translates into a score within the red zone, suggesting your protein digestion is suboptimal.

Oral Health

Average

Your digestive system begins with your mouth and is often your first line of defense against pathogens. Your mouth is home to over 6 billion bacteria which are commonly referred to as the oral microbiome. Your oral microbiome is distinct from the gut microbiome but its influence is just as great. Oral health impacts systems beyond the mouth and is intricately connected to your cardiovascular, immune, bone, and brain health. Your Oral Health score integrates six functional pathway scores that assess your oral microbiome, providing you with a scorecard of key components of your oral health. What a Not Optimal score means: A Not Optimal score indicates that your oral microbiome may be producing compounds that promote inflammation, cavity formation, and 'leaky gums'. Leaky gums allow bacteria and their metabolites to slip into our bloodstream and contribute to inflammation elsewhere in the body. What a Good score means: A Good score indicates an optimized oral microbiome that maximizes protective microbial pathways supporting gum health, reduced plaque and cavity formation, and fresh breath. Did you know? The oral microbiome is the second-largest and second-most diverse microbiome in the body, just behind the gut. These microbes shape our gut microbiome as they travel through the digestive system and further determine which microbes more abundantly appear in the colon. Ultimately the health of our oral microbiome impacts our entire body.

Oral Active Microbial Diversity

Average

This score is your percentile for the total count of active microbial species detected and sequenced from your sample. Both microbial richness (number of microbes) and evenness (the balance of microbial species) in your oral microbiome play a role in determining the value of your Oral Active Microbial Diversity. These metrics are directly influenced by how much microbial RNA is picked up from a given sample compared to what we normally get from the population. A higher percentile indicates a more diverse oral microbiome compared to the Viome population. It is important to keep in mind that Oral Active Microbial Diversity represents the overall diversity of microbes in your mouth, which may include both “good” and “bad” microbes. While the scientific community continues to uncover the importance of oral microbial diversity, it is still unclear whether a more diverse oral microbiome is optimal. However, we do know that it is not the only piece of the puzzle. This is why Viome also provides biological pathway scores to assess what the microbes are actually doing. Viome will continue to communicate findings as soon as we learn more!

Butyrate Production Pathways

Average

This score assesses the levels of activity of all microbial pathways that lead to the production of a beneficial nutrient - butyrate. Butyrate is a short-chain fatty acid known to beneficially affect many wellness areas from gut lining to insulin sensitivity and satiety (feeling full). A score that is not optimal means that your microbial butyrate production could really use a good boost! Individuals with low butyrate production activity would benefit from supplements or foods that either feed or add butyrate producing microbes into your gut ecosystem.

LPS Biosynthesis Pathways

Average

This score assesses the levels of activity of all microbial pathways leading to the production of LPS (lipopolysaccharides) in your gut. LPS is a pro-inflammatory molecule that gut microbes make, which can trigger your immune system response, especially if it passes to the bloodstream through the gut lining. This score is an important factor in assessing your inflammatory activity patterns.

Oxalate Metabolism Pathways

Average

This score assesses the levels of activity of all microbial pathways needed to break down or metabolize oxalate. Oxalates are a major contributor to kidney stones. Oxalate-metabolizing microbes can help you by removing and digesting oxalate that you ingested from food. A good score means oxalate-metabolizing activities are high in your microbiome. When this score is not optimal, you may see some of the foods high in oxalate content on your list to minimize or even avoid.

Uric Acid Production Pathways

Average

This score assesses the levels of activity of all microbial pathways that lead to the production of uric acid (or urate). Uric Acid is a normal byproduct that comes from the breakdown of compounds called purines, which can be found in beer, sugary sodas, seafood and shellfish, turkey, veal, bacon, and organ meats. Excessive amounts of uric acid can contribute to gout. A good score means that your uric acid production pathway levels are low.

Biofilm, Chemotaxis, and Virulence Pathways

Average

This score assesses the levels of all activity of all metabolic pathways that suggest a pro-inflammatory or hostile environment in the gut. This includes virulence factors, biofilm formation, and chemotaxis signaling, which are all important parts of your overall inflammatory activity patterns. When this score is relatively high it means that there is some threat in the environment and your microbes are trying to either defend themselves, attack each other, or move. This type of a "microbial war zone" can negatively impact your gut environment, and some of the "bullets" secreted by the microbes may trigger an immune response. A good score means that these pathway activities are at low levels.

Biological Age

Average

In order to determine your biological age, we assess the activities of your gut microbiome, your cells, and oral microbiome (if you collected a saliva sample) in order to determine how well you are aging in comparison with your chronological age. If your Biological Age is substantially higher than your chronological age, this means that at a cellular level, your body is aging faster compared with other people your age. Your food and supplement recommendations will target the underlying causes detailed in your other Integrative Health scores that have an impact on how you're aging internally.

Recommendations

It's here! Your personalized Viome recommendations.

Your recommendations
Your personalized recommendations are based on the activity of microbes in your gut and the information you've provided. Your recommendations are aimed at balancing your overall microbiome. Let's put it this way: Your food list highlights foods that will be transformed by your microbes into beneficial substances while limiting foods that will be transformed into harmful metabolites.
Remember, you and your microbiome are unique, and no single recommendation applies to everyone. The same foods can be beneficial for one person, neutral for another, and harmful for others. Ready to dig in?

Your foods
Your food recommendations have been classified into 4 ranks to help you achieve optimum health and well-being. These are:

1. **Superfoods.** Meet your food destiny. These are your most beneficial foods.
2. **Enjoy.** Build a strong foundation with these nutrient dense foods.
3. **Minimize.** You should still eat these foods (but within limits).
4. **Avoid.** These foods are your personal kryptonite.

Your recommended servings
We all struggle to figure out serving sizes on food labels because they only act as measurement tools, they are not personalized for you.
With your food list, you get personalized servings to inform you on how much you should eat from each food category in a given day. And under each food, you'll find Viome's serving size, so you know the exact amount of that food to eat.
Tip: If you are very active in a day, you can increase your servings from each food category proportionally for that day.
Once you master your total servings per day, you can aim to achieve diversity by eating your recommended servings for each food rank.

Before you get started
Your success means a lot to us. Read our tips below before you begin.

What About Allergies?

You may notice some foods that you are allergic or sensitive to in your recommended food lists. Err on the side of caution. If you know you have a reaction or dislike to a recommended food, please do not consume it.

Foods are specifically chosen based on your unique microbiome rather than on allergies.

What about viruses?

You may see some foods placed on your avoid list due to viruses. Viruses are known to infect foods and have been associated with an inflammatory response. Internal Viome studies suggest that temporarily avoiding the virus-related foods for 3 to 4 weeks may be sufficient to reduce or eliminate activity of the viruses. You do not have to avoid all virus-related foods at once. After temporarily removing any virus-related food, you may choose to reintroduce that food back into your diet.

When is it best to eat?

Aim to eat 3 meals a day, and you may also need a small snack daily. Avoid eating 1-2 hours before you go to bed.

Go for variety

Explore foods that you haven't tried and since we're at it, alternate choices instead of eating the same food every day. Choose different foods from each of your superfood, enjoy, and minimize food categories based on your recommended amounts.

Listen to your body

Your recommended amounts are a guideline on the quantity of foods you should aim for. Stop eating once you are comfortably satiated or 80% full. Monitor how you feel, including your **hunger** , **energy level** , and **mood** or other forms of discomfort 1-3 hours after eating. If you consistently feel worse in any of these areas, you may need to adjust your food choices.

What else?

In addition to your food plan, your microbiome and your metabolism will benefit from a variety of stretching, strength training, interval training, and aerobic exercise at least 3 times per week.

My Foods

My Superfoods

We recommend you eat more of these foods

These foods are specially forumulated to prioritize your gut's health and biodiversity.

Anchovies
Proteins & Fat
3 ounces

Superfood

My Microbiome's Response to Anchovies

Anchovies contain essential fatty acids which are a class of unsaturated fatty acids. After analyzing your microbiome and taking your questionnaire data into account, it has been determined that anchovies in your diet will be helpful for you. Essential fatty acids are critical for a stable microbiome. They increase microbial diversity and beneficial butyrate-producing bacteria. Butyrate is anti-inflammatory and promotes a strong gut lining by tightening the junctions between cells. It has been reported that essential fatty acids nourish your brain, enhance Gut Health and decrease inflammation.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pubmed/26610527
2. https://www.ncbi.nlm.nih.gov/pubmed/29215589

Artichoke
Veggies
1 cup, diced

Superfood

My Microbiome's Response to Artichoke

Artichokes contain inulin which is a prebiotic fiber. After an interpretation of your microbiome and taking your questionnaire data into account, it has been determined that artichokes in your diet will be helpful for you. Inulin is converted by your microbiome to produce butyrate. Research shows that inulin increases microbial diversity, prevents constipation, helps manage weight, regulates blood sugar and aids with gastrointestinal distress.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to artichokes.

Artichokes may improve your Butyrate Production Pathways score.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pubmed/29244718
2. https://www.ncbi.nlm.nih.gov/pubmed/29507837

Barley

Fruits & Grains
3 ounces, cooked

Superfood

My Microbiome's Response to Barley

Barley contains beta-glucan which is a fiber. After an analysis of your microbiome and taking your data into account, it has been determined that barley in your diet will be helpful for you. Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Barley contains beta-glucan which may help keep levels of LDL-cholesterol in normal range.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to barley.

Barley may improve your LDL cholesterol pathways score.
Learn more…

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5810204/

Beets

Veggies
1 cup

Superfood

My Microbiome's Response to Beets

Beets contain nitric oxide which is a nitric oxide percursor. After an analysis of your microbiome and taking your questionnaire data into account, it has been determined that beets in your diet will be optimal for you. Dietary nitrates are converted to nitric oxide inside the body. Nitric oxide regulates the activity of many different types of immune cells. NO inhibits the expression of pro-inflammatory signaling molecules like IL-1beta, TNF-alpha, IL-6, and INF-gamma in various immune cells such as lymphocytes, eosinophils and monocytes.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to beets.

Beets may improve your Immune System Activation and Immune System Health scores.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3100761/

Bone Broth (Fish)

Proteins & Fat
1 cup

Superfood

My Microbiome's Response to Bone Broth (Fish)

Fish bone broth contains Vitamin B12 which is an essential B vitamin. After analyzing your microbiome and taking your wellness goals into account, it has been determined that fish bone broth in your diet will be good for you. B vitamins undergo phosphorylation, oxidation and hydrolysis by your gut microbiome. Research shows that B vitamins are important in synthesizing neurotransmitters, promoting sleep, aiding in nutrient cycling and boosting liver function.

Fish bone broth may improve your Methane Gas Production Pathways score.
Learn more…

1. https://www.biorxiv.org/content/10.1101/2020.12.21.423794v1.full.pdf

[redacted]

Cinnamon

Spices & Other
1/4 teaspoon

Superfood

My Microbiome's Response to Cinnamon

Cinnamon contains cinnamaldehyde which is a phytochemical. After an interpretation of your microbiome and taking your questionnaire data into account, it has been determined that cinnamon in your diet will be optimal for you. Phytochemicals are metabolized into smaller compounds, like cinnamaldehyde, by your microbiome prior to absorption. It has been reported that cinnamaldehyde has antimicrobial properties and can protect us from harmful bacteria, viruses, and pathogens.

Cinnamon may improve your Ammonia Production Pathways and Putrescine Production Pathways scores.
Learn more…

1. *https://pubmed.ncbi.nlm.nih.gov/10617061/*

Cocoa (Unsweetened)

Spices & Other
1 tablespoon

Superfood

My Microbiome's Response to Cocoa (Unsweetened)

Cocoa contains flavonoids which are a group of polyphenols. After an interpretation of your microbiome and taking your questionnaire data into account, it has been determined that cocoa in your diet will be helpful for you. Flavonoids in dark chocolate have been shown to inhibit the enzyme that converts cortisone into cortisol, thereby lowering cortisol levels.

Cocoa may improve your Cortisol Pathways score.
Learn more…

https://www.mdpi.com/2076-3921/8/6/149/htm

[redacted]

Enoki Mushrooms

Veggies
1 cup, diced

Superfood

My Microbiome's Response to Enoki Mushrooms

Enoki mushrooms contain beta-glucan which is a fiber. After an interpretation of your microbiome and taking your questionnaire data into account, it has been determined that enoki mushrooms in your diet will be helpful for you. Fiber is converted by your microbiome to produce butyrate. It has been reported that fiber increases microbial diversity, prevents constipation, helps manage weight, regulates blood sugar and aids with gastrointestinal distress.

Enoki mushrooms may improve your Bile Acid Metabolism Pathways score.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6892284/

Fig

Fruits & Grains
2 whole

Superfood

My Microbiome's Response to Fig

Figs contain magnesium which is a mineral. After an analysis of your microbiome and taking your data into account, it has been determined that figs in your diet will be of benefit for you. Magnesium is great for your microbiome - it can increase the abundance of Bifidobacterium species. These microbes help digest fiber, which produces butyrate, a short-chain fatty acid that balances inflammation and some Bifidobacteria further promote the release of nutrients like magnesium from dietary sources. Research shows that magnesium decreases inflammation, protects your heart, and is an essential cofactor for many different enzymes.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to figs.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pubmed/24465574

2. https://www.ncbi.nlm.nih.gov/pubmed/18568054

3. https://www.ncbi.nlm.nih.gov/pubmed/20089787

Grapes

Fruits & Grains

1 cup

Superfood

My Microbiome's Response to Grapes

Grapes contain resveratrol which is a polyphenol. After analyzing your microbiome and taking your data into account, it has been determined that grapes in your diet will be good for you. Resveratrol supports healthy mitochondrial functioning by stimulating mitochondrial biogenesis, a process in which mitochondria increase in mass and produce more energy. Resveratrol activates the peroxisome proliferator-activated receptor gamma coactivator 1-alpha (PGC-1alpha) pathway, which is a master regulator of mitochondrial biogenesis. In addition, resveratrol also regulates the gene expression of anti-oxidative enzymes such as NADPH oxidases (Nox), superoxide dismutase (SOD) and glutathione peroxidase 1 (GPx1).

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to grapes.

Grapes may improve your Mitochondrial Biogenesis Pathways and Mitochondrial Health scores.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5883375/

2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6412811/

3. https://pubmed.ncbi.nlm.nih.gov/20083859/

Green Tea

Spices & Other

Superfood

1 cup

My Microbiome's Response to Green Tea

Green tea contains EGCG which is a flavonoid. After an analysis of your microbiome and taking your data into account, it has been determined that green tea in your diet will be helpful for you. EGCG needs to be methylated by your microbes before it can be used. It decreases production of harmful microbial metabolites, such as p-cresol, and has anti-carcinogenic, antioxidant, and anti-viral benefits. Research shows that EGCG can also boost your metabolism.

Learn more…

1. https://www.ncbi.nlm.nih.gov/pubmed/23493529
2. https://www.ncbi.nlm.nih.gov/pubmed/22339247

Jerusalem Artichoke

Veggies

1 cup

Superfood

My Microbiome's Response to Jerusalem Artichoke

Jerusalem artichoke contains inulin which is a prebiotic fiber. After analyzing your microbiome and taking your questionnaire data into account, it has been determined that jerusalem artichoke in your diet will be good for you. Inulin is converted by your microbiome to produce butyrate. Research shows that inulin increases microbial diversity, prevents constipation, helps manage weight, regulates blood sugar and aids with gastrointestinal distress.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to jerusalem artichoke.

Jerusalem artichoke may improve your Butyrate Production Pathways score.

Learn more…

1. https://www.ncbi.nlm.nih.gov/pubmed/29244718

2. https://gut.bmj.com/content/early/2017/02/17/gutjnl-2016-313271

3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5835350/

4. https://www.ncbi.nlm.nih.gov/pubmed/?term=26500686

Kiwi

Fruits & Grains

2 whole

Superfood

My Microbiome's Response to Kiwi

Kiwi contains Vitamin C which is a water-soluble vitamin. After an analysis of your microbiome and taking your wellness goals into account, it has been determined that kiwi in your diet will be helpful for you. Vitamin C plays an important role in boosting the immune system. It is mainly found in white blood cells and can enhance their ability to produce cytokines and interferons to heighten anti-viral responses for nearby cells. Cytokines and interferons are signaling molecules that trigger an immune response. Kiwi is also a good source of many other immune boosting compounds such as carotenoids and polyphenols.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to kiwi.

Kiwi may improve your Immune System Activation and Immune System Health scores.

Learn more…

1. https://pubmed.ncbi.nlm.nih.gov/23394995

2. https://www.mdpi.com/2072-6643/9/11/1211

Leek

Veggies

1/2 cup, sliced

Superfood

[redacted]

My Microbiome's Response to Leek

Leeks contain inulin which is a prebiotic fiber. After an analysis of your microbiome and taking your data into account, it has been determined that leeks in your diet will be helpful for you. Inulin is converted by your microbiome to produce butyrate. Research shows that inulin increases microbial diversity, prevents constipation, helps manage weight, regulates blood sugar and aids with gastrointestinal distress.

Leeks may improve your Butyrate Production Pathways score.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pubmed/29244718
2. https://www.ncbi.nlm.nih.gov/pubmed/29507837

Maitake Mushrooms

Veggies
1 cup, diced

Superfood

My Microbiome's Response to Maitake Mushrooms

Maitake mushrooms contain beta-glucan which is a fiber. After an analysis of your microbiome and taking your data into account, it has been determined that maitake mushrooms in your diet will be helpful for you. Fiber is converted by your microbiome to produce butyrate. It has been reported that fiber increases microbial diversity, prevents constipation, helps manage weight, regulates blood sugar and aids with gastrointestinal distress.

Maitake mushrooms may improve your Bile Acid Metabolism Pathways score.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6892284/

Nectarine

Fruits & Grains

Superfood

1 whole

My Microbiome's Response to Nectarine

Nectarine contains FOS which is a prebiotic. After analyzing your microbiome and taking your data into account, it has been determined that nectarine in your diet will be good for you. FOS stimulates the growth of beneficial bacteria like Lactobacillus strains which produce butyrate - a short-chain fatty acid that decreases inflammation and strengthens your gut lining. It also decreases the activity of less beneficial organisms. Studies indicate that FOS helps manage weight and protects against metabolic syndrome.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to nectarine.

Nectarine may improve your Sulfide Gas Production Pathways score.
Learn more…

1. https://www.jstage.jst.go.jp/article/bifidus1996/19/1/19_1_51/_pdf

Orange

Fruits & Grains
1 whole

Superfood

My Microbiome's Response to Orange

Oranges contain flavonoids which is a polyphenols. After an analysis of your microbiome and taking your data into account, it has been determined that oranges in your diet will be helpful for you. Flavonoids are complex and composed of many compounds that are released following microbial metabolism. Flavonoids balance your microbiome, encourage growth beneficial Lactobacillus and Bifidobacteria species and inhibiting growth of harmful or pathogenic bacteria. Studies indicate that flavonoids benefit many biological systems including gastrointestinal, hormonal, neurological, ocular, immune and decrease inflammation.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to oranges.

Oranges may improve your Ammonia Production Pathways score.
Learn more…

https://pubmed.ncbi.nlm.nih.gov/31849855/

Pecans

Proteins & Fat
15 nuts

Superfood

My Microbiome's Response to Pecans

Pecans contain omega3fattyacids which is an unsaturated fatty acid. After an interpretation of your microbiome and taking your data into account, it has been determined that pecans in your diet will be helpful for you. Omega-3 fatty acids increase microbial diversity and beneficial butyrate-producing bacteria. Studies have shown that diets high in unsaturated fatty acids result in lower ammonia production by the gut microbiome.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to pecans.

Pecans may improve your Ammonia Production Pathways score.
Learn more…

https://www.sciencedirect.com/science/article/abs/pii/S0271531714001444

Pistachios

Proteins & Fat
35 nuts

Superfood

My Microbiome's Response to Pistachios

Pistachios contain CoQ10 which is a coenzyme. After an analysis of your microbiome and taking your data into account, it has been determined that pistachios in your diet will be of benefit for you. CoQ10 plays a critical role in cellular energy production. It is a component in the mitochondrial electron transport chain, which generates cellular energy in the form of ATP. CoQ10 has been shown to activate peroxisome proliferator-activated receptor gamma coactivator 1alpha (PGC-1alpha), a key player in controlling mitochondrial biogenesis and energy production. CoQ10 may also activate expression of critical mitochondrial antioxidant enzymes such as superoxide dismutase 2 (SOD-2), and isocitrate dehydrogenase 2 (IDH-2).

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to pistachios.

Pistachios may improve your Energy Production Pathways and Mitochondrial Health scores.
Learn more…

1. https://lpi.oregonstate.edu/mic/dietary-factors/coenzyme-Q10
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4025630/

Raspberry

Fruits & Grains
1 cup

Superfood

My Microbiome's Response to Raspberry

Raspberries contain anthocyanins which are a group of flavonoids. After an interpretation of your microbiome and taking your data into account, it has been determined that raspberries in your diet will be beneficial for you. Your microbiome plays an important role in breaking down flavonoids. Once flavonoids are metabolized, anthocyanins are absorbed by your body. Studies indicate that anthocyanins enhance diversity of beneficial bacteria, decrease inflammation, promote a healthy metabolism, are neuroprotective and have antioxidant properties.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to raspberries.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pubmed/15605279
2. https://www.ncbi.nlm.nih.gov/pubmed/12547288
3. https://www.ncbi.nlm.nih.gov/pubmed/22439618

Salmon (Wild-Caught)

Proteins & Fat
3 ounces

Superfood

My Microbiome's Response to Salmon (Wild-Caught)

Salmon contains dha which is an omega-3 fatty acid. After an analysis of your microbiome and taking your data into account, it has been determined that salmon in your diet will be helpful for you. Essential fatty acids buffer the stress response and help maintain a healthy cortisol balance.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to salmon.

Salmon may improve your Cortisol Pathways score.
Learn more…

1. *https://www.ncbi.nlm.nih.gov/pubmed/15512856*

   https://pubmed.ncbi.nlm.nih.gov/22575036/

Sauerkraut

Veggies
1 cup

Superfood

My Microbiome's Response to Sauerkraut

Sauerkraut contains probiotics which are beneficial microbes. After an analysis of your microbiome and taking your data into account, it has been determined that sauerkraut in your diet will be of benefit for you. Probiotics restore and promote diversity and balance in your microbiome. This helps to decrease and prevent inflammation, manage symptoms of gastrointestinal distress, promote regularity, and balance your immune responses. A diverse microbiome also optimizes conversion of dietary nutrients to enhance your health.

Sauerkraut may improve your Methane Gas Production Pathways score.
Learn more…

1. https://www.ajas.info/upload/pdf/24-34.pdf

Shiitake Mushrooms

Veggies

1 cup, diced

Superfood

My Microbiome's Response to Shiitake Mushrooms

Shitake mushrooms contain beta-glucan which is a fiber. After analyzing your microbiome and taking your questionnaire data into account, it has been determined that shitake mushrooms in your diet will be beneficial for you. Fiber is converted by your microbiome to produce butyrate. It has been reported that fiber increases microbial diversity, prevents constipation, helps manage weight, regulates blood sugar and aids with gastrointestinal distress.

Shitake mushrooms may improve your Bile Acid Metabolism Pathways score.

Learn more…

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6892284/

Soybeans (non-GMO)

Proteins & Fat

1/2 cup

Superfood

My Microbiome's Response to Soybeans (non-GMO)

Soybeans contain phosphatidylserine which is a phospholipid. After an interpretation of your microbiome and taking your wellness goals into account, it has been determined that soybeans in your diet will be beneficial for you. Studies have shown that phosphatidylserine reduces blood cortisol levels during emotional or physical stress and may be beneficial in reducing the harmful effects of prolonged, elevated cortisol.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to soybeans.

Soybeans may improve your Cortisol Pathways score.

Learn more…

1. https://www.ncbi.nlm.nih.gov/pubmed/15512856

   https://pubmed.ncbi.nlm.nih.gov/22575036/

Spinach

Veggies
1 cup

Superfood

My Microbiome's Response to Spinach

Spinach contains alpha-lipoic acid which is a antioxidant. After an interpretation of your microbiome and taking your data into account, it has been determined that spinach in your diet will be optimal for you. Alpha-lipoic acid (ALA) is essential for energy production and can also act as antioxidant. ALA's role in energy production involves being a critical cofactor for mitochondrial energy production enzymes such as pyruvate dehydrogenase (PDH), alpha-ketoglutarate dehydrogenase (alpha-KGDH), and branched-chain ketoacid dehydrogenase (BCKDC).

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to spinach.

Spinach may improve your Energy Production Pathways and Mitochondrial Health scores.
Learn more…

1. https://academic.oup.com/biomedgerontology/article/61/7/650/822618
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3600316/

Sunflower Seeds

Proteins & Fat
2 tablespoons

Superfood

[redacted]

My Microbiome's Response to Sunflower Seeds

Sunflower seeds contain vitamin E which is a fat-soluble vitamin. After analyzing your microbiome and taking your data into account, it has been determined that sunflower seeds in your diet will be beneficial for you. Vitamin E keeps your microbiome balanced. Vitamin E promotes gut barrier strength, prevents dysbiosis, alters immune responses, and decreases inflammation. It has been reported that your microbiota transforms vitamin E into different isomers, each with its own health benefits. Some of these benefits include neuronal protection, enhanced athletic performance and better cardiovascular fitness.

Learn more…

1. https://www.ncbi.nlm.nih.gov/pubmed/10701711
2. https://www.ncbi.nlm.nih.gov/pubmed/27548249
3. https://www.ncbi.nlm.nih.gov/pubmed/25177163

Tomato

Veggies

1 cup, peeled, seeded

Superfood

My Microbiome's Response to Tomato

Tomatoes contain alpha-lipoic acid which is a antioxidant. After analyzing your microbiome and taking your questionnaire data into account, it has been determined that tomatoes in your diet will be beneficial for you. Alpha-lipoic acid (ALA) is essential for energy production and can also act as antioxidant. ALA's role in energy production involves being a critical cofactor for mitochondrial energy production enzymes such as pyruvate dehydrogenase (PDH), alpha-ketoglutarate dehydrogenase (alpha-KGDH), and branched-chain ketoacid dehydrogenase (BCKDC).

Tomatoes may improve your Energy Production Pathways and Mitochondrial Health scores.

Learn more…

1. https://academic.oup.com/biomedgerontology/article/61/7/650/822618

2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3600316/

Trout (Cold Water)

Proteins & Fat
4 ounces

Superfood

My Microbiome's Response to Trout (Cold Water)

Trout contains omega3fattyacids which is an unsaturated fatty acid. After an interpretation of your microbiome and taking your data into account, it has been determined that trout in your diet will be helpful for you. Omega-3 fatty acids increase microbial diversity and beneficial butyrate-producing bacteria. Studies have shown that diets high in unsaturated fatty acids result in lower ammonia production by the gut microbiome.

Additionally, analysis of your data predicts that you are unlikely to have an increased blood sugar response to trout.

Trout may improve your Ammonia Production Pathways score.
Learn more…

https://www.sciencedirect.com/science/article/abs/pii/S0271531714001444

White Mushroom

Veggies
1 cup, diced

Superfood

My Microbiome's Response to White Mushroom

White mushrooms contain beta-glucan which is a polysaccharide. After an interpretation of your microbiome and taking your data into account, it has been determined that white mushrooms in your diet will be beneficial for you. Beta-glucan has a stimulatory effect on the immune system. It works by binding to receptors on immune cells (monocytes and macrophages), which stimulates their adaptive immune response. This makes the immune system "smarter" and more prepared to react to foreign pathogens such as viruses, bacteria, and parasites. Beta-glucans stimulate immune response by increasing the gene expression of the cytokines interleukin-1 (IL-1) by macrophages, and IL-2 by T-cells.

White mushrooms may improve your Bile Acid Metabolism Pathways, Immune System Activation, and Immune System Health scores.

Learn more…

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6618291/

My Foods to Avoid

We recommend you avoid these foods

These are commonly known foods that will not benefit your overall wellness.

Asparagus
Veggies

Avoid

My Microbiome's Response to Asparagus

Asparagus contains glucosinolates which has been shown to impair the absorption or utilization of essential nutrients if it is not degraded by specific microbes. An analysis of your data indicates that avoiding asparagus will be beneficial for you.

Avoiding asparagus may improve your Sulfide Gas Production Pathways score.
Learn more…

1. https://pubmed.ncbi.nlm.nih.gov/28766244/
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6767122/
3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4985713/

Beef (Fatty, Grass-Fed)
Proteins & Fat

Avoid

My Microbiome's Response to Beef (Fatty, Grass-Fed)

Fatty beef contains carnitine, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding fatty beef may improve your Ammonia Production Pathways, LDL cholesterol pathways, and Methane Gas Production Pathways scores.
Learn more…

1. https://www.annualreviews.org/doi/abs/10.1146/annurev-micro-091014-104422
2. https://www.nature.com/articles/ismej201772

Beef (Lean, Grass-Fed)
Proteins & Fat

Avoid

My Microbiome's Response to Beef (Lean, Grass-Fed)

Lean beef contains carnitine, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding lean beef may improve your Ammonia Production Pathways and Methane Gas Production Pathways scores.
Learn more…

1. https://www.annualreviews.org/doi/abs/10.1146/annurev-micro-091014-104422
2. https://www.nature.com/articles/ismej201772

Bell Pepper
Veggies

Avoid

My Microbiome's Response to Bell Pepper

Your microbiome contains pepper mild mottle virus, which is known to infect bell pepper. Since plant viruses in the microbiome have been associated with inflammatory symptoms, it is recommended for you to avoid bell pepper.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6435874/
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4405218/

Blueberry
Fruits & Grains

Avoid

My Microbiome's Response to Blueberry

Your microbiome contains blueberry shock virus, which is known to infect blueberries. Since plant viruses in the microbiome have been associated with inflammation, it is recommended for you to avoid blueberries.
Learn more…

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6435874/
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4405218/

Broccoli
Veggies

Avoid

My Microbiome's Response to Broccoli

Broccoli contains glucosinolates which has been shown to impair the absorption or utilization of essential nutrients if it is not degraded by specific microbes. An analysis of your data indicates that avoiding broccoli will be beneficial for you.

Avoiding broccoli may improve your Sulfide Gas Production Pathways score.
Learn more…

1. https://pubmed.ncbi.nlm.nih.gov/28766244/
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6767122/
3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4985713/

Brussels Sprouts
Veggies

Avoid

My Microbiome's Response to Brussels Sprouts

Brussels sprouts contain glucosinolates which has been shown to impair the absorption or utilization of essential nutrients if it is not degraded by specific microbes. An analysis of your data indicates that avoiding brussels sprouts will be beneficial for you.

Avoiding brussels sprouts may improve your Sulfide Gas Production Pathways score.
Learn more…

1. https://pubmed.ncbi.nlm.nih.gov/28766244/
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6767122/

3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4985713/

Cabbage

Veggies

Avoid

My Microbiome's Response to Cabbage

Cabbage contains glucosinolates which has been shown to impair the absorption or utilization of essential nutrients if it is not degraded by specific microbes. An analysis of your data indicates that avoiding cabbage will be beneficial for you.

Avoiding cabbage may improve your Sulfide Gas Production Pathways score.

Learn more…

1. https://pubmed.ncbi.nlm.nih.gov/28766244/
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6767122/
3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4985713/

Caviar or Roe

Proteins & Fat

Avoid

My Microbiome's Response to Caviar or Roe

Caviar or roe contains choline, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding caviar or roe may improve your Methane Gas Production Pathways score.

Learn more…

1. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170742
2. https://www.nature.com/articles/ismej201772

Cheese (Cow Milk)

Proteins & Fat

Avoid

My Microbiome's Response to Cheese (Cow Milk)

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Cheese (cow milk) contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding cheese (cow milk) may improve your LDL cholesterol pathways score.
Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

Coconut Meat

Proteins & Fat

Avoid

My Microbiome's Response to Coconut Meat

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Coconut meat contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding coconut meat may improve your LDL cholesterol pathways score.

Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

Coconut Milk (Unsweetened)

Proteins & Fat

Avoid

My Microbiome's Response to Coconut Milk (Unsweetened)

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Coconut milk contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding coconut milk may improve your LDL cholesterol pathways score.

Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

Coconut Oil

Proteins & Fat

Avoid

My Microbiome's Response to Coconut Oil

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Coconut oil contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding coconut oil may improve your LDL cholesterol pathways score.

Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

Cod (Alaskan)

Proteins & Fat

Avoid

My Microbiome's Response to Cod (Alaskan)

Cod contains choline, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding cod may improve your Methane Gas Production Pathways score.

Learn more…

1. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170742
2. https://www.nature.com/articles/ismej201772

Cornish Game Hen

Proteins & Fat

Avoid

My Microbiome's Response to Cornish Game Hen

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Cornish game hen meat contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding cornish game hen meat may improve your LDL cholesterol pathways score.

Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

Crayfish

Proteins & Fat

Avoid

My Microbiome's Response to Crayfish

Crayfish contains choline, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding crayfish may improve your Methane Gas Production Pathways score.

Learn more…

1. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170742
2. https://www.nature.com/articles/ismej201772

Duck

Proteins & Fat

Avoid

My Microbiome's Response to Duck

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Duck meat contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding duck meat may improve your LDL cholesterol pathways score.

Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

Egg Yolk (Chicken or Duck)

Proteins & Fat

Avoid

My Microbiome's Response to Egg Yolk (Chicken or Duck)

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Chicken egg yolk contains cholesterol which may contribute to elevated LDL-cholesterol levels.

Avoiding chicken egg yolk may improve your LDL cholesterol pathways, Methane Gas Production Pathways, and Sulfide Gas Production Pathways scores.

Learn more…

https://academic.oup.com/ajcn/article/109/1/7/5266898?login=true

Goat

Proteins & Fat

Avoid

My Microbiome's Response to Goat

Goat meat contains choline, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding goat meat may improve your Methane Gas Production Pathways score.

Learn more…

1. *https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170742*

2. https://www.nature.com/articles/ismej201772

Goat Cheese

Proteins & Fat

Avoid

My Microbiome's Response to Goat Cheese

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Goat cheese contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding goat cheese may improve your LDL cholesterol pathways score.

Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

Grapefruit

Fruits & Grains

Avoid

My Microbiome's Response to Grapefruit

Grapefruit contains naringenin, which has been shown to inhibit an enzyme that metabolizes cortisol, thereby increasing cortisol levels which contribute to the prolonged effects of stress.

Avoiding grapefruit may improve your Cortisol Pathways score.

Learn more…

1. https://pubmed.ncbi.nlm.nih.gov/25265455/

2. https://pubmed.ncbi.nlm.nih.gov/21896619/

https://ascpt.onlinelibrary.wiley.com/doi/abs/10.1016/S0009-9236(96)90025-9

Haddock

Proteins & Fat

Avoid

My Microbiome's Response to Haddock

Haddock contains choline, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding haddock may improve your Methane Gas Production Pathways score.

Learn more…

1. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170742

2. https://www.nature.com/articles/ismej201772

Heavy Cream (Cow Milk)

Proteins & Fat

Avoid

My Microbiome's Response to Heavy Cream (Cow Milk)

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Heavy cream (cow milk) contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding heavy cream (cow milk) may improve your LDL cholesterol pathways score.

[redacted]

Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

Lamb

Proteins & Fat

Avoid

My Microbiome's Response to Lamb

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Lamb contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding lamb may improve your Ammonia Production Pathways and LDL cholesterol pathways scores.

Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

Lobster

Proteins & Fat

Avoid

My Microbiome's Response to Lobster

Lobster contains choline, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding lobster may improve your Methane Gas Production Pathways score.

Learn more…

1. *https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170742*

2. https://www.nature.com/articles/ismej201772

Mustard Greens
Veggies

Avoid

My Microbiome's Response to Mustard Greens

Mustard greens contain glucosinolates which has been shown to impair the absorption or utilization of essential nutrients if it is not degraded by specific microbes. An analysis of your data indicates that avoiding mustard greens will be beneficial for you.

Avoiding mustard greens may improve your Sulfide Gas Production Pathways score.
Learn more…

1. https://pubmed.ncbi.nlm.nih.gov/28766244/
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6767122/
3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4985713/

Pork (Lean)
Proteins & Fat

Avoid

My Microbiome's Response to Pork (Lean)

An analysis of your data indicates that the specific amino acids in lean pork can be unfavorable to your microbiome by significantly contributing to ammonia production in the gut.

Avoiding lean pork may improve your Ammonia Production Pathways score.
Learn more…

https://www.sciencedirect.com/science/article/abs/pii/S1051227617302833

Scallops
Proteins & Fat

Avoid

My Microbiome's Response to Scallops

Scallops contain choline, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding scallops may improve your Methane Gas Production Pathways score.
Learn more…

1. *https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170742*
2. *https://www.nature.com/articles/ismej201772*

Sheep Cheese
Proteins & Fat

Avoid

My Microbiome's Response to Sheep Cheese

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Sheep cheese contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding sheep cheese may improve your LDL cholesterol pathways score.

Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

Shrimp (Domestic)

Proteins & Fat

Avoid

My Microbiome's Response to Shrimp (Domestic)

Shrimp contains choline, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding shrimp may improve your LDL cholesterol pathways, Methane Gas Production Pathways, Putrescine Production Pathways, and Sulfide Gas Production Pathways scores.

Learn more…

1. *https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170742*
2. *https://www.nature.com/articles/ismej201772*

Turmeric

Spices & Other

Avoid

My Microbiome's Response to Turmeric

Turmeric stimulates the production and release of cholic acid, a bile acid important in the digestion of fats. However, if your microbes show increased bile acid related activity then excesive cholic acid may contribute to a

pro-inflammatory enviroment in the gut.

Avoiding turmeric may improve your Bile Acid Metabolism Pathways score.
Learn more…

1. https://pubmed.ncbi.nlm.nih.gov/27228476/
2. https://pubmed.ncbi.nlm.nih.gov/24045793/

Turnip
Veggies

Avoid

My Microbiome's Response to Turnip

Turnips contain glucosinolates which has been shown to impair the absorption or utilization of essential nutrients if it is not degraded by specific microbes. An analysis of your data indicates that avoiding turnips will be beneficial for you.

Avoiding turnips may improve your Sulfide Gas Production Pathways score.
Learn more…

1. https://journals.physiology.org/doi/abs/10.1152/ajpgi.00261.2020?journalCode=ajpgi
2. https://pubmed.ncbi.nlm.nih.gov/11101476/

Venison or Elk
Proteins & Fat

Avoid

[redacted]

My Microbiome's Response to Venison or Elk

Venison or elk meat contains choline, which is a compound that can be used by your microbes to produce TMA, a precursor to TMAO. TMAO is associated with unwanted metabolic and cardiovascular effects.

Avoiding venison or elk meat may improve your Methane Gas Production Pathways score.
Learn more…

1. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170742
2. https://www.nature.com/articles/ismej201772

Watermelon
Fruits & Grains

Avoid

My Microbiome's Response to Watermelon

Watermelon may contain citrulline that your microbiome can potentially change into a more readily absorbed or harmful form. An analysis of your data indicates that avoiding foods with citrulline will be of extra benefit for you.

Avoiding watermelon may improve your Putrescine Production Pathways score.
Learn more…

1. https://journals.ashs.org/hortsci/view/journals/hortsci/46/12/article-p1572.xml
2. https://pubag.nal.usda.gov/download/48884/PDF

Whole Milk (Cow Milk)
Proteins & Fat

Avoid

[redacted]

My Microbiome's Response to Whole Milk (Cow Milk)

Low-density lipoprotein cholesterol (LDL-cholesterol) is thought to be pro-atherogenic (causes fatty plaque build-up in arteries), and the primary driver of cardiovascular disease. Whole milk (cow milk) contains saturated fat which may contribute to elevated LDL-cholesterol levels.

Avoiding whole milk (cow milk) may improve your LDL cholesterol pathways and Methane Gas Production Pathways scores.
Learn more…

https://pubmed.ncbi.nlm.nih.gov/26185980/

[redacted]

My Foods

Veggies 11 per day

We recommend you break your daily Veggies intake by the following servings

Superfood +
Enjoy 9
Minimize 2

Alfalfa Sprouts	Veggies, 1 cup	Enjoy
Artichoke	Veggies, 1 cup, diced	Superfood
Arugula	Veggies, 1 cup	Enjoy
Bamboo Shoots	Veggies, 1 cup, sliced	Enjoy
Beet Greens	Veggies, 1 cup	Enjoy
Beets	Veggies, 1 cup	Superfood
Bok Choy	Veggies, 1 cup	Minimize
Burdock Root	Veggies, 2/3 cup	Enjoy
Cardoon	Veggies, 1 cup	Enjoy
Carrot	Veggies, 1 cup, sliced	Enjoy

Cauliflower	Veggies	1 cup	Minimize
Celeriac	Veggies	1 cup	Enjoy
Celery	Veggies	1 cup	Enjoy
Chard	Veggies	1 cup	Enjoy
Chayote Squash	Veggies	1 cup, cooked	Enjoy
Chicory Root	Veggies	1/2 cup	Enjoy
Collard Greens	Veggies	1 cup	Enjoy
Cucumber	Veggies	1 cup	Enjoy
Dandelion Greens	Veggies	1 cup	Enjoy
Eggplant	Veggies	1 cup	Enjoy
Endive	Veggies	1 cup	Enjoy
Enoki Mushrooms	Veggies	1 cup, diced	Superfood
Escarole	Veggies	1 cup	Enjoy
Fennel Bulb	Veggies	1 cup	Enjoy
Gourd	Veggies	1 cup, sliced	Enjoy
Green Beans	Veggies	1 cup	Enjoy

Test Name: Gut Intelligence Test, Human Gene Expression Test, Saliva Gene Expression Test

Customer Name: Richard Sprague

[redacted]

Jerusalem Artichoke	Veggies 1 cup	Superfood
Jicama	Veggies 1 cup	Enjoy
Kale	Veggies 1 cup	Minimize
Kimchi	Veggies 1 cup	Enjoy
Kohlrabi	Veggies 1 cup	Minimize
Leek	Veggies 1/2 cup, sliced	Superfood
Lettuce	Veggies 1 cup	Enjoy
Maitake Mushrooms	Veggies 1 cup, diced	Superfood
Mung Bean Sprouts	Veggies 1 cup	Enjoy
Okra	Veggies 1 cup	Enjoy
Onion	Veggies 1 cup	Minimize
Oyster Mushrooms	Veggies 1 cup, diced	Enjoy
Parsley	Veggies 1 cup	Enjoy
Parsnip	Veggies 1/2 cup	Enjoy
Peas	Veggies 1/4 cup	Enjoy
Pepino Melon	Veggies 1 cup	Enjoy

Pickle (Unsweetened)	Veggies	2 whole	Enjoy
Portabella Mushrooms	Veggies	1 cup, diced	Enjoy
Potato	Veggies	1 half	Enjoy
Pumpkin	Veggies	1 cup	Enjoy
Radicchio	Veggies	1 cup, sliced	Enjoy
Radish	Veggies	1 cup, sliced	Enjoy
Radish Sprouts	Veggies	1 cup	Enjoy
Rutabaga	Veggies	1 cup, sliced	Enjoy
Sauerkraut	Veggies	1 cup	Superfood
Seaweed (Fresh)	Veggies	1/4 cup	Minimize
Shallot	Veggies	1 tablespoon	Enjoy
Shiitake Mushrooms	Veggies	1 cup, diced	Superfood
Snap Peas	Veggies	1 cup	Enjoy
Spinach	Veggies	1 cup	Superfood
Spirulina	Veggies	2 teaspoon	Minimize
Sweet Potato or Yam	Veggies	1/2 cup	Enjoy

[redacted]

Taro	Veggies 1/2 cup	Enjoy
Tomato	Veggies 1 cup, peeled, seeded	Superfood
Water Chestnuts	Veggies 1/2 cup	Enjoy
Watercress	Veggies 1 cup	Enjoy
White Mushroom	Veggies 1 cup, diced	Superfood
Winter Squash	Veggies 1/4 cup, cooked	Enjoy
Yellow Squash	Veggies 1 cup, cooked	Enjoy

[redacted]

My Foods

Fruits & Grains 5 per day

We recommend you break your daily Fruits & Grains intake by the following servings

Superfood + ●●●●
Enjoy 4
Minimize 1 ●

Amaranth Fruits & Grains 1/2 cup, cooked Enjoy	Apple Fruits & Grains 1 whole Enjoy
Apricot Fruits & Grains 3 whole Enjoy	Banana Fruits & Grains 1 whole Enjoy
Barley Fruits & Grains 3 ounces, cooked Superfood	Blackberry Fruits & Grains 1 cup Enjoy
Boysenberry Fruits & Grains 1 cup Enjoy	Breadfruit Fruits & Grains 1 cup, sliced Minimize
Brown Rice Fruits & Grains 1/2 cup, cooked Enjoy	Buckwheat Fruits & Grains 1/2 cup, cooked Enjoy

Test Name: Gut Intelligence Test, Human Gene Expression Test, Saliva Gene Expression Test

Customer Name: Richard Sprague

[redacted]

Bulgur	Fruits & Grains 1/2 cup, cooked	Enjoy
Cantaloupe	Fruits & Grains 1 cup, diced	Enjoy
Cassava	Fruits & Grains 1/2 cup, sliced	Minimize
Cherry	Fruits & Grains 1 cup	Enjoy
Corn	Fruits & Grains 1/2 cup	Enjoy
Couscous	Fruits & Grains 1/2 cup, cooked	Enjoy
Cranberry	Fruits & Grains 1/2 cup	Enjoy
Currant	Fruits & Grains 1 cup	Enjoy
Dates	Fruits & Grains 2 whole	Minimize
Dragon Fruit	Fruits & Grains 1 cup, diced	Enjoy
Elderberry (Boiled)	Fruits & Grains 1 cup	Enjoy
Fig	Fruits & Grains 2 whole	Superfood
Goji Berry	Fruits & Grains 1/2 cup	Enjoy
Gooseberry	Fruits & Grains 1 cup	Enjoy
Grapes	Fruits & Grains 1 cup	Superfood
Guava	Fruits & Grains 2 whole	Enjoy

Honeydew Melon	Fruits & Grains 1 cup, sliced	Enjoy
Huckleberry	Fruits & Grains 1 cup	Enjoy
Jackfruit	Fruits & Grains 1 cup	Minimize
Kamut	Fruits & Grains 1/2 cup, cooked	Enjoy
Kiwi	Fruits & Grains 2 whole	Superfood
Kumquat	Fruits & Grains 12 whole	Enjoy
Lemon	Fruits & Grains 1 whole, juiced	Enjoy
Lime	Fruits & Grains 1 whole, juiced	Enjoy
Loganberries	Fruits & Grains 1 cup	Enjoy
Lychee	Fruits & Grains 1 cup	Minimize
Mango	Fruits & Grains 1 cup, sliced	Enjoy
Mangosteen	Fruits & Grains 1 cup, sliced	Enjoy
Marionberry	Fruits & Grains 1 cup	Enjoy
Millet	Fruits & Grains 1/2 cup, cooked	Enjoy
Mulberries	Fruits & Grains 1 cup	Enjoy
Nectarine	Fruits & Grains 1 whole	Superfood

Test Name: Gut Intelligence Test, Human Gene Expression Test, Saliva Gene Expression Test

Customer Name: Richard Sprague

[redacted]

Oats	Fruits & Grains	1/2 cup, cooked	Minimize
Orange	Fruits & Grains	1 whole	Superfood
Papaya	Fruits & Grains	1 cup, sliced	Enjoy
Passionfruit	Fruits & Grains	3/4 cup	Enjoy
Peach	Fruits & Grains	1 whole	Enjoy
Pear	Fruits & Grains	1 whole	Enjoy
Persimmon	Fruits & Grains	2 whole	Enjoy
Pineapple	Fruits & Grains	1 cup	Enjoy
Plantain	Fruits & Grains	1/2 cup	Enjoy
Plum	Fruits & Grains	3 whole	Enjoy
Pomegranate	Fruits & Grains	1 half	Enjoy
Prunes	Fruits & Grains	6 whole	Enjoy
Pummelo	Fruits & Grains	1 half	Enjoy
Quinoa	Fruits & Grains	1/2 cup, cooked	Enjoy
Raspberry	Fruits & Grains	1 cup	Superfood
Rhubarb	Fruits & Grains	1 cup, sliced	Enjoy

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[redacted]

Rice Noodles	Fruits & Grains	1/2 cup, cooked	Enjoy
Salmonberry	Fruits & Grains	1 cup	Enjoy
Sour Cherries	Fruits & Grains	1 1/3 cup	Enjoy
Sprouted Rye Bread	Fruits & Grains	1 slice	Enjoy
Sprouted Wheat Bread	Fruits & Grains	1 slice	Enjoy
Star Fruit	Fruits & Grains	1 cup, sliced	Enjoy
Strawberry	Fruits & Grains	1 cup	Enjoy
Triticale	Fruits & Grains	1/2 cup, cooked	Minimize
White Rice	Fruits & Grains	1/2 cup, cooked	Minimize
Wild Rice	Fruits & Grains	1/2 cup, cooked	Enjoy

[redacted]

My Foods

Proteins & Fat 7 per day

We recommend you break your daily Proteins & Fat intake by the following servings

Superfood +
Enjoy 6
Minimize 1

Abalone Proteins & Fat 3 ounces Enjoy	Adzuki Beans Proteins & Fat 1 cup, cooked Enjoy
Almond Milk (Unsweetened) Proteins & Fat 1 cup Enjoy	Almonds Proteins & Fat 20 nuts Enjoy
Anchovies Proteins & Fat 3 ounces Superfood	Avocado Proteins & Fat 1 half Enjoy
Avocado Oil Proteins & Fat 1 tablespoon Enjoy	Black Beans Proteins & Fat 3/4 cup, cooked Enjoy
Black Eyed Peas Proteins & Fat 3/4 cup, cooked Enjoy	Bone Broth (Fish) Proteins & Fat 1 cup Superfood

Test Name: Gut Intelligence Test, Human Gene Expression Test, Saliva Gene Expression Test

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[redacted]

Bone Broth (Mammal)	Proteins & Fat 1 cup	Enjoy
Bone Broth (Poultry)	Proteins & Fat 1 cup	Enjoy
Brazil Nuts	Proteins & Fat 5 nuts	Enjoy
Buffalo	Proteins & Fat 3 1/2 ounces	Enjoy
Butter (Cow Milk)	Proteins & Fat 1 teaspoon	Minimize
Cashews	Proteins & Fat 15 nuts	Enjoy
Catfish	Proteins & Fat 2 1/2 ounces	Enjoy
Chestnuts	Proteins & Fat 3 ounces	Enjoy
Chia Seeds	Proteins & Fat 1 ounce, dry	Enjoy
Chicken (Dark Meat)	Proteins & Fat 2 1/2 ounces	Minimize
Chicken (White Meat)	Proteins & Fat 3 ounces	Enjoy
Chickpeas	Proteins & Fat 1/2 cup, cooked	Enjoy
Clams	Proteins & Fat 3 ounces	Enjoy
Crab (Pacific)	Proteins & Fat 6 ounces	Enjoy
Eel	Proteins & Fat 3 ounces	Enjoy
Egg Whites (Chicken or Duck)	Proteins & Fat 3 eggs	Minimize

Emu	Proteins & Fat 4 ounces	Enjoy
Fava Beans	Proteins & Fat 1/2 cup, cooked	Enjoy
Flax Oil	Proteins & Fat 1 tablespoon	Enjoy
Flax Seeds	Proteins & Fat 2 tablespoons	Enjoy
Ghee	Proteins & Fat 1 teaspoon	Minimize
Goat Milk	Proteins & Fat 1/2 cup	Enjoy
Goose	Proteins & Fat 3 ounces	Enjoy
Grape Seed Oil	Proteins & Fat 1 tablespoon	Enjoy
Halibut (Pacific)	Proteins & Fat 5 ounces	Enjoy
Hazelnuts	Proteins & Fat 15 nuts	Enjoy
Hemp Hearts	Proteins & Fat 3 tablespoons	Enjoy
Herring	Proteins & Fat 3 ounces	Enjoy
Hickory Nuts	Proteins & Fat 15 nuts	Enjoy
Kefir (Cow Milk)	Proteins & Fat 1/2 cup	Enjoy
Kidney Beans	Proteins & Fat 3/4 cup, cooked	Enjoy
Lentils	Proteins & Fat 4 ounces, cooked	Enjoy

Lima Beans	Proteins & Fat 1/2 cup, cooked	Enjoy
Lotus Seeds	Proteins & Fat 4 ounces	Enjoy
MCT Oil	Proteins & Fat 1 tablespoon	Enjoy
Macadamia Nuts	Proteins & Fat 10 nuts	Enjoy
Mackerel	Proteins & Fat 3 ounces	Enjoy
Mussels	Proteins & Fat 3 ounces	Enjoy
Natto	Proteins & Fat 2 1/2 ounces	Enjoy
Navy Beans	Proteins & Fat 1/2 cup, cooked	Enjoy
Olive Oil	Proteins & Fat 1 tablespoon	Enjoy
Olives	Proteins & Fat 20 olives	Enjoy
Ostrich	Proteins & Fat 4 ounces	Enjoy
Oysters	Proteins & Fat 3 ounces	Enjoy
Peanuts	Proteins & Fat 20 peanuts	Enjoy
Pecans	Proteins & Fat 15 nuts	Superfood
Perch	Proteins & Fat 5 ounces	Enjoy
Pheasant	Proteins & Fat 4 ounces	Enjoy

Pine Nuts	Proteins & Fat 1 1/2 tablespoons	Enjoy
Pinto Beans	Proteins & Fat 3/4 cup, cooked	Enjoy
Pistachios	Proteins & Fat 35 nuts	Superfood
Pumpkin Seeds	Proteins & Fat 2 teaspoons	Enjoy
Quail	Proteins & Fat 2 1/2 ounces	Enjoy
Ricotta or Cottage Cheese (cow, 2% fat)	Proteins & Fat 3 ounces	Enjoy
Safflower Oil	Proteins & Fat 1 tablespoon	Enjoy
Salmon (Wild-Caught)	Proteins & Fat 3 ounces	Superfood
Sardines	Proteins & Fat 2 ounces	Enjoy
Sesame Seeds	Proteins & Fat 3 tablespoons	Enjoy
Sheep Milk	Proteins & Fat 1/4 cup	Enjoy
Soy Milk (Unsweetened)	Proteins & Fat 1 cup	Enjoy
Soybeans (non-GMO)	Proteins & Fat 1/2 cup	Superfood
Squid	Proteins & Fat 3 ounces	Enjoy
Sunflower Seeds	Proteins & Fat 2 tablespoons	Superfood
Tempeh	Proteins & Fat 1/2 cup	Enjoy

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[redacted]

Tofu	Proteins & Fat 3/4 cup	Enjoy
Trout (Cold Water)	Proteins & Fat 4 ounces	Superfood
Tuna (Wild, Pole Caught)	Proteins & Fat 5 ounces	Enjoy
Turbot	Proteins & Fat 5 ounces	Enjoy
Turkey (Dark Meat)	Proteins & Fat 2 1/2 ounces	Minimize
Turkey (White Meat)	Proteins & Fat 3 ounces	Enjoy
Veal	Proteins & Fat 1 1/2 ounces	Enjoy
Walnuts	Proteins & Fat 12 nuts	Enjoy
Yogurt (Cow Milk, Plain)	Proteins & Fat 1/2 cup	Enjoy

[redacted]

My Foods

Spices & Other 9 per day

We recommend you break your daily Spices & Other intake by the following servings

Superfood +
Enjoy 8
Minimize 1

Allspice Spices & Other 1/4 teaspoon Enjoy	Apple Cider Vinegar Spices & Other 1 teaspoon Enjoy
Basil Spices & Other 1/4 teaspoon Enjoy	Bay Leaf Spices & Other 1/4 teaspoon Enjoy
Black Pepper Spices & Other 1/4 teaspoon Enjoy	Black Tea Spices & Other 1 cup Enjoy
Cane Sugar Spices & Other 1 teaspoon Minimize	Capers Spices & Other 1 teaspoon Enjoy
Caraway Seed Spices & Other 1/4 teaspoon Enjoy	Cardamom Spices & Other 1/4 teaspoon Enjoy

Carob	Spices & Other	1 tablespoon	Enjoy
Cayenne Pepper	Spices & Other	1/8 teaspoon	Enjoy
Celery Seed	Spices & Other	1/4 teaspoon	Enjoy
Chervil	Spices & Other	1/4 teaspoon	Enjoy
Chili Powder	Spices & Other	1/4 teaspoon	Enjoy
Cilantro	Spices & Other	2 tablespoons	Enjoy
Cinnamon	Spices & Other	1/4 teaspoon	Superfood
Cloves	Spices & Other	1/8 teaspoon	Enjoy
Cocoa (Unsweetened)	Spices & Other	1 tablespoon	Superfood
Coconut Water	Spices & Other	1 cup	Enjoy
Coffee	Spices & Other	1 cup	Enjoy
Coriander	Spices & Other	1/4 teaspoon	Enjoy
Cumin	Spices & Other	1/4 teaspoon	Enjoy
Dill (Fresh)	Spices & Other	2 tablespoons	Enjoy
Fennel Seed	Spices & Other	1/4 teaspoon	Enjoy
Fenugreek Seed	Spices & Other	1/4 teaspoon	Enjoy

Garlic	Spices & Other	1 clove	Minimize
Ginger	Spices & Other	1 tablespoon	Enjoy
Grape Leaves	Spices & Other	4 leaves	Enjoy
Green Tea	Spices & Other	1 cup	Superfood
Herbal Tea	Spices & Other	1 cup	Enjoy
Honey	Spices & Other	1 teaspoon	Enjoy
Horseradish	Spices & Other	1 teaspoon	Minimize
Hot Pepper	Spices & Other	1/2 teaspoon	Enjoy
Kombucha	Spices & Other	1 cup	Enjoy
Mace	Spices & Other	1/8 teaspoon	Enjoy
Maple Syrup	Spices & Other	1 teaspoon	Minimize
Marjoram	Spices & Other	1/8 teaspoon	Enjoy
Miso	Spices & Other	1 teaspoon	Enjoy
Molasses	Spices & Other	1 teaspoon	Minimize
Mustard Seed	Spices & Other	1/4 teaspoon	Enjoy
Nutmeg	Spices & Other	1/4 teaspoon	Enjoy

Oregano	Spices & Other	1/4 teaspoon	Enjoy
Paprika	Spices & Other	1/4 teaspoon	Enjoy
Peppermint (Fresh)	Spices & Other	1 tablespoon	Enjoy
Poppy Seed	Spices & Other	1 teaspoon	Enjoy
Rice Milk (Unsweetened)	Spices & Other	3/4 cup	Enjoy
Rosemary (Fresh)	Spices & Other	1 teaspoon	Enjoy
Saffron	Spices & Other	1/8 teaspoon	Enjoy
Sage	Spices & Other	1/4 teaspoon	Enjoy
Salt (Sea, Himalayan, Celtic or Bonaire)	Spices & Other	1/8 teaspoon	Minimize
Savoury	Spices & Other	1/4 teaspoon	Enjoy
Spearmint (Fresh)	Spices & Other	1 tablespoon	Enjoy
Stevia	Spices & Other	1 package	Enjoy
Tarragon	Spices & Other	1/4 teaspoon	Enjoy
Thyme	Spices & Other	1/4 teaspoon	Enjoy
Vanilla Extract	Spices & Other	1/4 teaspoon	Enjoy
Vinegar (Unsweetened)	Spices & Other	1 teaspoon	Enjoy

[redacted]

Wheatgrass

Spices & Other

2 tablespoons

Enjoy

White Tea

Spices & Other

8 ounce

Enjoy

Supplements

Look for supplements with the following ingredients:

Probiotics

Look for supplements with the following ingredients:
L.acidophilus, Bacillus coagulans, Bifidobacterium strains (longum, lactis, bifidum), and FOS

Offered by Klaire Labs , Metagenics , or other vendors.

To support the growth and activity of beneficial microorganisms and enhance the balance in your microbial ecosystem

Polyphenols with Pomegranate

Look for supplements with the following ingredients:
Pomegranate extract, acai berry extract, blueberry extract, and cranberry extract

Offered by Pure Encapsulations , Life Extension , or other vendors.

To rebalance your microbiome, promote beneficial microbial diversity while boosting antioxidant production by your unique microbiome.

Probiotics

Look for supplements with the following ingredients:
Lactobacillus KE99

Offered by Probio Health , or other vendors.

To support the growth and activity of beneficial microorganisms, which can mitigate gas production activity in your microbiome and enhance the balance in your microbial ecosystem

Digestive Support

Look for supplements with the following ingredients:
Peppermint leaf extract, horse chestnut extract, quebracho extract, perilla extract

Offered by KBS Research , Pure Encapsulations , or other vendors.

To support healthy digestion while mitigating any microbial gas production.

Cellular and mitochondrial support

Look for supplements with the following ingredients:
Nicotinamide Riboside, Resveratrol, Quercetin, Fisetin

Offered by Life Extension , Thorne , or other vendors.

To support cellular and mitochondrial functions, such as DNA repair and protection from cellular stress and aging

Mitochondrial support

Look for supplements with the following ingredients:
CoQ10, Omega-3

Offered by Smarter Nutrition , Nordic Naturals , or other vendors.

To support mitochondrial health and increase energy production

[redacted]

Prebiotic

Look for supplements with the following ingredients:

Fiber with oligofructose enriched inulin

Offered by Prebiotin , or other vendors.

To help specific microbes in your gut produce short-chain fatty acids, like butyrate, and other beneficial nutrients that can balance the microbiome or counter some of the pro-inflammatory or opportunistic activities

Viome Methodology

Microbial total RNA is extracted, ribosomal RNA molecules are removed from total RNA, and the remaining RNA molecules are sequenced on Illumina NextSeq or NovaSeq. Proprietary bioinformatics algorithms are used to perform taxonomic classification and functional analysis of the sequencing data.

Whole blood total RNA is extracted, polyadenylated transcripts are captured from total RNA and sequenced on Illumina NextSeq or NovaSeq. Proprietary bioinformatics algorithms are used to perform quantitative gene expression analysis of the sequencing data. Results are reported to Viome customers in the context of integrative functional health themes communicated as scores derived largely from proprietary pathway content and analytics methodology. Each score is built to account for molecular pathway topology and strength of literature evidence manually curated by translational science experts in systems biology. Scoring results are CLIA-validated and are end-to-end automated in the production system, which uses each customer's gene expression data as input.

Method Limitation

Viome's results and recommendations are based on our ability to identify and quantify thousands of microbial taxa . Such vast diversity has not been captured in the genomic databases, so it is impossible to assess it comprehensively. There are microorganisms that thrive in the gut whose genomes have not been sequenced. Viome is unable to identify those specific organisms, but can identify their near neighbors, which have similar homology. There are also taxa that we cannot discriminate because of their sequence similarity, for example at the strain level. There are some RNA transcripts that may not always align and match to specific known organisms, which may be due to the fact that these sequences are poorly characterized, reliable consensus sequence may not be available for reference. Viome monitors the growth of public genomic databases and will update its own databases when there is sufficient new information to be worthy of incorporation.

Detection of a microorganism by this test does not imply having a disease. Similarly, not detecting a microorganism by this test does not exclude the presence of a disease-causing microorganism. Further, other organisms may be present that are not detected by this test. This test is not a substitute for established methods for identifying microorganisms or their antimicrobial susceptibility prole. Results are qualitative and identify the presence or absence of identified annotated organisms.

Viome's results and recommendations are based on our ability to identify and quantify thousands of human transcripts. While the test has been clinically validated and shows very high precision, it also has some limitations. As the presence of transcripts nears the limits of detection, the ability of the test to accurately detect them is diminished. This is simply due to the uneven distribution of molecules in liquid volumes, causing small random changes in the transcript concentrations. Scores rely on detection of expressed genes, as well as their levels of expression against the reference population cohort. Hence, certain sample results may be affected by

any skewing or sampling biases of the reference cohort, as opposed to solely the biology of the given customer. Scores also are limited by our current understanding of actionable or biologically meaningful insights and literature coverage to date. As Viome's reference population expands and current knowledge grows, these limitations become more negligible.

The Gut Intelligence Test was developed by, and its performance characteristics determined by Viome Inc. It has not been cleared or approved by the US Food and Drug Administration. The FDA has determined that such clearance or approval is not necessary. This laboratory is registered under CLIA (50D2224932) to perform high complexity testing. Sequencing was performed at Viome Inc. CLIA (50D2224932). Contact Viome for any further questions.

The Human Gene Expression test was developed by, and its performance characteristics determined by Viome Inc. It has not been cleared or approved by the US Food and Drug Administration. The FDA has determined that such clearance or approval is not necessary. This laboratory is registered under CLIA 50D2224932 to perform high complexity testing. Sequencing was performed at Viome, Inc. CLIA 50D2224932. Contact Viome for any further questions.

VIOME

RICHARD SPRAGUE'S RECOMMENDATIONS

VERSION: 1.14.2

Test Name: Gut Intelligence Test, Human Gene Expression Test, Saliva Gene Expression Test

Customer Name: Richard Sprague

[redacted]

Test Name: Gut Intelligence Test, Human Gene Expression Test, Saliva Gene Expression Test

Customer Name: Richard Sprague

[redacted]