Gut Microbiome Report

Name:	Report ID: 760439a1-2966-43e5-85ca-13c3ad714f58
Date of Birth:	Subject ID: 30005
Gender: Female	Date: 10/30/2026

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GUT MICROBIOME REPORT

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NAME	AGE	REPORT DATE	SUBJECT ID
		10/30/2026	30005

Summary

Diversity and balance

- **Richness** 105.0 (115 – 300)
- **Shannon** 3.9 (4.25 – 7)
- **Evenness** 0.6 (0.65 – 1)
- **F/B ratio** 0.82 (0.2 – 1.7)

Community composition

relative abundance

p Bacteroidetes	43.9%
p Firmicutes	36.0%
p Proteobacteria	13.5%
p Actinobacteria	2.1%
p Verrucomicrobia	0.2%

These 5 phyla cover 95.7% of the assigned reads in this sample.

On every scale above, the shaded band is the reference range for this population and the dot is this sample.

Functional groups 7

44 taxa measured against the reference population

Butyrate producers
2 of 5 outside reference
3 within reference, 2 decreased

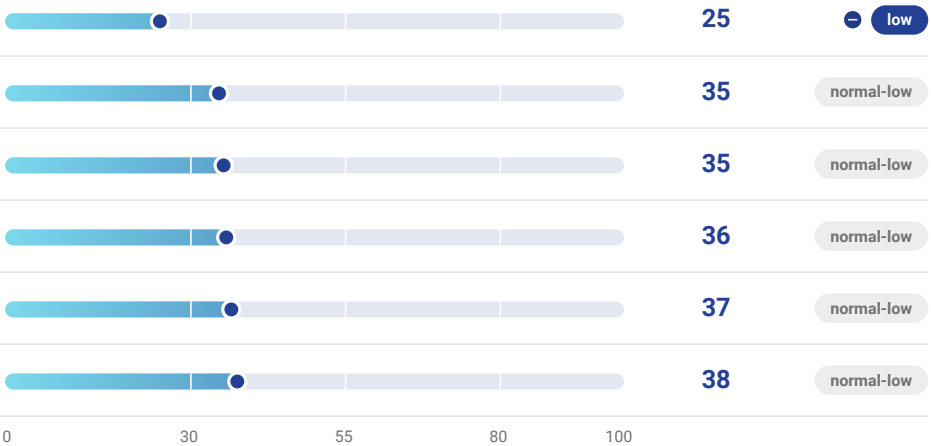
Probiotic taxa
4 of 17 outside reference
13 within reference, 1 increased, 3 decreased

Pathogenic taxa
1 of 16 outside reference
15 within reference, 1 increased

Candida
0 of 6 outside reference
6 within reference

Condition scores

a lower score is the more disease-associated result; lowest six shown



Each value on this page is shown in full detail later in this report. Scores describe how closely this sample resembles published case cohorts and are not a diagnosis.

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Name **Gender** Female **Age** **Sample Type** Stool **Report ID**

MICROBIAL COMPOSITION

Overview of All Bacteria

Firmicutes | Bacteroidetes | Proteobacteria | Actinobacteria | Verrucomicrobia

Introduction

The microbiota is a community composed of microorganisms (bacteria, viruses, and fungi). The sum of the genetic material and other biological information of these organisms is called the microbiome. The term microbiota is used to describe the community of microorganisms. If you think of microbiota as individuals living in a household, you can think of the microbiome as the components and information that make up the entire house. The concept of microbiota consists of microorganisms found in various parts of the body, particularly the digestive system and skin. The microbiome encompasses all biological data and functions, especially the genetic material, of these microorganisms. These microorganisms are living structures like our cells. They shape themselves according to biological changes, diet,exercise, medications, and other environmental conditions. The immune system develops through a process that begins in the womb. One of the most important factors regulating the immune system is the structure of the microbiome, which develops from birth. The microbiota plays a role in almost every stage of immune function. Recent studies have shown the relationship between an individual's microbiome status and many diseases. The importance of a balanced microbiome for a healthy life is supported by scientifc evidence [4,5]. Therefore, a detailed analysis of an individual's microbiome and understanding the current structure of the microbiome can allow for personalized preventive measures to maintain a balanced microbiome.

Explanation

The microbiome is as unique as a fingerprint. The microbiota of individuals consists of bacteria and other microorganisms in varying numbers and proportions [6,7]. There are fve dominant types common to all humans. These main groups of bacteria are called Actinobacteria, Firmicutes, Bacteroidetes, Proteobacteria, and Verrucomicrobia [8,9]. Thousands of bacterial species belong to these groups. With Genomic Microbiome Analysis, a stool sample from a person is sequenced using next-generation shotgun sequencing methods to obtain all microbiome data. The microbiome is then analyzed using a unique bioinformatics platform. The structure of an individual's gut microbiome is compared to reference data obtained from the general population. Microbiome characteristics similar to or different from the population are identifed. Functional analyses based on the most up-to-date scientifc data and microbiome profles associated with diseases are determined. Personalized health recommendations based on the microbiome profle are provided.

Microbiome Analysis Disclaimer

The microbiome analysis is based on a comprehensive genetic analysis of a stool sample provided during the test, using Next-Generation Sequencing (NGS). The microbiome data is examined using a unique bioinformatics platform. Comparisons are made with data obtained from the general population, and a result report is created based on relationships established with scientifc data. The presence, absence, or varying amounts of specifc microorganisms alone is not sufcient for diagnosing a specifc disease or disorder. This test is not an alternative to diagnostic methods that identify bacterial species or their antibiotic susceptibility profles. Microorganisms associated with diseases are only reported as potential indicators based on scientifc publications. This test is not a diagnostic test. It is a test that analyzes the general structure of the microbiome, compares it with data obtained from the general population, and provides insights into disease relationships based on scientifc evidence.

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Detailed Information

Microorganism	Population (%)	Result (%)	Your level
p Bacteroidetes	49.467 - 73.383	43.8672	**Decreased**
p Firmicutes	13.692 - 32.615	35.97749	**Increased**
p Proteobacteria	2.942 - 11.932	13.48859	**Increased**
p Actinobacteria	0.739 - 3.777	2.13655	Normal
p Verrucomicrobia	0.005 - 2.547	0.20394	Normal

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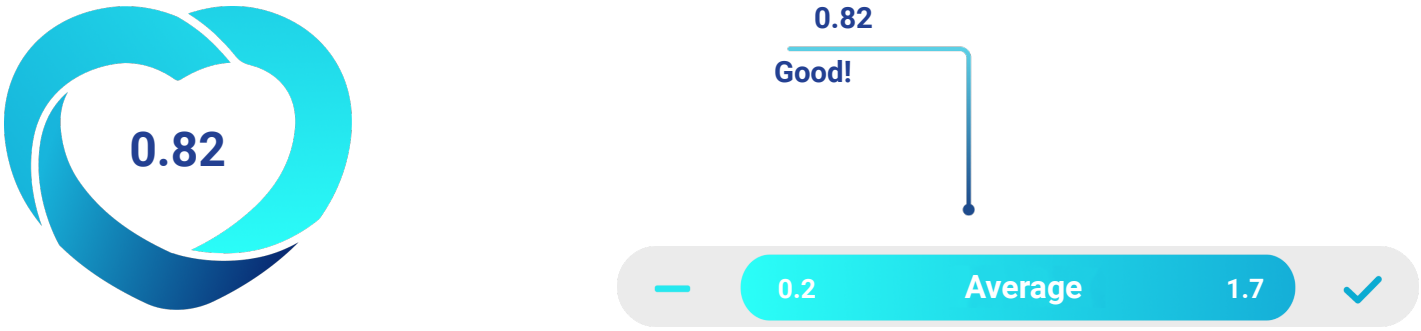
Firmicutes / Bacteroidetes (F/B) Ratio



Analysis

Your microbiome is well balanced. This means that the bacteria are evenly distributed.

Definition

The Firmicutes-Bacteroidetes ratio in the gut microbiome has become a significant focus of health research, particularly regarding its potential connection to obesity and metabolic health. Studies have found that obese individuals tend to have a higher Firmicutes to Bacteroidetes ratio, which may contribute to weight gain and metabolic problems. Conversely, a lower ratio is often observed in leaner individuals, suggesting a protective effect against obesity [13, 14]. One of the most critical factors influencing this ratio is diet. High-fat and high-sugar diets tend to increase the Firmicutes-Bacteroidetes ratio, while diets rich in fiber from fruits, vegetables, and whole grains appear to promote a lower ratio. This connection suggests that dietary choices can directly affect the balance of these bacterial groups and potentially impact body weight and metabolic health. By manipulating the Firmicutes-Bacteroidetes ratio through diet or other interventions, individuals may have a path to combating obesity and related diseases. Promoting a lower ratio, often associated with leanness and metabolic health, may allow individuals to take some control over their weight and overall health.

Note

You can increase the number of Bacteroidetes by changing your diet to one rich in fiber from sources such as flaxseed, legumes, and whole grains.

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Richness

105.0

Improvable

115 Average 300

Analysis

The microbial diversity in your gut could be better. If species richness is high, your microbiome can help you fight diseases more effectively. You will find tips on how to increase the diversity of your microbiome with personalized recommendations.

Definition

Species richness in the gut ecosystem refers to the diversity of bacteria present and the wide range of functions they can perform. This bacterial diversity allows for more efficient nutrient processing and increases the body's ability to cope with stress [10, 11]. Conversely, a reduction in species richness in the gut microbiome may negatively affect recovery from various diseases [5]. Factors such as excessive antibiotic use, smoking, poor sleep, and chronic stress can reduce species richness. These elements disturb the delicate balance of the gut microbiome, decreasing bacterial diversity and thus affecting overall health.

Note

Enriching your diet with insoluble fibers supports microbial diversity. Whole grains, rice, fruits, and vegetables are rich sources of fiber.

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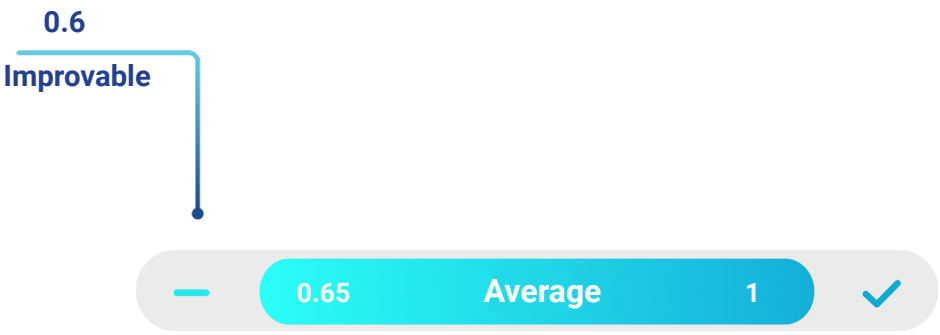
Evenness



Analysis

The microbial diversity in your gut could be better. If species richness is high, your microbiome can help you fight diseases more effectively. You will find tips on how to increase the diversity of your microbiome with personalized recommendations.

Definition

The "evenness" of your gut microbiome refers to how balanced the distribution of different microorganisms in your gut is. Imagine a marketplace with stalls offering various products; in an ideal situation, no stall dominates the others. Similarly, in a balanced gut microbiome, no single species of bacteria or other microorganisms overshadows the rest. Each microbe in the gut performs unique functions, from supporting digestion and nutrient absorption to influencing immune responses and even mental health. A balanced microbiome prevents dysbiosis, a condition where microbial imbalance occurs [11]. This balance is crucial because the overrepresentation of certain bacteria can lead to health problems. For example, the overgrowth of specific bacteria has been linked to inflammatory bowel disease, obesity, and even mental health disorders. On the other hand, a diverse and evenly balanced microbiome is generally associated with better health outcomes. The composition of the gut microbiome results from a complex interaction of various factors. Diet plays a key role; a diet rich in diverse, fiber-filled foods typically promotes a more balanced microbiome. Exercise, stress management, and sleep also influence microbial diversity. Additionally, external factors such as antibiotics can significantly impact the balance of the gut microbiome.

Note

Overall microbial diversity increases with the consumption of probiotics, fermented foods, vegetables, and other healthy foods, while reducing the intake of sugar, red meat, and processed foods.

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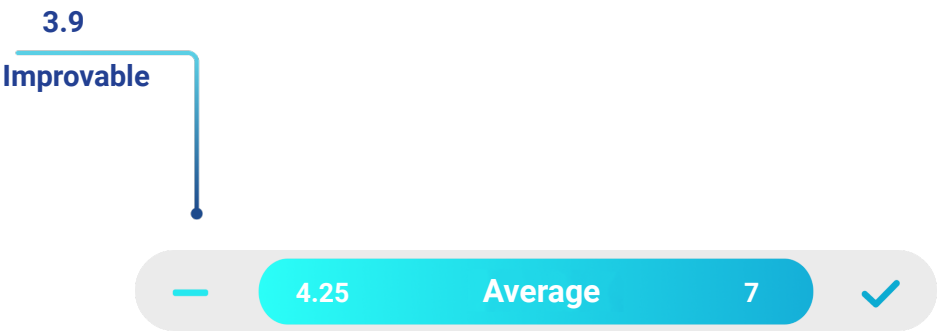
Diversity



Analysis

The microbial diversity in your gut could be better. If species richness is high, your microbiome can help you fight diseases more effectively. You will find tips on how to increase the diversity of your microbiome with personalized recommendations.

Definition

Microbial diversity in our gut provides resilience and stability to this ecosystem. Just as a rainforest with rich biological diversity is more resistant to environmental changes, diverse gut microbes are more resistant to dietary changes, stress, or medications like antibiotics. Various microorganisms specialize in breaking down different nutrients, making digestion more efficient. These microbes also train our immune system to distinguish between harmful and harmless substances, reducing the risk of autoimmune diseases and allergies. Recent studies have begun to reveal how the microorganisms in our gut affect overall health [12]. These microbes can cause inflammation in the body or produce compounds that affect the functioning of other organs. This highlights the close connection between gut health and overall well-being. Gut microbiome diversity is essential not only for physical health but also for general well-being.

Note

Enriching your diet with insoluble fibers supports microbial diversity. Whole grains, rice, fruits, and vegetables are rich sources of fiber.

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Butyrate-Producing Bacteria

Butyrate-producing bacteria are important components of the gut microbiome. They are microorganisms that ferment dietary fibers to produce butyrate, a short-chain fatty acid. Butyrate is one of the most important metabolites for maintaining gut health. It is important to consume a diet rich in fibers to support butyrate production. Particularly fermentable fibers serve as a food source for butyrate-producing bacteria, so consuming them in large quantities is recommended. Consuming a wide variety of plant-based foods, including fruits, vegetables, grains, and legumes, can help maintain an adequate population of butyrate-producing bacteria in the gut microbiome.

The Importance of Butyrate:

1. Energy Source for Mucosal Cells (Colonocytes) Butyrate is the primary energy source for colonocytes (mucosal cells lining the colon). A strong colonocyte structure supports cellular health and integrity.

2. Anti-inflammatory Properties Butyrate has anti-inflammatory properties that help reduce inflammation in the gut, thus playing a role in treating inflammatory bowel diseases such as Crohn's disease and ulcerative colitis.

3. Prevention of Colon Cancer Some studies have shown that butyrate may have protective effects against colon cancer by promoting apoptosis (programmed cell death) in cancer cells and reducing inflammation.

4. Strengthened Gut Barrier Function Butyrate helps maintain the integrity of the gut barrier. By strengthening the gut barriers, butyrate prevents harmful bacteria and substances from passing from the gut lumen into the bloodstream.

5. Immune System Modulation Butyrate helps modulate the immune system by balancing the inflammatory response necessary to maintain gut homeostasis.

6. Enhanced Metabolic Health Butyrate has been shown to play a role in energy balance, insulin sensitivity, and metabolism regulation, with potentially beneficial effects on metabolic disorders such as obesity and type 2 diabetes.

Some Butyrate-Producing Bacteria:

1. Faecalibacterium prausnitzii Faecalibacterium prausnitzii, from the Firmicutes family, is one of the most abundant butyrate-producing bacteria in the human gut. It has anti-inflammatory effects. A healthy gut microbiome is rich in Faecalibacterium prausnitzii, and a decrease in its abundance is often associated with inflammatory bowel diseases such as Crohn's disease and ulcerative colitis.

2. Eubacterium rectale Eubacterium rectale is an important butyrate-producing bacterium in the human colon. It plays a key role in the fermentation of dietary fibers and contributes to gut health and stability. It is considered one of the main bacteria contributing to butyrate production in the human colon.

3. Roseburia species Roseburia species are important butyrate producers and play a role in the fermentation of dietary fibers. They are known for maintaining the integrity of the gut barrier and have anti-inflammatory properties. Some studies suggest that a decrease in the abundance of Roseburia spp. may be associated with various digestive disorders and gut diseases.

4. Butyrivibrio species Butyrivibrio species include various bacteria known for producing butyrate. These bacteria play a role in breaking down complex carbohydrates, particularly in fermenting resistant starches. They have been shown to be important for maintaining gut health and balance.

5. Clostridium butyricum Clostridium butyricum is a butyrate-producing bacterium that may help maintain gut health. It also has potential probiotic properties. Several studies have demonstrated its role in modulating the immune system and preventing the growth of pathogenic bacteria.

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Detailed Information

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Eubacterium rectale	0.228 - 2.013	0.130	**Decreased**
Faecalibacterium prausnitzii	3.481 - 11.454	3.976	Normal
Roseburia	0.268 - 1.273	0.059	**Decreased**
Butyrivibrio	<0.0001	0.000	Normal
Clostridium butyricum	<0.0001	0.000	Normal

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Probiotic Bacteria

Probiotic bacteria are live microorganisms that provide significant health benefits to individuals when consumed in adequate amounts. These bacteria are often referred to as "good" or "friendly" bacteria because they help maintain the balance of a healthy gut microbiota. The most common types of probiotic bacteria belong to the Lactobacillus and Bifidobacterium genera.

Probiotic bacteria are essential for maintaining the balance and diversity of the gut microbiota and have many positive effects on human health:

1. **Digestive Health**
   - Nutrient Absorption: Probiotics help digest and absorb nutrients such as vitamins and minerals.
   - Breakdown of Complex Carbohydrates: They assist in breaking down complex carbohydrates that the human body cannot digest, converting them into short-chain fatty acids and gases.
2. **Immune System Support**
   - Probiotics modulate the immune system, enhancing the body's defense mechanisms against pathogens.
   - They help produce antibodies and can activate specific immune cells such as T lymphocytes and natural killer cells.
3. **Mental Health**
   - The gut-brain axis is a bidirectional communication system between the gastrointestinal system and the brain. Probiotics can affect brain function and mental health through this axis.
   - Some studies have shown their association with improved mood and reduced symptoms of depression and anxiety.
4. **Metabolic Benefits**
   - Probiotics play a role in metabolism and body weight regulation.
   - They may reduce cholesterol levels, which are beneficial for lipid metabolism and cardiovascular health.
5. **Protection Against Harmful Bacteria**
   - Probiotics prevent the growth and colonization of harmful bacteria by competing for binding sites in the gut barrier.
   - They produce substances like bacteriocins, which inhibit the growth of pathogenic bacteria.

Ways to Consume Probiotics:

1. **Fermented Foods:** Such as yogurt, kefir, sauerkraut, kimchi, and other types of pickles.
2. **Probiotic Supplements:** Available in various forms such as capsules, tablets, and powders.
3. **Fortified Foods:** Some foods and beverages are fortified with probiotics.

The human gut hosts various probiotic bacteria, each playing a unique role in maintaining health. The most important of these bacteria are:

1. **Lactobacillus acidophilus**

   Description: This bacterium is one of the most commonly recognized probiotics and is found in the mouth, intestines, and vagina.

   Benefits: It helps with lactose digestion, supports the immune system, and aids in maintaining the integrity of the intestinal wall.
2. **Bifidobacterium bifidum**

   Description: One of the most common probiotic bacteria in the human body, primarily found in the colon, lower intestines, breast milk, and often in the vagina.

   Benefits: It plays a critical role in breaking down carbohydrates in the diet, fighting infections, and supporting the immune system.
3. **Lactobacillus reuteri**

   Description: A naturally occurring probiotic found in the intestines of mammals.

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Benefits: It produces reuterin, a compound with antimicrobial properties, and helps maintain the balance of good and bad bacteria in the gut.

4. Lactobacillus rhamnosus

Description: This species is commonly found in dairy products.

Benefits: It survives in the acidic digestive system and is associated with reducing gastrointestinal infections and boosting the immune system.

5. Bifidobacterium longum

Description: One of the first bacteria to colonize our bodies at birth.

Benefits: It helps break down carbohydrates, may alleviate symptoms of lactose intolerance, and has anti-inflammatory properties.

6. Lactobacillus casei

Description: Found in the gut and mouth.

Benefits: It supports digestive health and has anti-inflammatory properties that may be beneficial for some oral and inflammatory bowel conditions.

7. Bifidobacterium breve

Description: Found in the gut, mouth, and vagina.

Benefits: It breaks down dietary carbohydrate sources and is essential for colon health. It may also play a role in preventing colon cancer.

8. Streptococcus thermophilus

Description: Commonly used in the dairy industry as a starter culture for yogurt and cheese production.

Benefits: It helps with digestion, especially for individuals with lactose intolerance, and has anti-inflammatory properties.

9. Lactobacillus salivarius

Description: Mainly found in the mouth and small intestines.

Benefits: It produces compounds with antimicrobial properties and plays a role in preventing cavities and gingivitis.

10. Bifidobacterium lactis

Description: Found in dairy products and the colon.

Benefits: It supports digestive health, boosts immune strength, and may help lower cholesterol levels.

11. Lactobacillus plantarum

Description: Commonly found in plant-based foods and fermented foods.

Benefits: It has antioxidant properties and may help maintain gut permeability.

12. Saccharomyces boulardii

Description: Although a probiotic yeast species, it functions similarly to probiotic bacteria.

Benefits: It is used to treat various gastrointestinal issues, including diarrhea, IBS, and Crohn's disease.

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Faecalibacterium prausnitzii	3.481 - 11.454	3.976	Normal
Lactobacillus acidophilus	<0.0001	0.000	Normal
Lactobacillus casei	<0.0001	0.000	Normal
Lactobacillus plantarum	<0.0001	0.000	Normal
Lactobacillus reuteri	<0.0001	0.000	Normal
Lactobacillus rhamnosus	<0.0001	0.000	Normal
Lactobacillus salivarius	<0.0001	0.000	Normal
Roseburia intestinalis	0.000 - 0.302	0.000	Normal
Saccharomyces boulardii	<0.0001	0.000	Normal
Streptococcus thermophilus	0.000 - 0.003	0.000	Normal
Bifidobacterium lactis	<0.0001	0.000	Normal
Akkermansia muciniphila	0.005 - 2.547	0.002	**Decreased**
Bacteroides fragilis	0.000 - 0.124	0.206	**Increased**
Bifidobacterium bifidum	0.000 - 0.024	0.000	Normal
Bifidobacterium breve	<0.0001	0.000	Normal
Bifidobacterium longum	0.050 - 0.621	0.016	**Decreased**

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Pathogenic Microorganisms

The gut microbiome consists of a complex community of microorganisms living in the digestive tracts of animals, including humans. Most of these microorganisms are beneficial or at least symbiotic, meaning they coexist in harmony with the host without causing harm. However, some pathogenic species may be present in the gut microbiota. These species can cause infections or diseases under certain conditions. Some potentially pathogenic species that may inhabit the gut are listed as follows:

Bacteria:

1. **Salmonella enterica** Causes salmonellosis, which presents with diarrhea, fever, and abdominal cramps.
2. **Shigella spp.** Causes shigellosis or bacillary dysentery, characterized by diarrhea, fever, and abdominal cramps.
3. **Escherichia coli (specific strains)** Some strains, such as E. coli O157:H7, can cause severe abdominal cramps, diarrhea (often bloody), and vomiting.
4. **Campylobacter jejuni** Causes campylobacteriosis, leading to diarrhea, cramping, abdominal pain, and fever.
5. **Clostridioides difficile** Causes C. difficile infection, leading to severe diarrhea and inflammation of the colon.
6. **Yersinia enterocolitica** Causes yersiniosis, which can lead to fever, abdominal pain, and diarrhea.
7. **Vibrio cholerae** Causes cholera, characterized by watery diarrhea and dehydration.
8. **Listeria monocytogenes** Can cause listeriosis, which presents with fever, muscle aches, and sometimes gastrointestinal symptoms.
9. **Helicobacter pylori** Associated with peptic ulcers and can increase the risk of stomach cancer.

Protozoa:

1. **Entamoeba histolytica** Causes amebiasis, leading to diarrhea, abdominal pain, and weight loss.
2. **Giardia lamblia** Causes giardiasis, characterized by diarrhea, gas, abdominal cramps, and nausea.
3. **Cryptosporidium spp.** Causes cryptosporidiosis, leading to watery diarrhea, abdominal cramps or pain, dehydration, nausea, vomiting, fever, and weight loss.
4. **Blastocystis hominis** Usually non-pathogenic, but may sometimes cause digestive symptoms.

Fungi:

1. **Candida albicans** Some species, like Candida albicans, can overgrow and lead to conditions such as thrush or serious systemic infections, particularly in immunocompromised individuals.

Viruses:

1. **Norovirus** Causes viral gastroenteritis, characterized by diarrhea, vomiting, nausea, and abdominal pain.
2. **Rotavirus** Primarily affects infants and young children, causing severe diarrhea, vomiting, fever, abdominal pain, and dehydration.

Most of these pathogens are not normally present in a healthy gut microbiota, but under certain conditions, such as antibiotic use or the consumption of contaminated food or drinks, they can colonize the gut and cause infections. Additionally, the presence and levels of these pathogens vary from person to person. Many individuals can carry some of these organisms asymptomatically without showing any signs of infection.

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Detailed Information

Microorganism	Population (%)	Result (%)	Your level
Giardia lamblia	<0.0001	0.000	Normal
Helicobacter pylori	<0.0001	0.000	Normal
Escherichia coli	0.000 - 0.093	0.175	**Increased**
Listeria monocytogenes	<0.0001	0.000	Normal
Salmonella enterica	<0.0001	0.000	Normal
Vibrio cholerae	<0.0001	0.000	Normal
Yersinia enterocolitica	<0.0001	0.000	Normal
Candida	<0.0001	0.000	Normal
Cryptosporidium	<0.0001	0.000	Normal
Norovirus	<0.0001	0.000	Normal
Rotavirus	<0.0001	0.000	Normal
Shigella	<0.0001	0.000	Normal
Blastocystis hominis	<0.0001	0.000	Normal
Campylobacter jejuni	<0.0001	0.000	Normal
Clostridium difficile	<0.0001	0.000	Normal
Entamoeba histolytica	<0.0001	0.000	Normal

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Candida Overgrowth

Candida is a type of fungus naturally found in the gut flora, with Candida albicans being the most common. Under normal conditions, this fungus is harmless, but it can disrupt the microbiome balance when it overgrows due to various factors. Antibiotic use, a weakened immune system, or a diet high in sugar and processed carbohydrates can lead to this overgrowth. Candida overgrowth can cause gastrointestinal issues, skin rashes, and in severe cases, systemic candidiasis. Managing Candida overgrowth typically involves dietary changes, probiotics to restore microbiome balance, and sometimes antifungal medications. Understanding and maintaining the complex balance of the microbiome is crucial for overall health, as this balance affects not only the digestive system but also the immune system and potentially mental health.

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Detailed Information

Microorganism	Population (%)	Result (%)	Your level
Candida	<0.0001	0.000	Normal
Candida albicans	<0.0001	0.000	Normal
Candida glabrata	<0.0001	0.000	Normal
Candida parapsilosis	<0.0001	0.000	Normal
Candida tropicalis	<0.0001	0.000	Normal
Candida unclassified	<0.0001	0.000	Normal

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Relationship Between Microbiome and Disease

Cardiovascular

Arrythmia 18
High Cholesterol 21
Hypertension 24
Thrombosis 27

Gastrointestinal

Bloating 30
Burping 33
Crohn's Disease 36
Flatulence 39
Gallstones 42
Gastrointestinal Pain 45
Irritable Bowel Syndrome 48
Nausea 51
Pancreatitis 54
Stomach Ulcer 57
Ulcerative Colitis 60

Mental Health

Burnout 63
Depression 66
Eating Disorder 69

Metabolic

Diabetes T2 72
Gluten intolerance 75
Lactose intolerance 78
Nonalcoholic fatty liver disease (NAFLD) 81
Type 1 Diabetes 84

Musculoskeletal and Pain

Osteoporosis 87

Neurological

Alzheimer's disease 90
Autism Spectum Disorder 93
Fibromyalgia 96
Migraine 99
Multiple sclerosis 102
Parkinson's disease 105

Other

Chronic throat and nose inflammation 108
Cystitis 111
Muscle Weakness 114
Osteoarthritis 117
Rheumatoid arthritis 120

Psychological

Bipolar Disorder 123
Chronic Fatigue Syndrome 126

Pulmonary

Asthma 129
Chronic obstructive pulmonary disease 132

Skin

Atopic dermatitis 135

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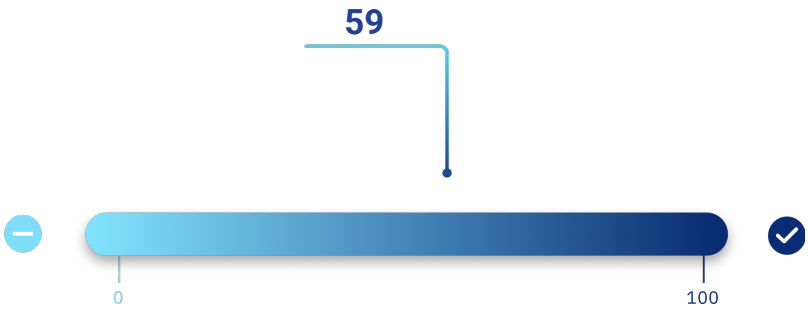
Arrythmia



Analysis

Gut bacterial species scientifically associated with lowered risk for arrhythmia are at a good level!

Definition

Arrhythmia is an aberrant heartbeat rhythm as a result of dysregulation of electrical signals which regulate the heart rhythm. It is a well-known fact that discordant metabolic patterns and dysbiosis are important factors in the clinical manifestations of arrhythmia. Recent studies showed that increased choline production by gut microbiome might negatively affect the heart-bowel axis [19].

Suggestion

There appears to be a moderate risk for arrhythmia. Nonetheless, dietary guidance for preventing arrhythmia aligns with recommendations for maintaining overall bodily health. The American Heart Association (AHA) suggests that those with arrhythmia limit their intake of saturated fats, cholesterol, and salt as much as possible. Caffeine should also be consumed in moderation. The diet should emphasize fruits, vegetables, whole grains, low-fat or fat-free dairy products, lean meats (primarily white meat), and nuts. These dietary suggestions closely resemble the Mediterranean Diet. Hence, the Mediterranean Diet can be deemed most suitable for those with arrhythmia.

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Arrythmia

Associated Species

Species	Level
s Bacteroides fragilis	Increased
s Clostridium asparagiforme	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Holdemania filiformis	Increased
s Streptococcus parasanguinis	Increased
s Streptococcus salivarius	Increased
s Veillonella parvula	Increased
s Veillonella	Normal

Associated Genus

Genus	Level
g Bacteroides	Normal
g Eggerthella	Increased
g Flavonifractor	Increased
g Holdemania	Increased
g Lachnospiraceae	Normal
g Streptococcus	Normal
g Veillonella	Normal

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Arrythmia

Protective Species

Species	Level
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Bifidobacterium adolescentis	Normal
s Desulfovibrio piger	Normal
s Klebsiella	Normal
s Mitsuokella multacida	Normal
s Mitsuokella	Normal
s Oxalobacter formigenes	Normal
s Parabacteroides merdae	Normal
s Prevotella copri	Decreased
s Prevotella stercorea	Normal
s Sutterella wadsworthensis	Normal

Protective Genus

Genus	Level
g Desulfovibrio	Normal
g Klebsiella	Increased
g Mitsuokella	Normal
g Oxalobacter	Normal
g Prevotella	Increased
g Sutterella	Normal

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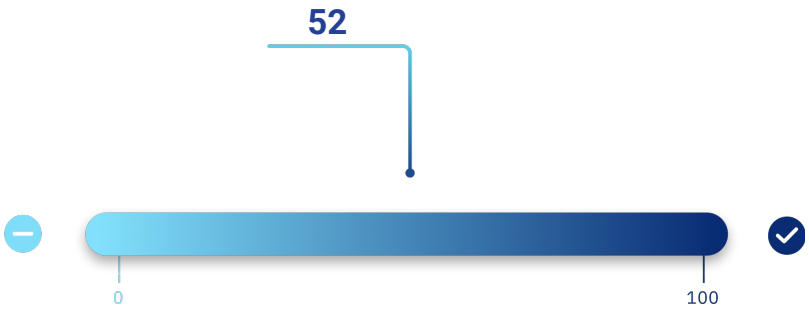
High Cholesterol



Analysis

The abundance of gut bacterial species scientifically associated with lowered risk for high cholesterol is good.

Definition

High cholesterol is defined as high fat (mainly cholesterol) levels in the blood. The causes of high cholesterol can be listed as fatty food consumption, being overweight, lack of physical activity, smoking, and/or hereditary. High cholesterol levels can be reduced by healthy eating habits and exercise. Although most of the cholesterol is synthesized in the liver, foods are the source of twenty percent of it. Specific types of gut bacteria interact with dietary cholesterol and help in balancing the levels of cholesterol in the gut by creating molecules that are crucial for human health [20].

Suggestion

You might be considered at a moderate risk for high cholesterol. To maintain cholesterol levels at optimal ranges, the following suggestions can be made: - Consume plenty of vegetables (5 servings per day), fruits (2-4 servings per day), and whole grains (opt for seeded breads over white bread, brown rice, and high-fiber cereals). - Prioritize various healthy protein sources, especially fish and seafood. The intake of legumes, nuts, and oily seeds is also recommended. - Eggs and lean poultry can be consumed in smaller amounts. - Limit lean red meat to 1-3 times per week. It's advisable to avoid processed meats (like sausages, ham, salami, etc.). - Increase the consumption of legumes like lentils, chickpeas, and beans. - For dairy products like milk, yogurt, and cheese, it's better to choose reduced-fat options.

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High Cholesterol

Associated Species

Species	Level
s Bifidobacterium dentium	Increased
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium hathewayi	Increased
s Clostridium leptum	Normal
s Dialister invisus	Normal
s Eggerthella	Increased
s Escherichia coli	Increased
S. Lachnospiraceae bacterium 3 1 57FAA CT1	Normal
S. Lachnospiraceae bacterium 8 1 57FAA	Normal
s Oscillibacter	Decreased
s Pseudoflavonifractor capillosus	Increased
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased
s Ruminococcus torques	Increased
s Veillonella parvula	Increased

Associated Genus

Genus	Level
g Adlercreutzia	Normal
g Blautia	Normal
g Clostridium	Increased
g Dialister	Normal
g Eggerthella	Increased
g Oscillibacter	Increased
g Pseudoflavonifractor	Increased
g Ruminococcaceae	Increased

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High Cholesterol

Protective Species

Species	Level
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Bacteroides stercoris	Normal
s Barnesiella intestinihominis	Decreased
s Catenibacterium mitsuokai	Normal
s Methanobrevibacter	Normal
s Mitsuokella multacida	Normal
s Mitsuokella	Normal
s Oxalobacter formigenes	Normal
s Paraprevotella clara	Normal
s Paraprevotella	Normal
s Paraprevotella xylaniphila	Normal
s Prevotella copri	Decreased

Protective Genus

Genus	Level
g Barnesiella	Normal
g Catenibacterium	Normal
g Mitsuokella	Normal
g Oxalobacter	Normal
g Paraprevotella	Normal
g Prevotella	Increased
g Roseburia	Decreased

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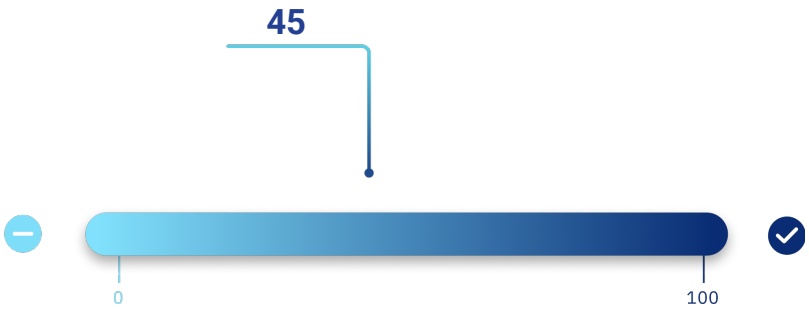
Hypertension



Analysis

You have acceptable bacteria levels associated with hypertension.

Definition

Hypertension (also known as high blood pressure), refers to abnormally higher blood pressure. In normal circumstances, blood pressure changes depending on physical activities. Measuring blood pressure several times a day and getting abnormally high results is an indication of hypertension. There is growing evidence that the gut microbiome is involved in the development and pathophysiology of hypertension [15]. Individuals with high blood pressure were observed to have gut dysbiosis. Bacterial-derived metabolites generated in the gut have broad impacts on many tissue types and organs in the body. Combining gut microbiome targeted strategies with accompanying medicines will give a more comprehensive approach to hypertension prevention and management.

Suggestion

A dietary approach with reduced salt and fat content is recommended. Consuming fermented foods rich in probiotics, fibrous foods with prebiotic properties, vegetables, whole grains, and foods containing plant-based oils will positively promote and maintain healthy bacteria.

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Hypertension

Associated Species

Species	Level
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium hathewayi	Increased
s Flavonifractor plautii	Increased
s Streptococcus parasanguinis	Increased

Associated Genus

Genus	Level
g Clostridium	Increased
g Flavonifractor	Increased

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Hypertension

Protective Species

Species	Level
s Alistipes senegalensis	Decreased
s Catenibacterium mitsuokai	Normal
s Faecalibacterium prausnitzii	Normal
s Mitsuokella multacida	Normal
s Mitsuokella	Normal
s Prevotella copri	Decreased
s Roseburia inulinivorans	Decreased
s Ruminococcus lactaris	Increased

Protective Genus

Genus	Level
g Catenibacterium	Normal
g Faecalibacterium	Decreased
g Mitsuokella	Normal
g Peptostreptococcaceae	Normal
g Prevotella	Increased

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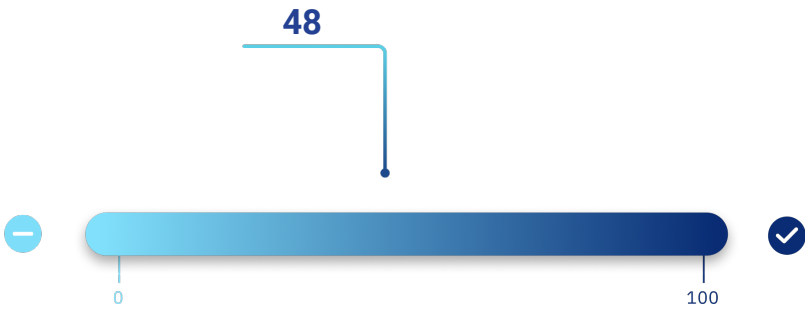
Thrombosis



Analysis

The abundance of gut bacterial species associated with lowered risk of thrombosis is good.

Definition

Thrombosis is defined as a blood clot (thrombus) formation and blockage of blood vessels. Thrombus blocks blood flow in the circulatory system. Thrombosis can cause problems in many individuals regardless of their gender, age, race, and ethnicity. The incidence of venous thromboembolism, known as blood clots in veins, in the adult population is 5-6/1000 patients per year [16,17]. The gut microbiota plays a crucial role in cardiovascular diseases such as thrombosis and atherosclerosis, presenting a significant environmental risk factor. Leakage of bacterial metabolic products to the blood circulation system can contribute to atherosclerosis development via calcium, blood clots, and fat deposits in the blood vessels [18].

Suggestion

The gut microbiome is in good shape concerning thrombosis risk, but there's room for improvement. For this purpose, it's crucial to increase dietary fiber while maintaining a diet that regulates cholesterol. Reducing saturated fat has a significant effect on thrombosis. It's recommended to follow a diet that's low in fat and rich in polyphenols.

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Thrombosis

Associated Species

Species	Level
s Clostridium bolteae	Increased
s Eggerthella	Increased
s Eubacterium hallii	Normal
s Flavonifractor plautii	Increased
s Holdemania	Increased
s Roseburia intestinalis	Normal
s Ruminococcaceae bacterium D16	Increased
s Streptococcus thermophilus	Normal

Associated Genus

Genus	Level
g Eggerthella	Increased
g Flavonifractor	Increased
g Gordonibacter	Increased
g Ruminococcaceae	Increased

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Thrombosis

Protective Species

Species	Level
s Butyrivibrio crossotus	Normal
s Escherichia	Normal
s Klebsiella	Normal
s Lachnospiraceae bacterium 7 1 58FAA	Decreased
s Oxalobacter formigenes	Normal
s Parabacteroides	Increased
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Butyrivibrio	Normal
g Lachnospiraceae	Normal
g Oxalobacter	Normal
g Subdoligranulum	Decreased

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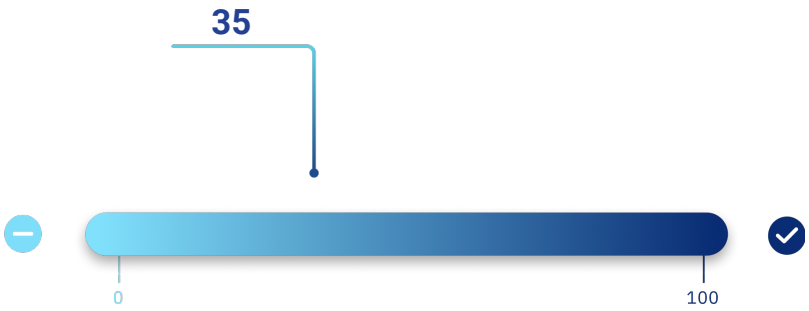
Bloating



Analysis

It is neither beneficial nor bad to have this level of gut microorganisms associated with bloating.

Definition

Bloating is discomfort that is defined by the full and tight feeling in the belly, the area between ribs and pelvis and this is usually related to gas. Since bloating results in a noticeable belly; it can be confused with other reasons, such as abdominal wall laxity or looseness. Bloating's pathogenesis is still unknown, while some data supports potential mechanisms such as gut hypersensitivity, inefficient gas management, and altered gut microbiota [32]. Other contributing factors include an unhealthy diet, psychological issues, hormones, irritable bowel syndrome, and certain microorganisms [33]. Eating too quickly, a lot of air is swallowed, frequently results in bloating.

Suggestion

The goal of an anti-bloating diet is to improve digestion, regulate excessive gas, alleviate inflammation, and address gastrointestinal discomfort. It's important to achieve all of these by ensuring the number of "good" bacteria outweighs the "bad" bacteria. There may be sensitivities to certain foods, which can lead to various digestive problems. In such cases, it may be necessary to completely eliminate these foods from one's diet. Some of these foods include wheat (gluten), cow's milk, eggs, corn, caffeine, and citrus fruits.

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Bloating

Associated Species

Species	Level
s Anaerotruncus colihominis	Increased
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased

Associated Genus

Genus	Level
g Anaerostipes	Increased
g Anaerotruncus	Increased

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Bloating

Protective Species

Species	Level
s Bacteroidales bacterium ph8	Decreased
s Barnesiella intestinihominis	Decreased
s Bilophila	Decreased
s Coprococcus catus	Normal
s Dorea longicatena	Normal
s Escherichia	Normal
s Eubacterium siraeum	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Bacteroidales	Decreased
g Barnesiella	Normal
g Bilophila	Increased
g Subdoligranulum	Decreased

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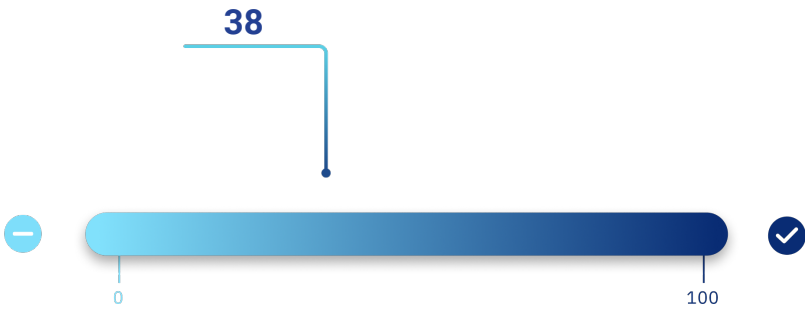
Burping



Analysis

This number of gut bacteria linked with burping is in acceptable levels.

Definition

Belching or burping is a bodily response based on releasing excess air from the upper digestive tract. Generally, the reason for belching is the accumulation from swallowing air in the esophagus that did not reach the stomach. Gas enters the digestive tract through two primary pathways: swallowing air (when eating and chewing gum) and your microbiome [36]. Burping helps homeostasis by removing the majority of this air.

Suggestion

For those in a medium-risk situation concerning belching, it's advisable to avoid foods that produce gas if possible. Beans, peas, lentils, cabbage, onions, broccoli, cauliflower, whole grain foods, mushrooms, some fruits, and carbonated drinks all increase gas formation and lead to belching issues. Additionally, eating quickly leads to swallowing air, thus one of the best ways to reduce belching is to eat slowly.

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Burping

Associated Species

Species	Level
s Bacteroides stercoris	Normal
s Bifidobacterium dentium	Increased
s Clostridium asparagiforme	Increased
s Clostridium citroniae	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Holdemania	Increased
s Pseudoflavonifractor capillosus	Increased
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased
s Ruminococcus torques	Increased
s Streptococcus parasanguinis	Increased
s Streptococcus salivarius	Increased
s Veillonella atypica	Increased
s Veillonella parvula	Increased
s Veillonella	Normal

Associated Genus

Genus	Level
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Pseudoflavonifractor	Increased
g Ruminococcaceae	Increased
g Streptococcus	Normal
g Veillonella	Normal

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Burping

Protective Species

Species	Level
s Alistipes shahii	Decreased
s Bacteroides plebeius	Normal
s Bifidobacterium adolescentis	Normal
s Butyrivibrio crossotus	Normal
s Coprococcus comes	Normal
s Dorea longicatena	Normal
s Faecalibacterium prausnitzii	Normal
s Parabacteroides distasonis	Decreased
s Parabacteroides	Increased
s Roseburia hominis	Increased
s Ruminococcus bromii	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Butyrivibrio	Normal
g Coprococcus	Decreased
g Faecalibacterium	Decreased
g Ruminococcus	Normal
g Subdoligranulum	Decreased

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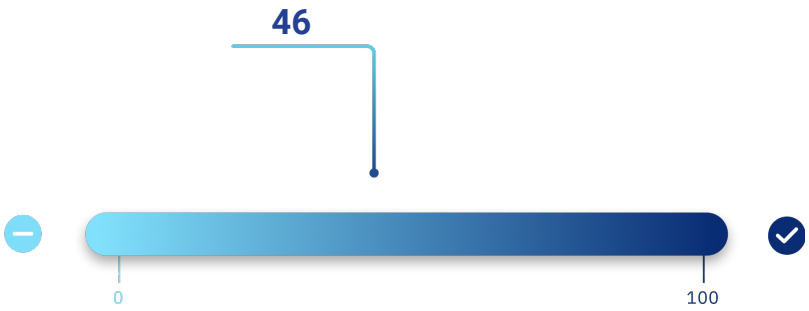
Crohn's Disease



Analysis

Looks like you have normal levels of gut bacteria associated with Chron’s disease which can get better!

Definition

Crohn's disease is one of the types of inflammatory bowel disease (IBD) which causes digestive tract inflammation. Digestive tract inflammation can cause malnutrition, severe diarrhea, abdominal pain, weight loss, and severe fatigue. Gut bacteria play an important role in the immune system and inflammation via regulating the activity of key immune cells such as the ones related to Crohn's disease. It is well known that nitrogen metabolism is directly linked to Crohn's disease [25]. Nitrogen is metabolized by gut bacteria in the intestine and produces amino acids and enzymes which are necessary for a balanced microbiome.

Suggestion

The risk of developing Crohn's disease can be assessed as moderate. For overall gut health, the following recommendations can be considered: Maintain a balanced diet with natural foods. Avoid unnecessary use of antibiotics. Steer clear of industrially produced artificial foods and those containing chemical additives, as well as foods that might harm the gut microbiota. Additionally, be cautious about factors that might trigger Crohn's disease, such as: Smoking and alcohol consumption. Use of rheumatoid drugs and aspirin. Hormonal changes. Infections. High levels of stress.

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Crohn's Disease

Associated Species

Species	Level
s Bacteroides vulgatus	Increased
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium citroniae	Increased
s Escherichia coli	Increased
s Flavonifractor plautii	Increased
s Klebsiella	Normal
s Ruminococcus gnavus	Increased
s Veillonella parvula	Increased
s Veillonella	Normal

Associated Genus

Genus	Level
g Bacteroides	Normal
g Blautia	Normal
g Clostridiales	Normal
g Dialister	Normal
g Flavonifractor	Increased
g Klebsiella	Increased
g Veillonella	Normal

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Crohn's Disease

Protective Species

Species	Level
s Akkermansia muciniphila	Decreased
s Alistipes indistinctus	Normal
s Alistipes onderdonkii	Decreased
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Bacteroidales bacterium ph8	Decreased
s Barnesiella intestinihominis	Decreased
s Bifidobacterium adolescentis	Normal
s Bifidobacterium longum	Decreased
s Bilophila	Decreased
s Collinsella aerofaciens	Decreased
s Coprococcus catus	Normal
s Coprococcus comes	Normal
s Dorea formicigenerans	Normal
s Eubacterium rectale	Decreased
s Eubacterium siraeum	Normal
s Faecalibacterium prausnitzii	Normal
s Lachnospiraceae bacterium 7 1 58FAA	Decreased
s Oscillibacter	Decreased
s Oxalobacter formigenes	Normal
s Prevotella copri	Decreased
s Roseburia hominis	Increased
s Ruminococcus lactaris	Increased
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Akkermansia	Decreased
g Alistipes	Decreased
g Bacteroidales	Decreased
g Barnesiella	Normal
g Bifidobacterium	Decreased
g Bilophila	Increased
g Collinsella	Normal
g Coprococcus	Decreased
g Desulfovibrio	Normal
g Eubacterium	Decreased
g Faecalibacterium	Decreased
g Lachnospiraceae	Normal
g Odoribacter	Normal
g Oscillibacter	Increased
g Oxalobacter	Normal
g Prevotella	Increased
g Roseburia	Decreased
g Ruminococcus	Normal
g Subdoligranulum	Decreased
g Sutterellaceae	Normal

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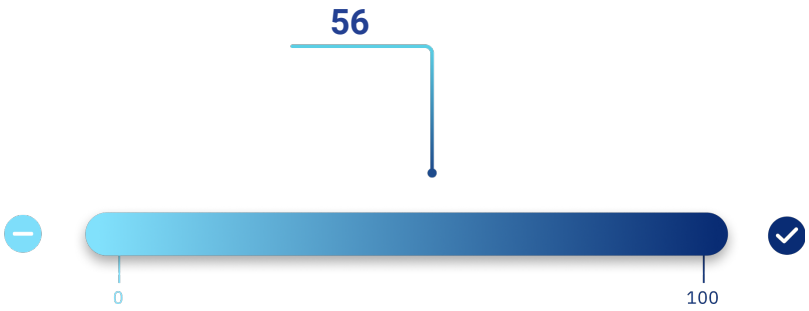
Flatulence



Analysis

The level of gut bacteria associated with flatulence is normal, but it would be better to improve it.

Definition

Flatulence can be defined as releasing of gases generated in the intestine by the bacteria out of the back of the digestive system. Healthy microbiota may boost the gut's ability to tolerate gas, which would lessen the feeling of being bloated. According to one study, those with regular flatulence had lower-quality gut bacteria than those with a stable, healthy microbiome [35].

Suggestion

For the group evaluated as medium risk for gas complaints, the following recommendations can be listed: The majority of the gas in the body comes from swallowed air. Eating quickly leads to swallowing more air, so eating slowly can be beneficial. It's suggested to avoid foods that produce gas. These include legumes like kidney beans, beans, and chickpeas; garlic and onions; green vegetables like broccoli and cabbage; dairy products, particularly cheese and yogurt; certain fruits (such as oranges and apricots); and high-fiber whole grains.

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Flatulence

Associated Species

Species	Level
s Alistipes onderdonkii	Decreased
s Alistipes sp AP11	Normal
s Anaerotruncus	Normal
s Clostridium asparagiforme	Increased
s Clostridium leptum	Normal
S. Erysipelotrichaceae bacterium 21 3	Normal
s Holdemania filiformis	Increased
s Klebsiella pneumoniae	Increased
S. Lachnospiraceae bacterium 5 1 63FAA	Normal
s Methanobrevibacter smithii	Increased
s Pseudoflavonifractor capillosus	Increased
s Streptococcus parasanguinis	Increased
s Streptococcus salivarius	Increased
s Veillonella atypica	Increased

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Burkholderiales	Normal
g Clostridium	Increased
g Holdemania	Increased
g Methanobrevibacter	Normal
g Pseudoflavonifractor	Increased

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Flatulence

Protective Species

Species	Level
s Bacteroides plebeius	Normal
s Butyrivibrio crossotus	Normal
s Eubacterium ventriosum	Normal
s Peptostreptococcaceae	Normal
s Prevotella copri	Decreased
s Roseburia inulinivorans	Decreased
s Sutterella wadsworthensis	Normal

Protective Genus

Genus	Level
g Butyrivibrio	Normal
g Megamonas	Increased
g Peptostreptococcaceae	Normal
g Prevotella	Increased
g Sutterella	Normal

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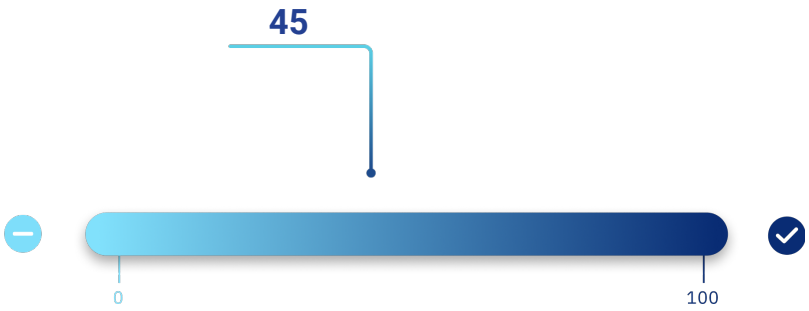
Gallstones



Analysis

You have normal levels for now, but you should be careful! Help your gut bacteria become excellent!

Definition

Gallstones are hardened deposits of digestive fluid that can form in your gallbladder. The gallbladder is a pear-shaped organ placed under the liver. It is responsible for keeping bile, a digestive fluid consisting of fat and cholesterol, and helps the digestion of fats in the intestine. Gallstones may cause no signs or symptoms. If a gallstone lodges in a duct and causes a blockage, the resulting signs and symptoms can be listed as sudden pain in the upper right side and the center of the abdomen, vomiting, or nausea. It's not clear what causes gallstones to form. Its pathogenesis, which varies by country and region, suggests a synergistic effect of genetic and environmental factors such as ethnicity, gender, age, comorbidities, lifestyle, diet, and microbiome. The gut microbiota is involved in almost all stages of bile production, including lipid and cholesterol metabolism, biotransformation, and enterohepatic circulation. Indeed, changes in the gut microbiota can affect bile acid balance at any point in the human metabolic pathway [28].

Suggestion

Excessive calorie intake, high consumption of refined carbohydrates and trans fatty acids, elevated serum triglyceride levels, and low levels of physical exercise are associated with an increased risk of developing gallstones. It is recommended to avoid these factors in one's diet.

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Gallstones

Associated Species

Species	Level
s Alistipes onderdonkii	Decreased
s Alistipes putredinis	Normal
s Anaerotruncus colihominis	Increased
s Anaerotruncus	Normal
s Bacteroides fragilis	Increased
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium citroniae	Increased
s Clostridium hathewayi	Increased
s Clostridium leptum	Normal
s Eggerthella lenta	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Holdemania	Increased
s Klebsiella pneumoniae	Increased
s Oscillibacter	Decreased
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Bacteroides	Normal
g Clostridiales	Normal
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Holdemania	Increased
g Klebsiella	Increased
g Lachnospiraceae	Normal
g Oscillibacter	Increased
g Ruminococcaceae	Increased

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Gallstones

Protective Species

Species	Level
s Butyrivibrio crossotus	Normal
s Coprococcus catus	Normal
s Faecalibacterium prausnitzii	Normal
s Prevotella stercorea	Normal
s Rothia mucilaginosa	Normal
s Streptococcus thermophilus	Normal

Protective Genus

Genus	Level
g Bifidobacterium	Decreased
g Butyrivibrio	Normal
g Coprococcus	Decreased
g Faecalibacterium	Decreased
g Haemophilus	Increased
g Peptostreptococcaceae	Normal
g Prevotella	Increased
g Rothia	Normal
g Ruminococcus	Normal

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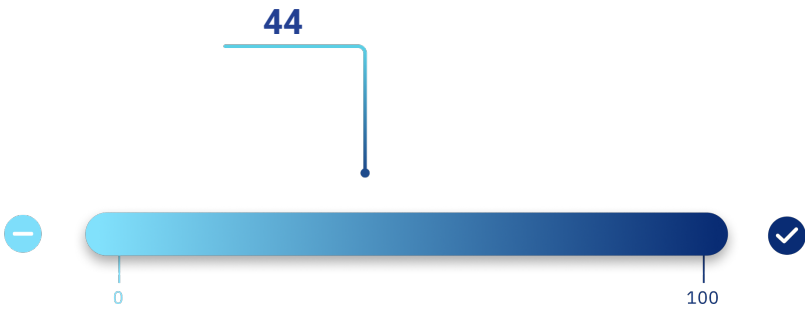
Gastrointestinal Pain



Analysis

The level of gut bacteria associated with stomach pain is within the normal range, but increasing it could be beneficial.

Definition

Abdominal pain can be generalized by the discomfort in the belly. The pain is usually called “stomach pain/stomach-ache” and it can have many different causes. Mostly, it can be associated with digestion problems. In addition to that infections, injuries, or diseases of an organ, muscle, or skin of the abdominal wall may also be the reason. Recent research suggests that the microbiota may be able to modify visceral hypersensitivity by being associated with gastrointestinal illnesses that are characterized by abdominal pain [34].

Suggestion

Even when classified in the medium-risk group for abdominal pain, adhering to healthy eating principles is crucial. It's important to include a variety of nutrients in meals for adequate and balanced nutrition. Dairy products, which are among the most essential of these nutrients, contain protein, calcium, and phosphorus that are vital for a healthy life. Therefore, consumption of these foods is particularly recommended for maintaining bone health. Consuming high protein sources such as meat, eggs, legumes, and oily seeds throughout the day can induce feelings of fullness. This group of foods is also rich in vitamins known to contribute to normal energy metabolism, such as B1, B6, B12, and vitamin A.

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Gastrointestinal Pain

Associated Species

Species	Level
s Acidaminococcus	Normal
s Anaerotruncus colihominis	Increased
s Burkholderiales bacterium 1 1 47	Normal
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium citroniae	Increased
s Clostridium leptum	Normal
s Eggerthella	Increased
s Escherichia	Normal
s Flavonifractor plautii	Increased
s Holdemania filiformis	Increased
s Holdemania	Increased
S. Lachnospiraceae bacterium 1 1 57FAA	Increased
S. Lachnospiraceae bacterium 3 1 57FAA CT1	Normal
S. Lachnospiraceae bacterium 5 1 63FAA	Normal
S. Lachnospiraceae bacterium 8 1 57FAA	Normal
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased
s Ruminococcus torques	Increased
s Streptococcus parasanguinis	Increased
s Streptococcus salivarius	Increased
s Veillonella atypica	Increased
s Veillonella parvula	Increased

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Bacteroides	Normal
g Blautia	Normal
g Burkholderiales	Normal
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Holdemania	Increased
g Ruminococcaceae	Increased
g Veillonella	Normal

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Gastrointestinal Pain

Protective Species

Species	Level
s Akkermansia muciniphila	Decreased
s Alistipes indistinctus	Normal
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Bacteroides caccae	Normal
s Bacteroides nordii	Increased
s Bacteroides plebeius	Normal
s Barnesiella intestinihominis	Decreased
s Butyrivibrio crossotus	Normal
s Coprococcus comes	Normal
s Desulfovibrio piger	Normal
s Eubacterium eligens	Decreased
s Eubacterium rectale	Decreased
s Eubacterium siraeum	Normal
s Faecalibacterium prausnitzii	Normal
s Parabacteroides	Increased
s Phascolarctobacterium succinatutens	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Akkermansia	Decreased
g Barnesiella	Normal
g Bifidobacterium	Decreased
g Butyrivibrio	Normal
g Coprococcus	Decreased
g Desulfovibrio	Normal
g Faecalibacterium	Decreased
g Odoribacter	Normal
g Phascolarctobacterium	Normal
g Roseburia	Decreased
g Ruminococcus	Normal
g Subdoligranulum	Decreased

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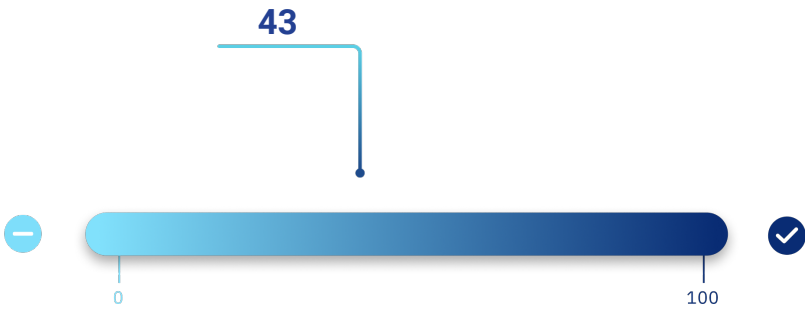
Irritable Bowel Syndrome



Analysis

It is neither beneficial nor bad to have this level of gut microorganisms associated with IBS.

Definition

Irritable bowel syndrome (IBS) is a common gastrointestinal disorder that affects 7-21 % of the general population [29]. Common symptoms can be bloating, cramps, abdominal pain, diarrhea or constipation, or sometimes both. However, everyone experiences IBS differently from each other in terms of triggers and symptoms. It is also known that this disorder is a chronic condition and requires long-term management. There are many factors such as stress, malnutrition, lack of gastric acid, infections, other diseases, and imbalance of gut bacteria which play a role in the development of IBS [30]. There is evidence that gut dysbiosis may activate the gut immune system, with downstream consequences on several other parameters that may be relevant to the pathogenesis of IBS [31].

Suggestion

Probiotic foods contain healthy living bacteria that can further modify an individual's microbiome. Fermented foods such as kefir, yogurt, pickled vegetables, and sauerkraut can be incorporated more into daily nutrition.

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Irritable Bowel Syndrome

Associated Species

Species	Level
s Anaerotruncus colihominis	Increased
s Anaerotruncus	Normal
s Bacteroides fragilis	Increased
s Bifidobacterium dentium	Increased
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium citroniae	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Holdemania filiformis	Increased
s Holdemania	Increased
S. Lachnospiraceae bacterium 1 1 57FAA	Increased
S. Lachnospiraceae bacterium 8 1 57FAA	Normal
s Oscillibacter	Decreased
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased
s Streptococcus parasanguinis	Increased
s Streptococcus salivarius	Increased
s Veillonella atypica	Increased
s Veillonella parvula	Increased

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Bacteroides	Normal
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Gordonibacter	Increased
g Holdemania	Increased
g Oscillibacter	Increased
g Ruminococcaceae	Increased
g Veillonella	Normal

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Irritable Bowel Syndrome

Protective Species

Species	Level
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Bacteroidales bacterium ph8	Decreased
s Bacteroides plebeius	Normal
s Bifidobacterium adolescentis	Normal
s Bifidobacterium longum	Decreased
s Butyrivibrio crossotus	Normal
s Catenibacterium mitsuokai	Normal
s Collinsella aerofaciens	Decreased
s Desulfovibrio piger	Normal
s Dorea longicatena	Normal
s Eubacterium eligens	Decreased
s Eubacterium rectale	Decreased
s Faecalibacterium prausnitzii	Normal
s Mitsuokella multacida	Normal
s Mitsuokella	Normal
s Oxalobacter formigenes	Normal
s Parabacteroides distasonis	Decreased
s Parabacteroides	Increased
s Paraprevotella clara	Normal
s Paraprevotella	Normal
s Phascolarctobacterium succinatutens	Normal
s Prevotella copri	Decreased
s Ruminococcus callidus	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Bacteroidales	Decreased
g Bifidobacterium	Decreased
g Butyrivibrio	Normal
g Catenibacterium	Normal
g Collinsella	Normal
g Desulfovibrio	Normal
g Faecalibacterium	Decreased
g Mitsuokella	Normal
g Oxalobacter	Normal
g Paraprevotella	Normal
g Phascolarctobacterium	Normal
g Prevotella	Increased
g Ruminococcus	Normal
g Subdoligranulum	Decreased

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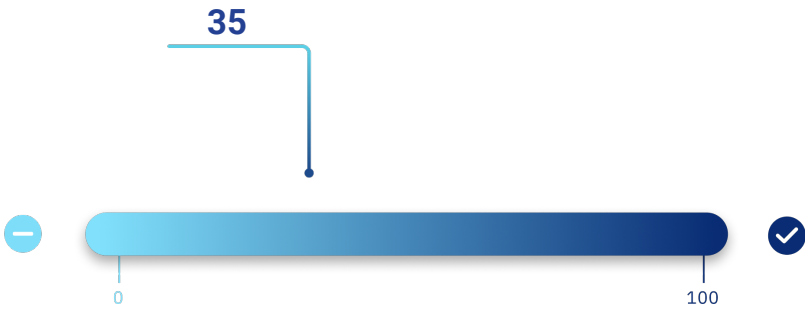
Nausea



Analysis

This number of gut bacteria linked with nausea is neither healthy nor harmful.

Definition

Nausea is a stomach discomfort characterized by the uneasiness of the stomach that often accompanies the urge to vomit but doesn't always lead to vomiting. Vomiting is the emptying process of the stomach content throughout the mouth, which can be forcible or involuntary. Researchers proved critical information about gut bacteria's effect on digestive function [37]. We are what we eat, and the products and metabolites produced by bacteria significantly influence our health.

Suggestion

Foods and beverages rich in protein can offer benefits for nausea by promoting the release of the gastrin hormone, which assists in regulating stomach activity. Consuming foods that the stomach finds difficult to digest might lead to digestive discomfort. This irritation can trigger feelings of nausea. Ginger acts as a natural remedy for nausea, with its component, gingerol, and its antiemetic properties helping to alleviate stomach discomfort. Compounds present in peppermint exhibit antispasmodic properties. Similarly, herbs like chamomile, fennel, and cinnamon are known to have soothing and calming effects.

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Nausea

Associated Species

Species	Level
s Anaerotruncus colihominis	Increased
s Anaerotruncus	Normal
s Bacteroides fragilis	Increased
s Bacteroides vulgatus	Increased
s Bifidobacterium dentium	Increased
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium citroniae	Increased
s Clostridium hathewayi	Increased
s Eggerthella lenta	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Holdemania	Increased
S. Lachnospiraceae bacterium 1 1 57FAA	Increased
S. Lachnospiraceae bacterium 3 1 57FAA CT1	Normal
S. Lachnospiraceae bacterium 8 1 57FAA	Normal
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased
s Ruminococcus torques	Increased
s Streptococcus parasanguinis	Increased
s Streptococcus salivarius	Increased
s Veillonella atypica	Increased
s Veillonella parvula	Increased

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Holdemania	Increased
g Ruminococcaceae	Increased

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Nausea

Protective Species

Species	Level
s Bacteroides eggerthii	Normal
s Bacteroides plebeius	Normal
s Barnesiella intestinihominis	Decreased
s Bifidobacterium adolescentis	Normal
s Bilophila	Decreased
s Butyrivibrio crossotus	Normal
s Coprococcus comes	Normal
s Dorea longicatena	Normal
s Eubacterium rectale	Decreased
s Eubacterium siraeum	Normal
s Faecalibacterium prausnitzii	Normal
s Oxalobacter formigenes	Normal
s Paraprevotella	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Alistipes	Decreased
g Barnesiella	Normal
g Bifidobacterium	Decreased
g Bilophila	Increased
g Butyrivibrio	Normal
g Eubacterium	Decreased
g Faecalibacterium	Decreased
g Oxalobacter	Normal
g Paraprevotella	Normal
g Roseburia	Decreased
g Ruminococcus	Normal
g Subdoligranulum	Decreased

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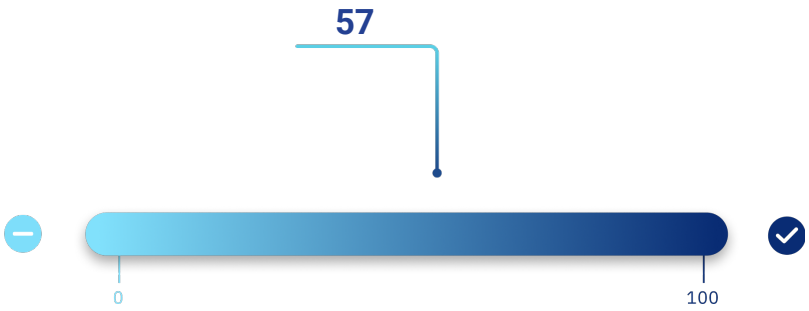
Pancreatitis



Analysis

The levels of bacteria that could indicate risk for the development of pancreatic disease are acceptable. The quantity of bacteria known to be protective against chronic pancreatitis is also at an acceptable level. The quantity of protective bacteria can be improved, and the amounts of potentially risky bacteria can be reduced.

Definition

Pancreatitis, an inflammatory condition of the pancreas, leads to progressive pancreatic damage, resulting in malabsorption and often diabetes mellitus. The relationship between pancreatitis and the gut microbiome is intricate, where changes in the microbial community in the gut can lead to nutritional deficiencies due to malabsorption, impact metabolic processes, and potentially escalate the chronic pain associated with the condition. Patients with chronic pancreatitis often exhibit a distinct gut microbial profile, which is speculated to influence the inflammatory processes and immune responses, playing a consequential role in the pathophysiology of the disease. The possibility of leveraging gut microbiota modifications as a therapeutic strategy in managing chronic pancreatitis is an area of active research. Interventions such as fecal microbiota transplantation (FMT) and probiotics are being explored to determine their efficacy in rebalancing the gut microbiome and mitigating disease symptoms and progression. Optimizing dietary intake to modulate the gut microbiome is also a crucial aspect of managing chronic pancreatitis [63].

Suggestion

To prevent pancreatitis, it is beneficial to consume whole grains and fiber-rich foods that support the smooth operation of the pancreas. Fruits and vegetables, due to their antioxidant content, assist in reducing inflammation in the pancreas. Among fruits and vegetables, especially those with high fiber content, aid in digestion, thereby relieving the pancreas. It's recommended to choose fruits with a lower sugar content to avoid sudden spikes in blood sugar. It's especially beneficial to reduce saturated fat intake. Lean meat consumption and preparing meals by boiling or steaming are recommended. Alcohol, smoking, fatty and fried foods, excessive sugar and salt intake, refined flours, processed meats, and other additives negatively impact pancreatic health.

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Pancreatitis

Associated Species

Species	Level

Associated Genus

Genus	Level
g Enterococcus	Normal
g Escherichia	Normal
g Klebsiella	Increased
g Pseudomonas	Increased

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Pancreatitis

Protective Species

Species	Level

Protective Genus

Genus	Level
g Bacteroides	Normal
g Bifidobacterium	Decreased
g Lactobacillus	Increased

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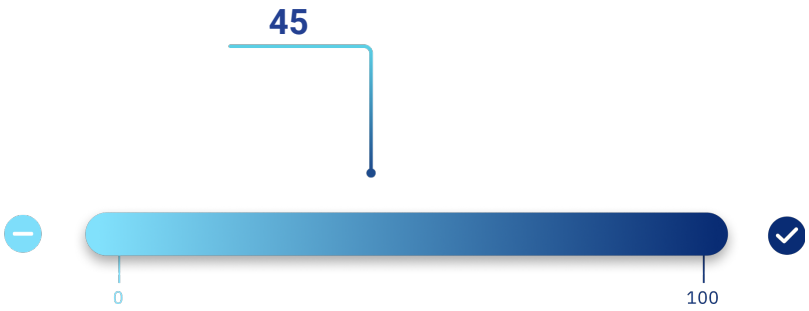
Stomach Ulcer



Analysis

Your gut microbiome associated with a stomach ulcer is at good levels, but it can get better!

Definition

Stomach ulcer (also known as a peptic ulcer) is defined as a bruise in the stomach, esophagus, or small intestine. One of the most common causes of the disease is long-term nonsteroidal anti-inflammatory drug consumption. Spicy food consumption and stress can trigger the symptoms but are not the cause of the disease. The main reason for stomach ulcers is the lack of balance between harmful factors and the gastric mucosa's defense mechanism. It is known that the gut microbiome takes an important part in the maintenance of this delicate balance [27].

Suggestion

To guard against stomach ulcers, it's recommended to eat foods that are rich in dietary fiber. Diet should include vegetables and fruits that are not only rich in antioxidants but also high in fiber. The intake of spicy and overly seasoned foods should be kept to a minimum. Due to the potential of salted and pickled foods to irritate the stomach lining, their consumption should be limited. Acidic beverages should be consumed sparingly. The consumption of coffee and tea should remain within moderate levels. Likewise, alcohol intake should not exceed moderate limits. Some foods, such as citrus fruits and those containing tomatoes, are naturally acidic. Despite their beneficial effects on health, they might intensify the symptoms of a stomach ulcer. It has been proven that deficiencies in vitamins or minerals can significantly hamper the healing of stomach ulcers. Therefore, it's essential to ensure that you're getting adequate vitamins and minerals in your diet.

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Stomach Ulcer

Associated Species

Species	Level
s Acidaminococcus	Normal
s Anaerotruncus colihominis	Increased
s Bacteroides nordii	Increased
s Bifidobacterium dentium	Increased
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Holdemania	Increased
s Oscillibacter	Decreased
s Ruminococcaceae bacterium D16	Increased
s Streptococcus parasanguinis	Increased
s Streptococcus salivarius	Increased
s Veillonella atypica	Increased
s Veillonella parvula	Increased
s Veillonella	Normal

Associated Genus

Genus	Level
g Holdemania	Increased
g Oscillibacter	Increased
g Ruminococcaceae	Increased
g Streptococcus	Normal
g Veillonella	Normal

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Stomach Ulcer

Protective Species

Species	Level
s Bilophila	Decreased
s Desulfovibrio piger	Normal
s Eubacterium siraeum	Normal
s Faecalibacterium prausnitzii	Normal
s Mitsuokella	Normal
s Phascolarctobacterium succinatutens	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Bilophila	Increased
g Desulfovibrio	Normal
g Faecalibacterium	Decreased
g Mitsuokella	Normal
g Phascolarctobacterium	Normal
g Ruminococcus	Normal
g Subdoligranulum	Decreased

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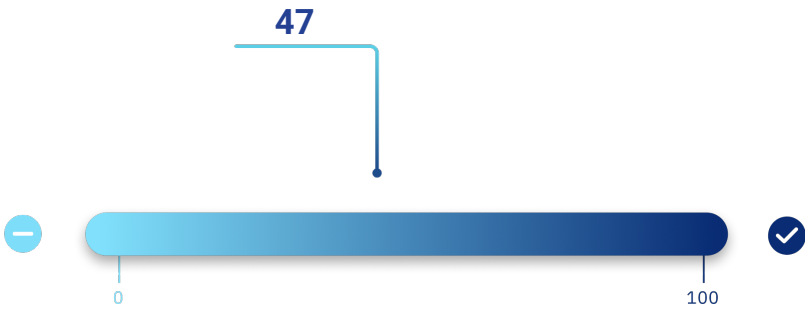
Ulcerative Colitis



Analysis

It seems like you have acceptable levels of protective bacteria associated with ulcerative colitis.

Definition

Ulcerative colitis is a type of Inflammatory Bowel Disease type resulting in ulcers and inflammation in the digestive tract. The disease affects the rectum and the mucosal layer of the large intestine and shows slow symptom development. Ulcerative colitis causes tissue-destroying inflammation. The healthy microbiome flora of the intestine becomes disrupted, therefore the anti-inflammatory metabolite products of them are reduced in IBUC patients [26].

Suggestion

The risk of developing ulcerative colitis has been identified as moderate. For a healthy life, it's recommended to consume foods that protect and strengthen the intestines. For gut health, it's particularly important to avoid smoking, stress, unnecessary antibiotics, and painkillers. Foods such as whole wheat bread, bulgur, oats, chickpeas, dried beans, and kidney beans, which have a high dietary fiber content, should be favored. Sources of probiotics that boost friendly bacteria (like yogurt, cheese, and kefir) should be incorporated into daily nutrition. Attention should be given to a diet with low carbohydrates and high in polyphenols.

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Ulcerative Colitis

Associated Species

Species	Level
s Acidaminococcus	Normal
s Bacteroides vulgatus	Increased
s Bifidobacterium bifidum	Normal
s Clostridium bolteae	Increased
s Clostridium hathewayi	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
S. Lachnospiraceae bacterium 3 1 57FAA CT1	Normal
S. Lachnospiraceae bacterium 5 1 63FAA	Normal
s Ruminococcaceae bacterium D16	Increased

Associated Genus

Genus	Level
g Anaerostipes	Increased
g Bacteroides	Normal
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Holdemania	Increased
g Ruminococcaceae	Increased

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Ulcerative Colitis

Protective Species

Species	Level
s Akkermansia muciniphila	Decreased
s Alistipes indistinctus	Normal
s Alistipes putredinis	Normal
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Bacteroidales bacterium ph8	Decreased
s Bilophila	Decreased
s Desulfovibrio piger	Normal
s Oxalobacter formigenes	Normal
s Parabacteroides merdae	Normal
s Paraprevotella clara	Normal
s Phascolarctobacterium succinatutens	Normal
s Roseburia hominis	Increased
s Ruminococcus bromii	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Akkermansia	Decreased
g Alistipes	Decreased
g Bacteroidales	Decreased
g Bilophila	Increased
g Desulfovibrio	Normal
g Eubacterium	Decreased
g Odoribacter	Normal
g Oxalobacter	Normal
g Phascolarctobacterium	Normal
g Ruminococcus	Normal
g Subdoligranulum	Decreased

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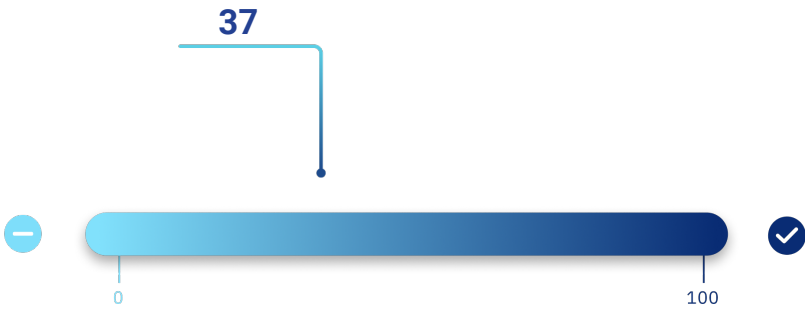
Burnout



Analysis

It is neither beneficial nor bad to have this level of gut microorganisms associated with burnout. Good to raise your level.

Definition

Burnout can be experienced when an individual lives under extreme and protracted stress, and due to this way of living, he/she can have emotional, bodily, and mental depletion. It can drain your energy and productivity, and these adverse effects may touch every part of your life. Additionally, burnout can alter your body in ways that make you more susceptible to diseases like flu or the common cold. Due to these reasons, burnout must be addressed immediately. Gut bacteria create a wide range of compounds known as metabolites during food digestion, and these molecules impact physical and mental health [39]. The impacts of the microbiome extend well beyond the gut. A healthy gut function has been linked to normal central nervous system activity. It is well recognized that hormones, neurotransmitters, and immunological components secreted from the gut communicate with the brain either directly or through autonomic neurons.

Suggestion

Burnout syndrome is believed to be linked to unhealthy dietary habits such as skipping meals, inadequate nutrition, and excessive consumption of caffeine, sugar, salt, and fats. Adopting proper dietary habits not only promotes physical health but also aids in enhancing our emotional well-being. Numerous studies demonstrate a direct relationship between nutrition and stress management. To combat burnout syndrome, it is recommended to consume fish three times a week, as well as flaxseed, walnuts, omega-3 fatty acid supplements, and olive oil. Vitamins from groups B, C, and D can be taken as supplements. If choosing carbohydrates, it's preferable to opt for whole grains, bran-rich bread, rye bread, bulgur, and whole grain pasta.

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Burnout

Associated Species

Species	Level
s Acidaminococcus	Normal
s Anaerotruncus colihominis	Increased
s Anaerotruncus	Normal
s Bacteroides cellulosilyticus	Normal
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Eggerthella lenta	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Holdemania filiformis	Increased
s Holdemania	Increased
S. Lachnospiraceae bacterium 1 1 57FAA	Increased
S. Lachnospiraceae bacterium 5 1 63FAA	Normal
s Oscillibacter	Decreased
s Pseudoflavonifractor capillosus	Increased
s Roseburia intestinalis	Normal
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Holdemania	Increased
g Oscillibacter	Increased
g Pseudoflavonifractor	Increased
g Roseburia	Decreased
g Ruminococcaceae	Increased

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Burnout

Protective Species

Species	Level
s Akkermansia muciniphila	Decreased
s Alistipes finegoldii	Decreased
s Alistipes putredinis	Normal
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Bacteroidales bacterium ph8	Decreased
s Bacteroides caccae	Normal
s Barnesiella intestinihominis	Decreased
s Bifidobacterium adolescentis	Normal
s Bifidobacterium bifidum	Normal
s Bifidobacterium longum	Decreased
s Dorea longicatena	Normal
s Eubacterium rectale	Decreased
s Mitsuokella	Normal
s Oxalobacter formigenes	Normal
s Ruminococcus callidus	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Akkermansia	Decreased
g Bacteroidales	Decreased
g Barnesiella	Normal
g Bifidobacterium	Decreased
g Megamonas	Increased
g Mitsuokella	Normal
g Oxalobacter	Normal
g Subdoligranulum	Decreased

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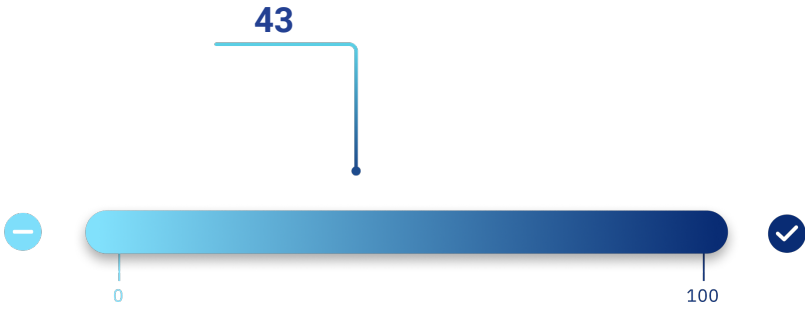
Depression



Analysis

It is neither beneficial nor bad to have this level of gut microorganisms associated with depression. It would help if you raised your microbial level.

Definition

Depression is a common and serious medical illness that negatively affects how you feel, the way you think, and how you act. The common symptoms can be a lack of motivation, pessimism, unhappiness, a feeling of guilt, and even suicide. A shift from the person's previous level of functioning and symptoms that last for at least two weeks is required for the diagnosis of depression. Depression, therefore, encompasses much more than just a few days of boredom or negative emotions. The gut-brain axis, also known as the central nervous system-gut microbiota communication pathway, has recently attracted much attention [40]. Anxiety and depression, two conditions common in today's society, have been related to dysbiosis and inflammation of the intestines.

Suggestion

Daily attention should be paid to the intake of vitamins B, C, D, and magnesium. Vitamin B can be met through grains like wheat, bulgur, and lentils; while vitamin C can be sourced from foods like oranges, kiwi, lemon, broccoli, and bell peppers. Vitamin D needs can be met through sun exposure and foods such as fish, milk, and eggs. Magnesium can be obtained from foods like cocoa, sunflower seeds, bran, almonds, and flax seeds. Consuming protein-rich foods like chicken, fish, eggs, kidney beans, hazelnuts, and peanuts can increase the production of serotonin, which in turn may reduce symptoms of depression. Emphasis should be placed on consuming antioxidant-rich foods like tomatoes, broccoli, blackberries, black grapes, garlic, and spinach. The amount of omega-3 can be increased with foods such as fish, nuts, almonds, walnuts, pumpkin seeds, flax seeds, purslane, and spinach.

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Depression

Associated Species

Species	Level
s Anaerotruncus colihominis	Increased
s Anaerotruncus	Normal
s Bacteroides clarus	Normal
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Eggerthella lenta	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Holdemania filiformis	Increased
s Holdemania	Increased
s Ruminococcus gnavus	Increased
s Streptococcus parasanguinis	Increased

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Holdemania	Increased
g Sutterellaceae	Normal

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Depression

Protective Species

Species	Level
s Alistipes finegoldii	Decreased
s Alistipes shahii	Decreased
s Bacteroidales bacterium ph8	Decreased
s Bifidobacterium adolescentis	Normal
s Bifidobacterium bifidum	Normal
s Burkholderiales bacterium 1 1 47	Normal
s Butyrivibrio crossotus	Normal
s Coprococcus comes	Normal
s Dorea longicatena	Normal
s Eubacterium rectale	Decreased
s Faecalibacterium prausnitzii	Normal
s Oxalobacter formigenes	Normal
s Parasutterella excrementihominis	Normal
s Ruminococcus bromii	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Bacteroidales	Decreased
g Bifidobacterium	Decreased
g Burkholderiales	Normal
g Butyrivibrio	Normal
g Coprococcus	Decreased
g Faecalibacterium	Decreased
g Oxalobacter	Normal
g Parasutterella	Normal
g Ruminococcus	Normal
g Subdoligranulum	Decreased

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Eating Disorder

Analysis

Your eating disorder-related bacterial numbers don't appear to be good. You should improve the quality of your microbiome.

Definition

An eating disorder is a set of conditions that involve abnormal eating habits, often stemming from psychological factors. It may be incorrect to believe that an eating disorder is merely a nutritional issue. Affected people may develop various coping mechanisms, from severe restrictions to losing control over their eating habits. Research has shown that the host's energy balance and behavior—two aspects that are frequently disturbed in people with eating disorders—are both influenced by gut flora [41].

Suggestion

For individuals at high risk of eating behavior disorders, the following general recommendations can be made: Regularly consume a sufficient variety of vegetables, fruits, and legumes. Incorporate foods with probiotic and prebiotic properties to enhance the diversity of the gut microbiota. Opt for low glycemic index carbohydrates to help maintain balanced blood sugar levels.

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Eating Disorder

Associated Species

Species	Level
s Akkermansia muciniphila	Decreased
s Anaerotruncus colihominis	Increased
s Anaerotruncus	Normal
s Bacteroides nordii	Increased
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium hathewayi	Increased
s Escherichia coli	Increased
s Holdemania filiformis	Increased
s Streptococcus parasanguinis	Increased
s Veillonella atypica	Increased

Associated Genus

Genus	Level
g Akkermansia	Decreased
g Anaerotruncus	Increased
g Clostridium	Increased
g Holdemania	Increased

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Eating Disorder

Protective Species

Species	Level
s Barnesiella intestinihominis	Decreased
s Bifidobacterium adolescentis	Normal
s Bifidobacterium longum	Decreased

Protective Genus

Genus	Level
g Barnesiella	Normal
g Bifidobacterium	Decreased

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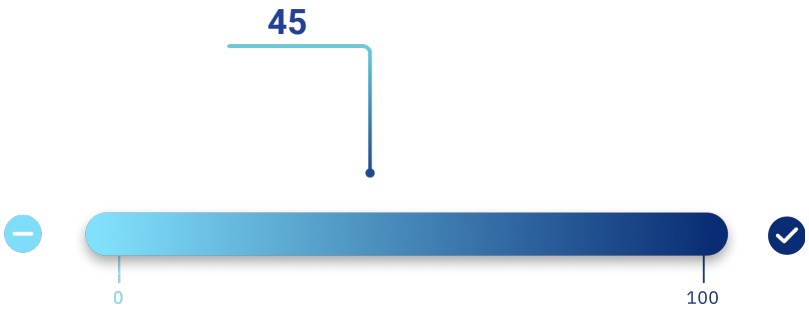
Diabetes T2



Analysis

The abundance of gut bacteria associated with lowered risk of diabetes T2 is acceptable.

Definition

Type 2 diabetes is a frequent health condition that results in high blood sugar levels with dysregulation of insulin secretion [21]. Symptoms can be listed as frequent urination, fatigue, and excessive thirst. Type 2 diabetes can cause eye, heart, and nerve problems. It is well known that gut microbiome composition is linked with type 2 diabetes [22]. There are several mechanisms involved in this link such as insulin sensitivity, inflammation, lipid, and glucose metabolism, and enlarged gut permeability [23]. Particularly, it is reported that type 2 diabetes is associated with a decrease in the number of butyrate-producing microbes and the increase of some types of pathogens [24].

Suggestion

Your risk for developing diabetes may be considered moderate. Maintaining a healthy metabolism and keeping the risk of diabetes low throughout life remains essential. It's vital to adopt a healthy lifestyle overall. The three primary recommendations remain the same: regular exercise, a healthy diet, and lifelong weight management. Individuals in the moderate risk group should heed the following dietary advice: - Limit refined sugar consumption. - Consume foods rich in saturated fats and cholesterol, like meat, milk, yogurt, cheese, and eggs, only in specific amounts. - Opt for smaller, more frequent meals. For a healthy diet, foods containing the following nutritional components should be consumed in adequate amounts and in a balanced manner within meals: - Carbohydrates (grains, flour-based foods, legumes, potatoes, vegetables, fruits, milk, yogurt) - Protein (meat, eggs, cheese, milk, yogurt) - Fats (oils and foods like meat, eggs, cheese, milk, and yogurt that contain fats) - Vitamins and Minerals (primarily from vegetables and fruits, but also from all foods) - Fiber (vegetables, fruits, whole grains)

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Diabetes T2

Associated Species

Species	Level
s Anaerotruncus colihominis	Increased
s Anaerotruncus	Normal
s Bacteroides nordii	Increased
s Bifidobacterium dentium	Increased
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium citroniae	Increased
s Clostridium hathewayi	Increased
s Eggerthella	Increased
s Escherichia coli	Increased
s Escherichia	Normal
s Flavonifractor plautii	Increased
s Klebsiella pneumoniae	Increased
s Parabacteroides	Increased
s Ruminococcus gnavus	Increased
s Ruminococcus torques	Increased
s Streptococcus parasanguinis	Increased
s Veillonella parvula	Increased

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Bacteroides	Normal
g Blautia	Normal
g Clostridium	Increased
g Escherichia	Normal
g Flavonifractor	Increased
g Klebsiella	Increased
g Megamonas	Increased

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Diabetes T2

Protective Species

Species	Level
s Alistipes indistinctus	Normal
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Alistipes sp AP11	Normal
s Bacteroidales bacterium ph8	Decreased
s Barnesiella intestinihominis	Decreased
s Bifidobacterium adolescentis	Normal
s Bifidobacterium longum	Decreased
s Butyrivibrio crossotus	Normal
s Coprococcus comes	Normal
s Dorea longicatena	Normal
s Eubacterium eligens	Decreased
s Eubacterium rectale	Decreased
s Eubacterium siraeum	Normal
s Faecalibacterium prausnitzii	Normal
s Lachnospiraceae bacterium 7 1 58FAA	Decreased
s Mitsuokella multacida	Normal
s Mitsuokella	Normal
s Oscillibacter	Decreased
s Paraprevotella clara	Normal
s Paraprevotella	Normal
s Paraprevotella xylaniphila	Normal
s Roseburia hominis	Increased
s Roseburia intestinalis	Normal
s Ruminococcus bromii	Normal
s Ruminococcus callidus	Normal
s Ruminococcus lactaris	Increased
s Streptococcus thermophilus	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Adlercreutzia	Normal
g Alistipes	Decreased
g Bacteroidales	Decreased
g Barnesiella	Normal
g Bifidobacterium	Decreased
g Butyrivibrio	Normal
g Coprococcus	Decreased
g Dorea	Decreased
g Erysipelotrichaceae	Normal
g Eubacterium	Decreased
g Faecalibacterium	Decreased
g Mitsuokella	Normal
g Oscillibacter	Increased
g Paraprevotella	Normal
g Peptostreptococcaceae	Normal
g Roseburia	Decreased
g Ruminococcus	Normal
g Subdoligranulum	Decreased

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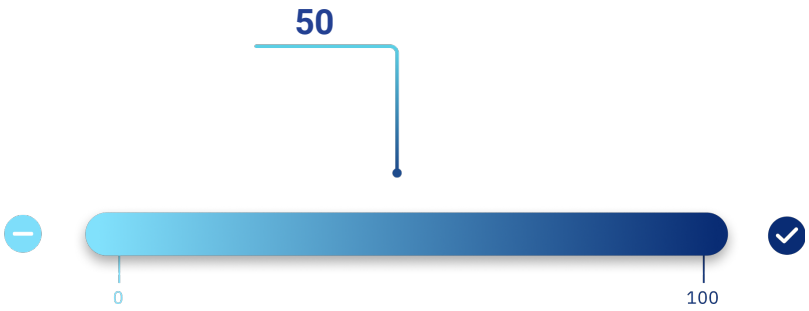
Gluten intolerance



Analysis

The level of bacteria that could indicate a risk for the development of gluten intolerance is in an acceptable condition. The quantity of bacteria known to be protective against gluten intolerance is also at an acceptable level. The amount of protective bacteria can be increased, and the levels of bacteria that might pose a risk can be reduced.

Definition

Gluten intolerance is a condition characterized by the body's inability to digest or break down gluten, a protein found in wheat, barley, and rye, leading to a range of gastrointestinal symptoms. It is distinct from celiac disease, an autoimmune condition where gluten ingestion can cause damage to the small intestine lining. The gut microbiome, the complex community of trillions of bacteria living in the digestive system, plays a pivotal role in gluten intolerance, as alterations in its composition can impact digestive function and immune responses. A healthy gut microbiome is crucial for digesting food and absorbing nutrients, and imbalances in the gut flora are implicated in various gastrointestinal conditions including gluten intolerance. For instance, research has shown that individuals with gluten intolerance often exhibit an altered microbiota with increased levels of harmful bacteria and decreased levels of beneficial bacteria [57].

Suggestion

Individuals with a medium level of risk for gluten intolerance may opt for a gluten-free diet to protect gut health or occasionally implement an elimination diet. Gluten-containing grains include wheat, barley, and rye. Fish, chicken, unprocessed meat, rice, potatoes, corn, chickpeas, chickpea flour, millet, buckwheat, and quinoa, eggs, jam, honey, and spices do not contain gluten and can be consumed in a gluten-free diet.

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Gluten intolerance

Associated Species

Species	Level
s Escherichia coli	Increased

Associated Genus

Genus	Level
g Bacteroides	Normal
g Escherichia	Normal

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Gluten intolerance

Protective Species

Species	Level
s Akkermansia muciniphila	Decreased
s Faecalibacterium prausnitzii	Normal

Protective Genus

Genus	Level
g Bifidobacterium	Decreased
g Lactobacillus	Increased
g Roseburia	Decreased

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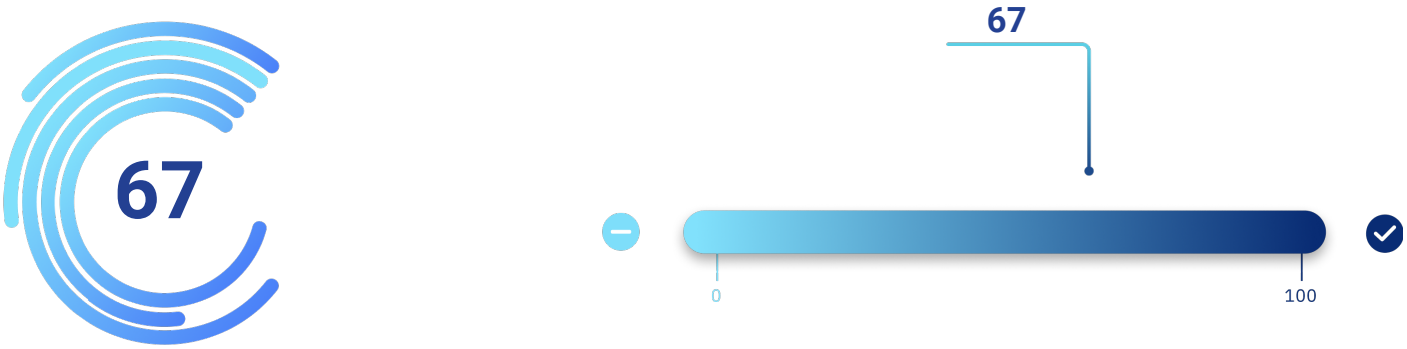
Lactose intolerance



Analysis

The level of bacteria that could indicate a risk for the development of lactose intolerance is in an acceptable condition. The quantity of bacteria known to be protective against lactose intolerance is also at an acceptable level. The amount of protective bacteria can be increased, and the levels of bacteria that might pose a risk can be reduced.

Definition

Lactose intolerance is a common digestive disorder where the body is unable to fully digest lactose, a sugar found in milk and dairy products. This condition arises due to the lack of lactase, an enzyme produced in the small intestine that is crucial for the hydrolysis of lactose into glucose and galactose. A significant component impacting lactose intolerance is the gut microbiome, the complex community of trillions of microorganisms residing in the digestive tract. These microorganisms play a pivotal role in digestion and the immune system and can vary substantially among individuals, influencing the degree of lactose intolerance experienced. People with lactose intolerance often exhibit alterations in gut microbiome composition. For instance, there is generally an increase in the abundance of bacteria such as Bifidobacteria and lactic acid bacteria, which can utilize undigested lactose. Conversely, there may be a decrease in bacteria like Bacteroides and Clostridia, which are associated with the digestion of complex carbohydrates [58].

Suggestion

Individuals with a medium level of risk for lactose intolerance may opt for a lactose-free diet to protect gut health or occasionally implement an elimination diet. Lactose-containing foods include all milk and dairy products. Fermented dairy products like kefir, yogurt, and cheese contain less lactose and can be consumed in moderation, depending on the individual's digestive system's reaction.

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Lactose intolerance

Associated Species

Species	Level
s Escherichia coli	Increased
s Lactobacillus acidophilus	Normal

Associated Genus

Genus	Level
g Clostridium	Increased
g Streptococcus	Normal

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Lactose intolerance

Protective Species

Species	Level
s Bifidobacterium animalis	Normal

Protective Genus

Genus	Level
g Bacteroides	Normal

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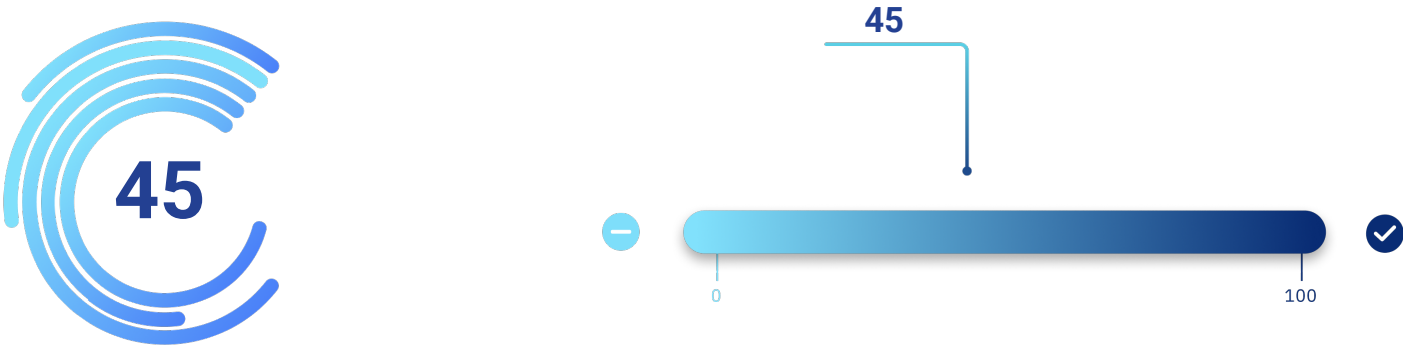
Nonalcoholic fatty liver disease (NAFLD)



Analysis

The levels of bacteria that could indicate risk for the development of NAFLD are acceptable. The quantity of bacteria known to be protective against NAFLD is also at an acceptable level. The quantity of protective bacteria can be improved, and the amounts of potentially risky bacteria can be reduced.

Definition

Nonalcoholic fatty liver disease (NAFLD) is a condition characterized by excessive fat accumulation in the liver cells, unrelated to alcohol consumption. The gut microbiome, consisting of the myriad microorganisms residing in the gastrointestinal tract, has been implicated in the pathogenesis of NAFLD, emphasizing the gut-liver axis's importance in maintaining liver health. The association between NAFLD and the gut microbiome centers on the concept of the gut-liver axis, highlighting the influence of gut health on liver function. Individuals with NAFLD often exhibit gut microbiome dysbiosis, an imbalance in the microbial community, marked by an overgrowth of harmful bacteria and a decline in beneficial ones. Decreases in these beneficial bacteria can impair gut barrier function, lead to increased gut permeability, and subsequently, the translocation of bacterial endotoxins into the liver, contributing to inflammation and progression of NAFLD. Dysbiosis also linked to the production of endotoxins and metabolites that can instigate liver inflammation and insulin resistance, thereby promoting fat accumulation in liver cells. Additionally, alterations in bile acid metabolism and increased intestinal permeability due to microbial imbalances can further enhance liver inflammation and progression of NAFLD. In essence, the interplay between gut microbiome alterations and liver metabolism is a pivotal aspect of NAFLD development and progression [60].

Suggestion

The Mediterranean diet is the most recommended dietary model for managing liver fat accumulation. Independent of calorie restriction, it has shown the ability to improve liver steatosis in various studies. Traditionally plant-based, the Mediterranean diet consists of whole grains, legumes, fruits, and vegetables. It is lower in carbohydrates, especially limited simple sugars and refined carbs, and rich in monounsaturated fats (mostly from olive oil) and omega-3 fatty acids. It includes limited red meat and low-fat dairy products. A diet rich in polyphenols, flavonoids, and carotenoids should be adopted for life. Specifically, fruit sugar fructose and all other sugars should be limited.

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Nonalcoholic fatty liver disease (NAFLD)

Associated Species

Species	Level
s Bacteroides fragilis	Increased
s Escherichia coli	Increased
s Lactobacillus salivarius	Normal
s Prevotella copri	Decreased
s Ruminococcus gnavus	Increased
s Streptococcus thermophilus	Normal

Associated Genus

Genus	Level
g Bacteroides	Normal
g Escherichia	Normal
g Lactobacillus	Increased
g Prevotella	Increased
g Ruminococcus	Normal
g Streptococcus	Normal

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Nonalcoholic fatty liver disease (NAFLD)

Protective Species

Species	Level
s Akkermansia muciniphila	Decreased
s Bifidobacterium longum	Decreased
s Faecalibacterium prausnitzii	Normal
s Roseburia intestinalis	Normal

Protective Genus

Genus	Level
g Akkermansia	Decreased
g Bifidobacterium	Decreased
g Faecalibacterium	Decreased
g Roseburia	Decreased

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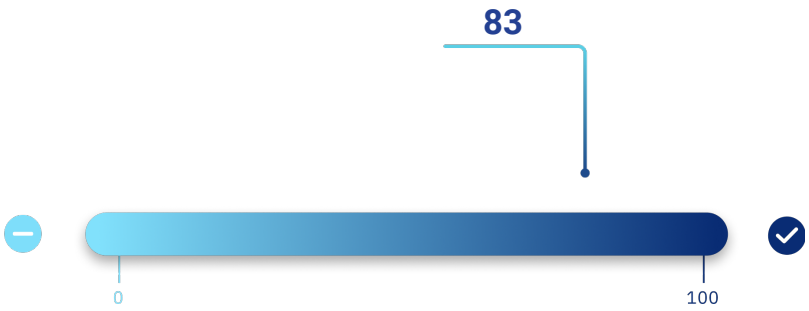
Type 1 Diabetes



Analysis

Your microbiome shows a predominance of balanced and healthy bacterial types, which may reduce the risk of Type 1 Diabetes.

Definition

Type 1 diabetes is associated with imbalances in the gut microbiome. An increase in pathogenic bacterial types can contribute to the development of this disease.

Suggestion

You can reduce your risk of Type 1 Diabetes by increasing your bacterial diversity and consuming foods that support a healthy microbiome.

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Type 1 Diabetes

Associated Species

Species	Level

Associated Genus

Genus	Level
g Bacteroides	Normal
g Blautia	Normal
g Ruminococcus	Normal

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Type 1 Diabetes

Protective Species

Species	Level

Protective Genus

Genus	Level
g Bifidobacterium	Decreased
g Lactobacillus	Increased
g Prevotella	Increased

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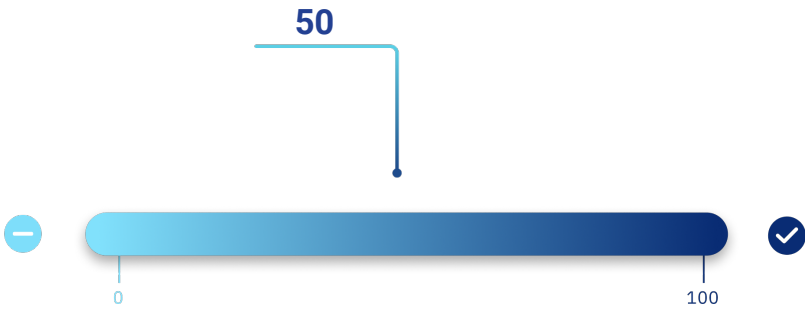
Osteoporosis



Analysis

The levels of bacteria that could indicate risk for the development of osteoporosis are acceptable. The quantity of bacteria known to be protective against osteoporosis is also at an acceptable level. The quantity of protective bacteria can be improved, and the amounts of potentially risky bacteria can be reduced.

Definition

Osteoporosis is a medical condition characterized by the weakening of bones, which become porous and more susceptible to fractures. Recent research has indicated a significant association between gut microbiota and the development of osteoporosis, emphasizing the role of the gut-bone axis in bone health. The gut microbiota plays a crucial role in maintaining homeostasis, influencing immune function, nutrient absorption, and even bone metabolism. Alterations in the composition and diversity of gut microbiota, known as dysbiosis, have been linked to various diseases, including osteoporosis. The presence or absence of specific microbial taxa in the gut can influence bone mass and density by affecting the balance between bone formation and resorption. Thus, a balanced and diverse gut microbiota is essential in maintaining optimal bone health [61].

Suggestion

To reduce the risk of osteoporosis, one should opt for a diet that prevents bone loss. Nutrition for osteoporosis should include menus rich in calcium, vitamin D, and protein. A diet rich in calcium, vitamin D, and protein promotes increased bone strength and mass. It is essential for patients with osteoporosis to consume milk and dairy products as a source of calcium. Other calcium-rich foods, such as broccoli, curly kale, spinach, and almonds, should be consumed adequately by osteoporosis patients. Foods rich in omega-3 and vitamin D, such as fish oil, cod liver oil, various fish, dairy products, butter, and oatmeal, should be included in the diet. While increasing calcium intake through the diet, one should prefer low-fat foods. In necessary cases, active vitamin D metabolites should also be used, as they regulate calcium absorption in patients with osteoporosis.

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Osteoporosis

Associated Species

Species	Level

Associated Genus

Genus	Level
g Bifidobacterium	Decreased
g Clostridium	Increased
g Escherichia	Normal
g Lactobacillus	Increased
g Ruminococcus	Normal
g Streptococcus	Normal

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Osteoporosis

Protective Species

Species	Level

Protective Genus

Genus	Level
g Akkermansia	Decreased
g Bacteroides	Normal
g Eubacterium	Decreased
g Faecalibacterium	Decreased
g Prevotella	Increased
g Roseburia	Decreased

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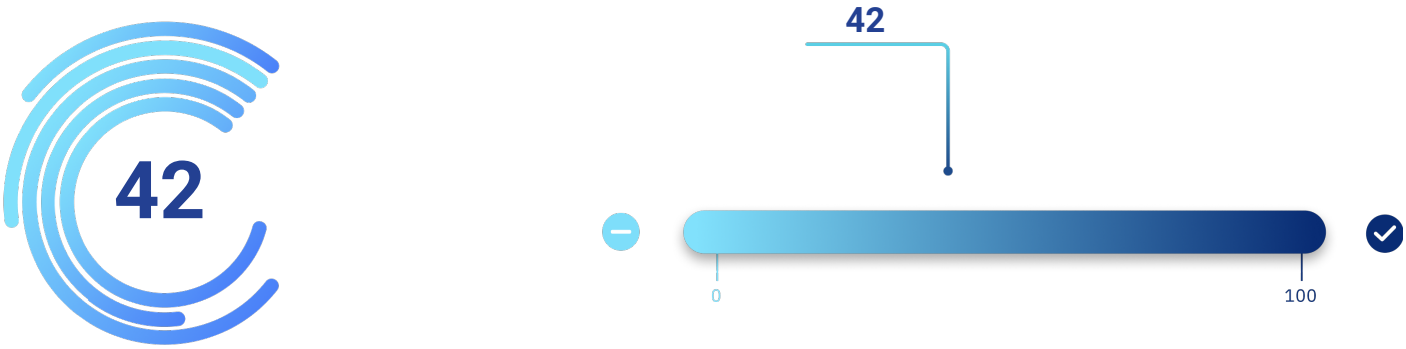
Alzheimer's disease



Analysis

The level of bacteria that could be an indicator of Alzheimer's Disease is acceptable. The quantity of bacteria known to protect against Alzheimer's Disease is also at an acceptable level. The amount of protective bacteria can be improved, and the levels of bacteria that could pose a risk can be reduced.

Definition

Alzheimer's disease is a progressive neurodegenerative disorder marked by memory loss, cognitive decline, and changes in behavior and personality. Recent studies have explored the connection between Alzheimer's disease and gut microbiota, reflecting a broader interest in the gut-brain axis. The gut-brain axis is a bidirectional communication system between the gastrointestinal tract and the central nervous system. Emerging research suggests that imbalances in the gut microbiota, known as dysbiosis, may contribute to the development of Alzheimer's disease through inflammation, immune system activations, and the production of neurotoxic metabolites. Some studies propose that certain alterations in the composition of gut microbiota might be associated with increased risk of Alzheimer's disease, revealing a possible new avenue for understanding the pathogenesis and potentially managing the disease [53].

Suggestion

Some studies have shown that a diet rich in vitamins C and E can reduce the risk of developing Alzheimer's Disease. It is known that oleic acid, polyphenols, vitamins A, B, C, D, and E, omega-3 polyunsaturated fatty acids, minerals (such as iron, iodine, and zinc), and amino acids reduce oxidative stress in neurons, decrease neuroinflammation and apoptosis, and are therefore important for the formation and protection of a healthy brain. It is recommended to reduce the consumption of saturated and trans fats, increase the consumption of vegetables and fruits, increase the intake of vitamin E from natural food sources, increase vitamin B12 intake, avoid vitamin complexes containing heavy metals like iron and copper if using multi-vitamins, and avoid using products and drugs that contain aluminum.

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Alzheimer's disease

Associated Species

Species	Level
s Bacteroides fragilis	Increased
s Eubacterium rectale	Decreased

Associated Genus

Genus	Level
g Bacteroides	Normal
g Clostridium	Increased
g Escherichia	Normal
g Ruminococcus	Normal

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Alzheimer's disease

Protective Species

Species	Level
s Akkermansia muciniphila	Decreased

Protective Genus

Genus	Level
g Bifidobacterium	Decreased
g Blautia	Normal
g Coprococcus	Decreased
g Faecalibacterium	Decreased
g Roseburia	Decreased

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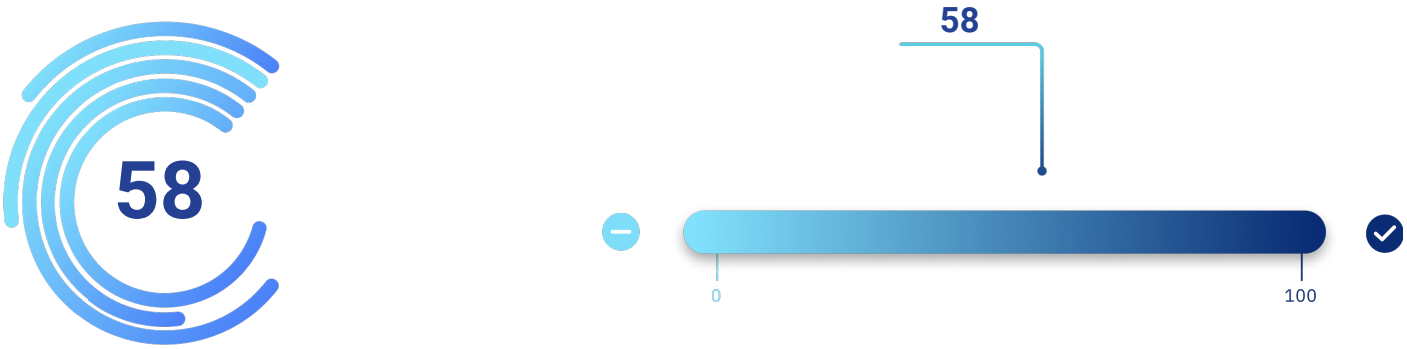
Autism Spectum Disorder



Analysis

The level of bacteria that could be an indicator of Autism Spectrum Disorder is acceptable. The quantity of bacteria known to protect against ASD is also at an acceptable level. The amount of protective bacteria can be improved, and the levels of bacteria that could pose a risk can be reduced.

Definition

The association between autism and the gut microbiome is an area of burgeoning research, illustrating intriguing interconnections between gastrointestinal flora and neurodevelopmental disorders. Autism Spectrum Disorder (ASD) is characterized by a range of conditions involving challenges with social skills, repetitive behaviors, and communication. Emerging evidence hints at varying gut microbiome compositions in individuals with autism compared to neurotypical individual. However, the complexity and diversity of both ASD and the human microbiome necessitate caution in interpreting these findings, and current evidence does not establish a causal relationship between microbiome variations and autism. The variability in dietary habits, medications, and other environmental factors also poses challenges in delineating the precise interactions between the gut and neurodevelopmental conditions like autism [54].

Suggestion

A diet with balanced and additive-free foods is essential. Vitamins like D, B, K, and minerals such as magnesium, zinc, and iodine, along with probiotic and prebiotic support, will aid a healthy lifestyle. To increase the ratio of protective bacteria, appropriate probiotic strains and supportive prebiotics, parabiotics, and postbiotics can be used. To reduce risk and prevent the increase of pathogenic bacteria, specialized diets like ketogenic, gluten-free, casein-free can be applied under the supervision of a specialist doctor or dietitian.

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Autism Spectum Disorder

Associated Species

Species	Level
s Eggerthella lenta	Increased
s Klebsiella pneumoniae	Increased

Associated Genus

Genus	Level
g Bacteroides	Normal
g Clostridium	Increased
g Desulfovibrio	Normal
g Dialister	Normal
g Escherichia	Normal
g Lactobacillus	Increased
g Sutterella	Normal

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Autism Spectum Disorder

Protective Species

Species	Level
s Bacteroides vulgatus	Increased

Protective Genus

Genus	Level
g Bifidobacterium	Decreased
g Prevotella	Increased

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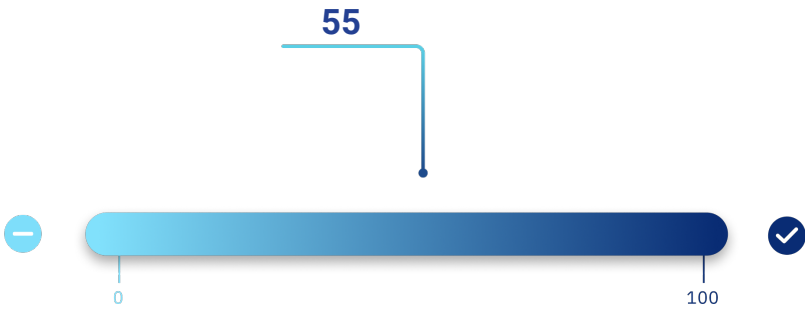
Fibromyalgia



Analysis

You're great! Your gut bacteria associated with lowering risk of fibromyalgia are excellent. Maintain this level!

Definition

A soft tissue rheumatism called fibromyalgia is characterized by widespread and persistent muscular pains. Numerous physical and psychological symptoms, including exhaustion, sleeplessness, and negative mood, are associated with the condition. Recent studies show that gut microbiota influences chronic pain, especially fibromyalgia. Examining the intestinal microbiota of a person with fibromyalgia symptoms has revealed that it differs from that of a healthy person [42]. The ability of specific bacterial strains to influence pain, exhaustion, mood, and other symptoms may be due to the entry of short-chain fatty acids, bile acids, neurotransmitters, and bacterial antigens into the human circulation.

Suggestion

For individuals at a moderate risk of fibromyalgia, the following precautions should be considered: - If gluten sensitivity has been identified, one should follow a gluten-free diet. - Avoid sugar and simple carbohydrates. - Steer clear of additives that contain aspartame, Mono Sodium Glutamate (MSG), and nitrates. - Reduce consumption of tea and coffee. - Consume antioxidant-rich foods. - Opt for foods with probiotic properties, such as fermented foods. - Incorporate foods or supplements that are rich in Omega-3, magnesium, and selenium.

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Fibromyalgia

Associated Species

Species	Level
s Acidaminococcus	Normal
s Anaerotruncus colihominis	Increased
s Burkholderiales bacterium 1 1 47	Normal
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium hathewayi	Increased
s Clostridium leptum	Normal
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Holdemania filiformis	Increased
s Holdemania	Increased
S. Lachnospiraceae bacterium 5 1 63FAA	Normal
s Oscillibacter	Decreased
s Pseudoflavonifractor capillosus	Increased
s Ruminococcaceae bacterium D16	Increased
s Streptococcus parasanguinis	Increased
s Streptococcus salivarius	Increased
s Veillonella	Normal

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Bacteroides	Normal
g Burkholderiales	Normal
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Gordonibacter	Increased
g Holdemania	Increased
g Oscillibacter	Increased
g Pseudoflavonifractor	Increased
g Ruminococcaceae	Increased
g Streptococcus	Normal
g Veillonella	Normal

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Fibromyalgia

Protective Species

Species	Level
s Alistipes indistinctus	Normal
s Alistipes senegalensis	Decreased
s Bacteroides caccae	Normal
s Bacteroides eggerthii	Normal
s Bacteroides vulgatus	Increased
s Bifidobacterium adolescentis	Normal
s Bifidobacterium longum	Decreased
s Butyrivibrio crossotus	Normal
s Collinsella aerofaciens	Decreased
s Coprococcus comes	Normal
s Desulfovibrio piger	Normal
s Dorea longicatena	Normal
s Eubacterium siraeum	Normal
s Eubacterium ventriosum	Normal
s Faecalibacterium prausnitzii	Normal
s Parabacteroides merdae	Normal
s Paraprevotella clara	Normal
s Paraprevotella	Normal
s Phascolarctobacterium succinatutens	Normal
s Subdoligranulum	Decreased
s Sutterella wadsworthensis	Normal

Protective Genus

Genus	Level
g Bifidobacterium	Decreased
g Butyrivibrio	Normal
g Collinsella	Normal
g Coprobacter	Normal
g Coprococcus	Decreased
g Desulfovibrio	Normal
g Faecalibacterium	Decreased
g Parabacteroides	Normal
g Paraprevotella	Normal
g Phascolarctobacterium	Normal
g Subdoligranulum	Decreased
g Sutterella	Normal

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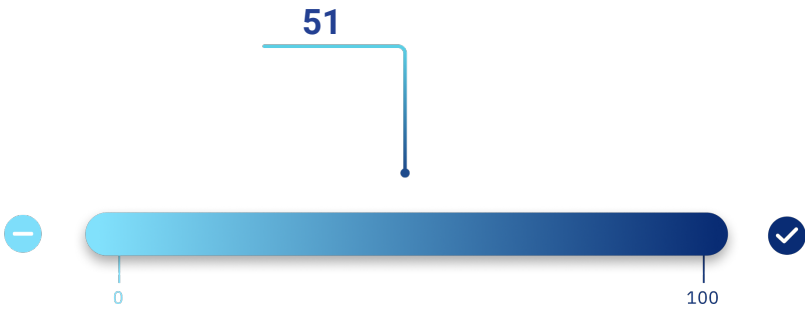
Migraine



Analysis

Migraine-related bacteria score in your gut is not harmful, but the score needs to be higher.

Definition

Migraine is a condition that causes severe headaches. This condition generally occurs in adolescence in society, and it is more common in women. Some known symptoms are feeling sick and increased sensitivity to light and sound. The gut microbiome has an unknown effect on neurological disorders, including migraine. This interaction appears to be generally influenced by various elements, including inflammatory mediators, gut microbiota composition, neuropeptides, serotonin pathway, stress hormones, and dietary components [43].

Suggestion

For individuals in the medium risk group for developing migraines, it's crucial to consider the following recommendations. Alcoholic beverages, especially aged, smoked, hard, and salty cheeses, offal, seafood especially including shrimp, mussels, and squid, figs, raisins, bananas, plums, yeast, chocolate, bread containing dried fruits, canned foods, citrus fruits, certain legumes such as black beans, lentils, and soy products, high-caffeine drinks, sour cream, peanut butter, and excessively fatty and spicy foods are among the potential triggers. It's advisable to be cautious with these items to manage and possibly reduce the frequency of migraine attacks.

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Migraine

Associated Species

Species	Level
s Acidaminococcus	Normal
s Anaerotruncus	Normal
s Bifidobacterium dentium	Increased
s Clostridium asparagiforme	Increased
s Clostridium citroniae	Increased
s Eggerthella	Increased
S. Erysipelotrichaceae bacterium 21 3	Normal
s Flavonifractor plautii	Increased
s Holdemania filiformis	Increased
S. Lachnospiraceae bacterium 3 1 57FAA CT1	Normal
s Oscillibacter	Decreased
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased

Associated Genus

Genus	Level
g Adlercreutzia	Normal
g Anaerotruncus	Increased
g Bacteroides	Normal
g Eggerthella	Increased
g Flavonifractor	Increased
g Oscillibacter	Increased
g Ruminococcaceae	Increased

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Migraine

Protective Species

Species	Level
s Bacteroides caccae	Normal
s Bifidobacterium catenulatum	Normal
s Catenibacterium mitsuokai	Normal
s Coprococcus catus	Normal
s Desulfovibrio piger	Normal
s Dorea longicatena	Normal
s Eubacterium eligens	Decreased
s Faecalibacterium prausnitzii	Normal
s Phascolarctobacterium succinatutens	Normal
s Prevotella copri	Decreased
s Ruminococcus callidus	Normal

Protective Genus

Genus	Level
g Catenibacterium	Normal
g Coprococcus	Decreased
g Dorea	Decreased
g Faecalibacterium	Decreased
g Phascolarctobacterium	Normal
g Prevotella	Increased

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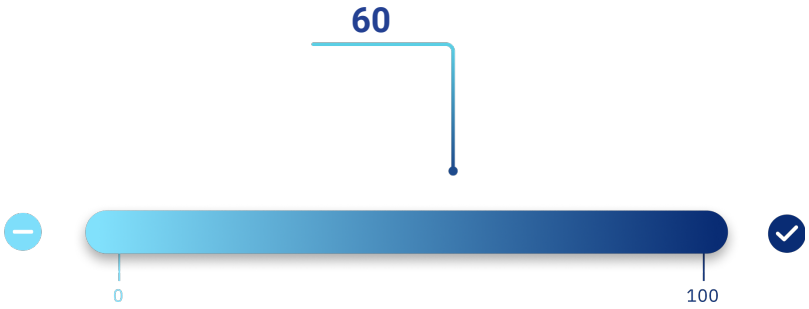
Multiple sclerosis



Analysis

The level of bacteria that could indicate a risk for the development of Multiple Sclerosis is in an acceptable condition. The quantity of bacteria known to be protective against Multiple Sclerosis is also at an acceptable level. The amount of protective bacteria can be increased, and the levels of bacteria that might pose a risk can be reduced.

Definition

Multiple Sclerosis (MS) is a progressive autoimmune disorder characterized by demyelination within the central nervous system, leading to a variety of neurological symptoms, including muscle weakness, fatigue, and impaired coordination. Recent studies have implicated gut microbiota in the development and progression of MS, suggesting a critical role in modulating immune responses and inflammation. Alterations in the composition and diversity of gut microbiota, known as dysbiosis, have been associated with various diseases, including MS. Investigating the relationship between gut microbiota and MS could potentially open new avenues for understanding the disease's pathophysiology and developing novel therapeutic strategies [59].

Suggestion

It is important to eat a balanced diet with sufficient, natural, and additive-free products. To strengthen the digestive system against Multiple Sclerosis, a Mediterranean-style diet with limited salt is recommended. This diet primarily uses olive oil as a fat source, includes an abundance of fish and seafood as protein sources, as well as legumes, nuts, whole grains, and a variety of colorful raw or cooked vegetables and fruits. It is advised to limit red and processed meats, refined products, and solid fats. Regular intake of omega-3, vitamins, and minerals is suggested to protect and bolster the nervous system.

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Multiple sclerosis

Associated Species

Species	Level
s Akkermansia muciniphila	Decreased
s Methanobrevibacter smithii	Increased

Associated Genus

Genus	Level
g Akkermansia	Decreased
g Methanobrevibacter	Normal
g Pseudomonas	Increased

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Multiple sclerosis

Protective Species

Species	Level
s Bacteroides fragilis	Increased
s Prevotella copri	Decreased

Protective Genus

Genus	Level
g Bacteroides	Normal
g Faecalibacterium	Decreased
g Prevotella	Increased

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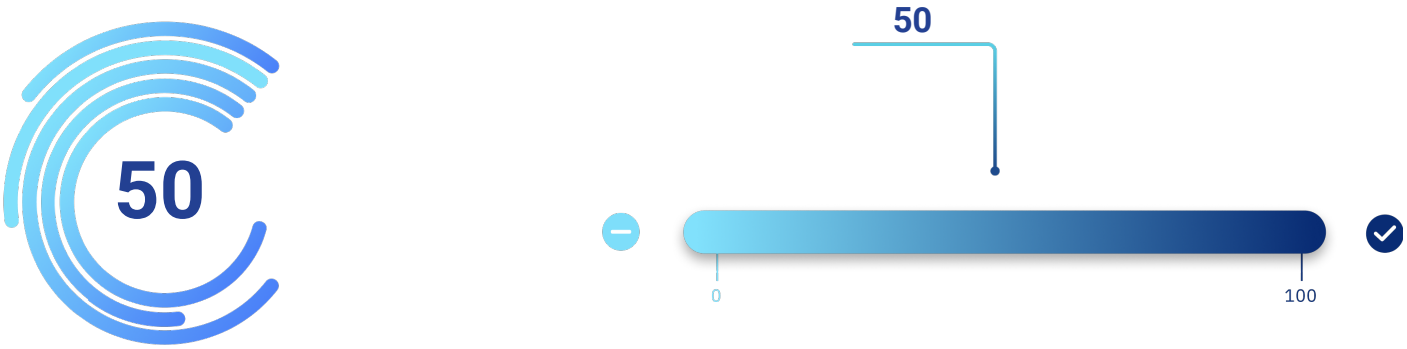
Parkinson's disease



Analysis

The levels of bacteria that could indicate risk for the development of Parkinson's Disease are in an acceptable state. The quantity of bacteria known to be protective against Parkinson's Disease is also at an acceptable level. The quantity of protective bacteria can be increased, and the amounts of potentially risky bacteria can be decreased.

Definition

Parkinson's Disease (PD) is a progressive neurological disorder characterized by motor symptoms such as tremors, bradykinesia, rigidity, and postural instability, as well as non-motor symptoms. Emerging research has suggested a link between the gut microbiota and Parkinson's Disease, highlighting the role of the gut-brain axis in modulating neurological function. Alterations in the composition and abundance of gut microbiota have been observed in individuals with PD, with some microbial species being more prevalent and others being less abundant compared to healthy controls. These microbial alterations are theorized to influence the progression of Parkinson's Disease through modulating inflammation, gut barrier integrity, and neurotransmitter levels, thereby influencing brain function and health [64].

Suggestion

Leaky gut is a common issue among Parkinson's patients. Hence, it's essential to strengthen the intestinal barrier and prevent or alleviate the leaky gut problem. Food sensitivities, intolerances, and allergies that might harm the gut barrier should be identified. A personalized diet plan should be prepared. Avoid toxins, medications, and other harmful chemicals that can disrupt the tight junctions in the gut barrier. Consuming fresh, natural, and clean food is crucial. A balanced consumption of the following foods is recommended: Meat and eggs, fish, vegetables (especially green leafy and all root vegetables), fermented foods (pickles, yogurt, kefir, etc.), healthy fats (like extra virgin olive oil, coconut oil, and avocado oil), sprouted seeds (chia seeds, flaxseed, sunflower seeds), nuts like almonds and walnuts, bone broth, and spices.

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Parkinson's disease

Associated Species

Species	Level

Associated Genus

Genus	Level
g Akkermansia	Decreased
g Bilophila	Increased
g Escherichia	Normal
g Proteus	Normal

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Parkinson's disease

Protective Species

Species	Level

Protective Genus

Genus	Level
g Bifidobacterium	Decreased
g Blautia	Normal
g Coprococcus	Decreased
g Faecalibacterium	Decreased
g Prevotella	Increased
g Roseburia	Decreased

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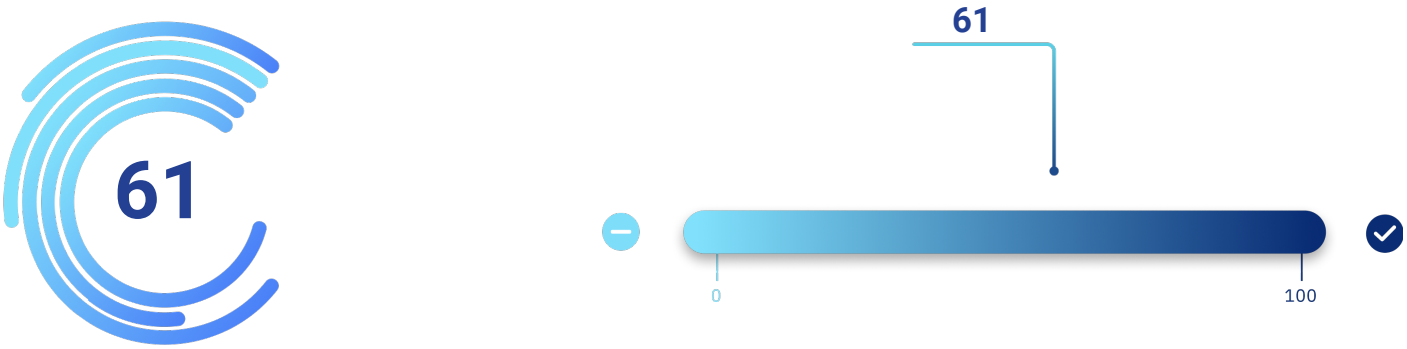
Chronic throat and nose inflammation



Analysis

Your gut bacteria associated with the chronic throat and nose inflammation are neither good nor bad. You should improve your level.

Definition

A common upper respiratory infection called sore throat, or pharyngitis typically goes away after a few days. However, a sore throat that lasts for several weeks or recurs regularly is a symptom of chronic pharyngitis. It can happen when your pharynx (the back of the throat) becomes inflamed. Also, toxins in the environment, allergies, or acid reflux can all cause chronic pharyngitis. Since the mouth, nose, and sinuses are extensions of your digestive tract, weakened gut flora can cause nasal and sinus difficulties [46]. Uncertainty still exists regarding whether the imbalance between the symbiotic and pathological bacterial strains in the gut and nose causes or contributes to disease. This imbalance may affect how the immune system develops and how the body responds to inflammation.

Suggestion

Especially during times when viral infections are on the rise, teas made from turmeric, ginger, and linden (with honey added if there's no health restriction) can be beneficial. Their healing, antiseptic, and anti-inflammatory properties might offer protection. Consuming vegetables rich in antioxidant vitamins like A and C, which boost the immune system, is vital. This includes carrots, broccoli, zucchini, cabbage, cauliflower, and parsley. Likewise, during the winter months, it's essential to eat plenty of fruits like oranges, tangerines, and apples that are readily available.

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Chronic throat and nose inflammation

Associated Species

Species	Level
s Burkholderiales bacterium 1 1 47	Normal
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium citroniae	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Oscillibacter	Decreased
s Parasutterella excrementihominis	Normal
s Ruminococcus gnavus	Increased
s Streptococcus parasanguinis	Increased
s Veillonella parvula	Increased

Associated Genus

Genus	Level
g Alistipes	Decreased
g Bacteroides	Normal
g Burkholderiales	Normal
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Oscillibacter	Increased
g Parasutterella	Normal
g Veillonella	Normal

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Chronic throat and nose inflammation

Protective Species

Species	Level
s Alistipes indistinctus	Normal
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Bacteroides caccae	Normal
s Barnesiella intestinihominis	Decreased
s Bifidobacterium catenulatum	Normal
s Coprococcus comes	Normal
s Desulfovibrio piger	Normal
s Parabacteroides merdae	Normal
s Paraprevotella clara	Normal
s Paraprevotella	Normal
s Paraprevotella xylaniphila	Normal
s Sutterella wadsworthensis	Normal

Protective Genus

Genus	Level
g Acidaminococcus	Increased
g Barnesiella	Normal
g Desulfovibrio	Normal
g Paraprevotella	Normal
g Sutterella	Normal

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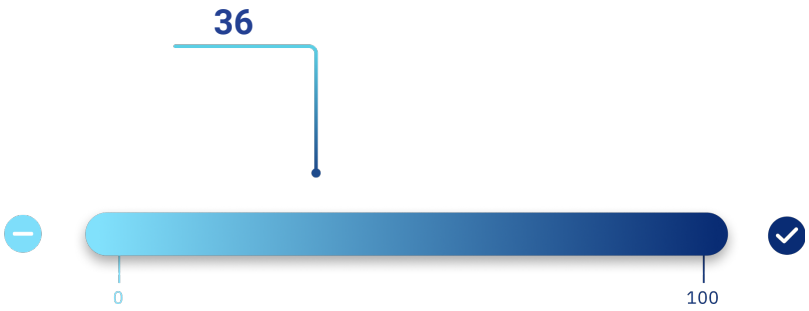
Cystitis



Analysis

The gut bacteria associated with chronic cystitis fluctuate between high and low. You should raise your score.

Definition

Inflammation of the bladder is named chronic cystitis. Antibiotic treatment is a common cure for bacteria caused by cystitis but there is no known cure for chronic cystitis. Known treatments for chronic cystitis just relieve symptoms and improve the daily life of a person. People with chronic cystitis are deficient in types of bacteria that play an important role in regulating inflammation [45]. Symptoms of this inflammation can also be detected in the blood.

Suggestion

To protect against chronic cystitis, it is recommended to pay attention to the following dietary suggestions. Some foods can lower the pH of the urine, potentially irritating the bladder. It might be beneficial to limit the consumption of alcohol, strong coffee or tea, spicy foods, salted, fried, smoked, sour, and canned foods, concentrated broths (like mushroom, fish, and meat), as well as foods with artificial colors or those that might irritate the urinary tract. This includes horseradish, radishes, garlic, onions, cauliflower, turnips, sorrel, sour fruits and berries, celery, tomatoes, green lettuce, and tomato juice.

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Cystitis

Associated Species

Species	Level
s Acidaminococcus	Normal
s Anaerotruncus colihominis	Increased
s Clostridium bolteae	Increased
s Clostridium hathewayi	Increased
s Clostridium leptum	Normal
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Oscillibacter	Decreased
s Pseudoflavonifractor capillosus	Increased
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus torques	Increased

Associated Genus

Genus	Level
g Bacteroides	Normal
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Oscillibacter	Increased
g Pseudoflavonifractor	Increased
g Ruminococcaceae	Increased

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Cystitis

Protective Species

Species	Level
s Alistipes putredinis	Normal
s Alistipes senegalensis	Decreased
s Oxalobacter formigenes	Normal
s Paraprevotella	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Coprococcus	Decreased
g Megamonas	Increased
g Oxalobacter	Normal
g Paraprevotella	Normal
g Subdoligranulum	Decreased

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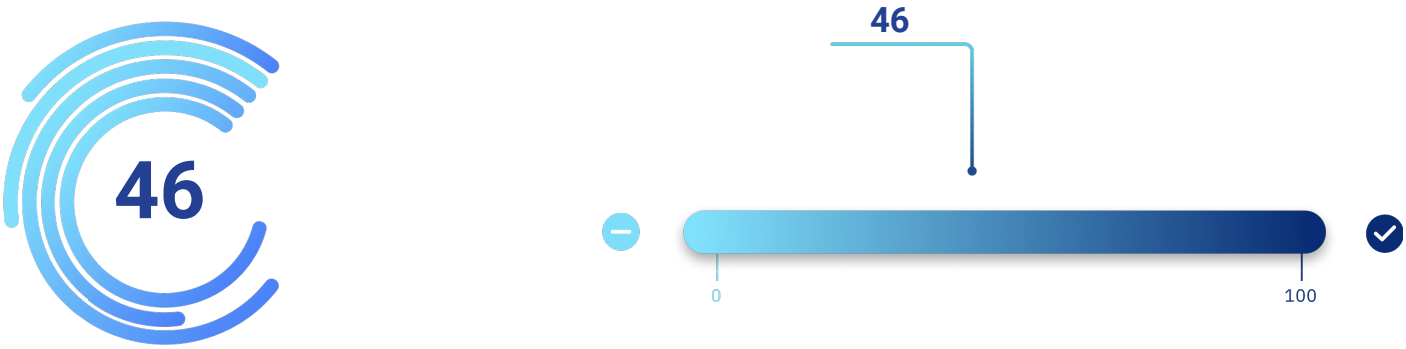
Muscle Weakness



Analysis

The bacteria in your gut that cause chronic muscle weakness are not bad, but the level should be higher. Raise your score!

Definition

Muscle weakness is a disease that causes a lack of strength in the muscles. The muscles of people with this disease cannot contract easily and it becomes difficult for them to move. There is evidence that the diversity and composition of the gut microbiota can influence the functionality and metabolism of the skeletal muscles [47]. Several signals are produced due to the interaction of the gut with the gut microbiome, thus establishing a connection between the gut and skeletal muscles. These signals are effective in modulating muscle tissue inflammation as well as regulating insulin sensitivity.

Suggestion

Excessive intake of salt and caffeine, smoking, and inadequate nutrition due to insufficient intake of proteins, fats, carbohydrates, vitamins, and minerals can lead to muscle weakness. Adequate and balanced nutrition is essential for muscle health. Including rich protein sources such as meat, fish, and eggs is beneficial. Additionally, it's advisable to incorporate plant-based proteins from grains, legumes, nuts like hazelnuts, peanuts, and walnuts into the diet. Transitioning to anti-inflammatory foods, such as green leafy vegetables, fruits like strawberries, mulberries, and blackberries, and vegetables similar to avocados, is also recommended for a healthier diet.

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Muscle Weakness

Associated Species

Species	Level
s Alistipes sp AP11	Normal
s Anaerotruncus colihominis	Increased
s Anaerotruncus	Normal
s Bifidobacterium dentium	Increased
s Burkholderiales bacterium 1 1 47	Normal
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium hathewayi	Increased
s Clostridium leptum	Normal
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Klebsiella pneumoniae	Increased
s Klebsiella	Normal
S. Lachnospiraceae bacterium 3 1 57FAA CT1	Normal
s Oscillibacter	Decreased
s Pseudoflavonifractor capillosus	Increased
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased
s Streptococcus parasanguinis	Increased
s Veillonella atypica	Increased

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Burkholderiales	Normal
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Klebsiella	Increased
g Oscillibacter	Increased
g Pseudoflavonifractor	Increased
g Ruminococcaceae	Increased

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Muscle Weakness

Protective Species

Species	Level
s Alistipes senegalensis	Decreased
s Bacteroides eggerthii	Normal
s Barnesiella intestinihominis	Decreased
s Bifidobacterium adolescentis	Normal
s Butyrivibrio crossotus	Normal
s Catenibacterium mitsuokai	Normal
s Coprococcus catus	Normal
s Eubacterium siraeum	Normal
s Faecalibacterium prausnitzii	Normal
s Oxalobacter formigenes	Normal
s Roseburia hominis	Increased
s Streptococcus thermophilus	Normal
s Subdoligranulum	Decreased

Protective Genus

Genus	Level
g Barnesiella	Normal
g Butyrivibrio	Normal
g Catenibacterium	Normal
g Eubacterium	Decreased
g Faecalibacterium	Decreased
g Oxalobacter	Normal
g Ruminococcus	Normal
g Subdoligranulum	Decreased

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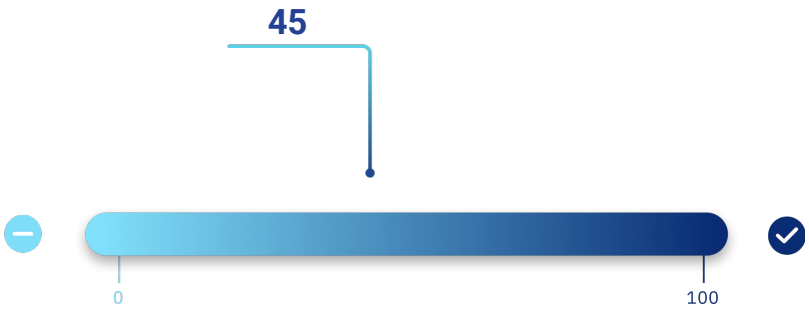
Osteoarthritis



Analysis

Bacteria in your gut related to osteoarthritis is in limited values. take action to protect your level.

Definition

The most common type of arthritis is osteoarthritis. It occurs when the protective cartilage that cushions the ends of the bones wears away over time. This disease can affect any joint but is most common in the hands, knees, hips, and spine. Osteoarthritis symptoms are usually manageable, but joint damage cannot be reversed. It is known that risk factors for osteoarthritis include aging, gender, joint injury, diet, obesity, genetic predisposition, and mechanics. Along with these factors, recent studies have gradually recognized the gut microbiota as an important pathogenic factor in the development of osteoarthritis [48].

Suggestion

Regular intake of fish oil, along with a diet rich in olives and olive oil, has protective effects on joint and bone structure, working primarily through antioxidant mechanisms. The consumption of antioxidant vitamins, especially when there's sufficient intake of vitamin D, may lower the risk of osteoarthritis. Vitamin D, calcium, and collagen all play supportive roles in maintaining joint health and might help in reducing the risk of developing osteoarthritis. Essential minerals, primarily calcium, but also magnesium, phosphorus, and zinc, alongside vitamins D, K, and C, contribute to the formation of collagen.

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Osteoarthritis

Associated Species

Species	Level
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium hathewayi	Increased
s Clostridium leptum	Normal
s Eggerthella	Increased
S. Erysipelotrichaceae bacterium 21 3	Normal
s Holdemania filiformis	Increased
S. Lachnospiraceae bacterium 5 1 63FAA	Normal
s Pseudoflavonifractor capillosus	Increased
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased
s Streptococcus parasanguinis	Increased
s Streptococcus salivarius	Increased
s Veillonella	Normal

Associated Genus

Genus	Level
g Clostridium	Increased
g Eggerthella	Increased
g Holdemania	Increased
g Pseudoflavonifractor	Increased
g Ruminococcaceae	Increased
g Streptococcus	Normal
g Veillonella	Normal

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Osteoarthritis

Protective Species

Species	Level
s Akkermansia muciniphila	Decreased
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Bacteroides caccae	Normal
s Bacteroides stercoris	Normal
s Bifidobacterium adolescentis	Normal
s Bifidobacterium longum	Decreased
s Butyrivibrio crossotus	Normal
s Collinsella aerofaciens	Decreased
s Coprococcus catus	Normal
s Coprococcus comes	Normal
s Faecalibacterium prausnitzii	Normal
s Parabacteroides merdae	Normal
s Paraprevotella clara	Normal
s Peptostreptococcaceae	Normal
s Ruminococcus bromii	Normal

Protective Genus

Genus	Level
g Akkermansia	Decreased
g Bifidobacterium	Decreased
g Butyrivibrio	Normal
g Collinsella	Normal
g Faecalibacterium	Decreased

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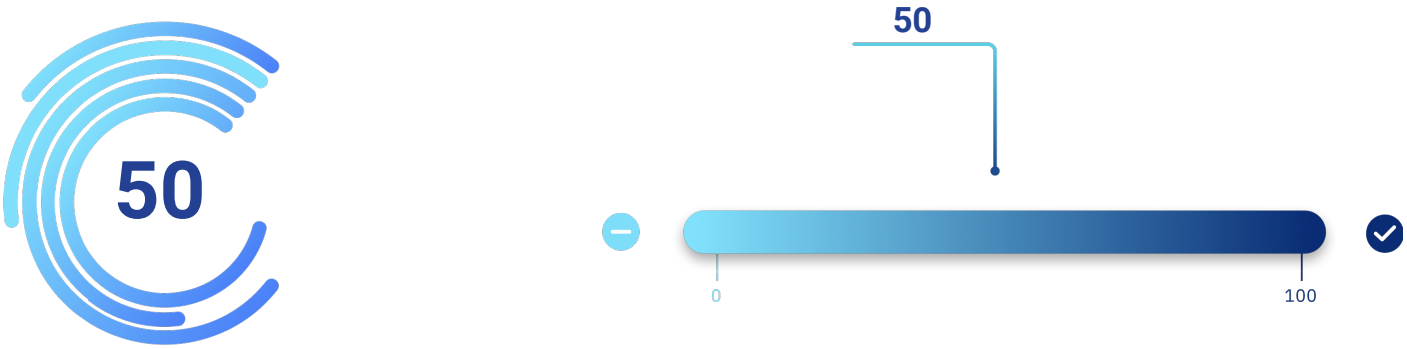
Rheumatoid arthritis



Analysis

The bacterial content in your gut that causes rheumatoid arthritis is not bad, but the level should be higher.

Definition

Rheumatoid arthritis is an autoimmune disease in which the immune system attacks the cells that surround the joints. This causes pain, swelling, and stiffness in the joints. The illness typically affects the hands, feet, and wrists. It is caused by the body's immune system attacking its cells. Immune cells that attack the joints and bones cause inflammation in these areas. It can be congenital, or it can occur later. It is inevitable that intestinal bacteria, which have an important role in the balance of the immune system, also play a role in it [44]. In general, risk elements of rheumatoid arthritis are caused by genetic, environmental, and hormonal factors with bacterial and viral pathogens being the most common.

Suggestion

For those in the medium-risk group concerning rheumatoid arthritis, anti-inflammatory nutrition is vital. It's advisable to steer clear of sugar, trans fats, artificial sweeteners, and processed foods. A diet rich in Omega-3 fatty acids is essential. Due to the anti-inflammatory effects of Omega-3 fatty acids, the immune system is bolstered. Seafood, in particular, as well as flaxseeds, chia seeds, purslane, and walnuts, are rich in Omega-3. A collagen-rich diet is also recommended. Collagen foods, like beef-bone-chicken broth, play a role in repairing the gut. It has been observed that the casein proteins in milk and dairy products might exacerbate arthritis symptoms. Therefore, individuals with arthritis should limit their intake of milk and dairy products. In addition to dietary guidelines, incorporating certain supplements can help prevent inflammation. Supplementation with vitamin D, iron, calcium, Omega-3, and vitamin C might be beneficial.

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Rheumatoid arthritis

Associated Species

Species	Level
s Bifidobacterium dentium	Increased
s Escherichia coli	Increased
s Flavonifractor plautii	Increased
s Klebsiella	Normal
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased
s Streptococcus parasanguinis	Increased
s Streptococcus salivarius	Increased
s Veillonella atypica	Increased
s Veillonella parvula	Increased

Associated Genus

Genus	Level
g Escherichia	Normal
g Flavonifractor	Increased
g Haemophilus	Increased
g Klebsiella	Increased
g Ruminococcaceae	Increased
g Streptococcus	Normal
g Veillonella	Normal

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Rheumatoid arthritis

Protective Species

Species	Level
s Alistipes putredinis	Normal
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Barnesiella intestinihominis	Decreased
s Bifidobacterium adolescentis	Normal
s Bifidobacterium longum	Decreased
s Bilophila	Decreased
s Butyrivibrio crossotus	Normal
s Coprococcus comes	Normal
s Desulfovibrio piger	Normal
s Eubacterium hallii	Normal
s Faecalibacterium prausnitzii	Normal
s Mitsuokella multacida	Normal
s Mitsuokella	Normal
s Oxalobacter formigenes	Normal
s Parabacteroides merdae	Normal
s Roseburia inulinivorans	Decreased
s Ruminococcus torques	Increased

Protective Genus

Genus	Level
g Barnesiella	Normal
g Bifidobacterium	Decreased
g Bilophila	Increased
g Butyrivibrio	Normal
g Faecalibacterium	Decreased
g Mitsuokella	Normal
g Oxalobacter	Normal

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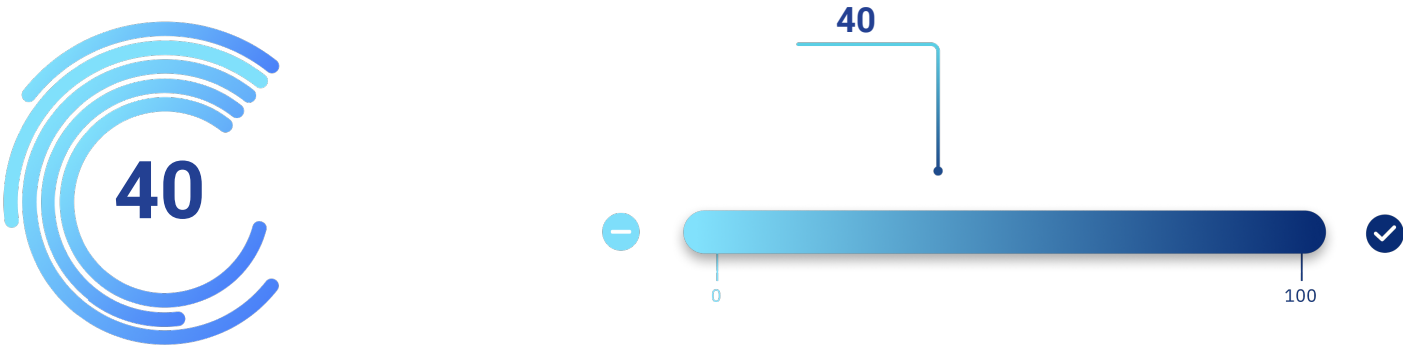
Bipolar Disorder



Analysis

Gut bacterial composition has no positive or negative correlation with bipolar disorder. You ought to raise your level.

Definition

It is a psychological disorder characterized by two different stages. One stage is feeling extreme emotions called mania (or hypomania), and the other is feeling down, called depression. Mania is a state of elevated actions, feelings, and expressions in an enthusiastic way. On the other hand, depression is the opposite of mania. During the depression period, the individual ends up with unhappiness, pessimism, feeling inadequate, reduced self-confidence, changes in appetite, insomnia, and gratuitous physical pain. These two opposite periods are experienced as alleviations and exacerbations. These swings result in sleep, energy, activity, behavior, and clear-thinking changes. Your microbiome is also a crucial component for brain and psychological health since it can affect your mood by affecting the balance of brain chemicals like norepinephrine, dopamine, or serotonin through its metabolism in the digestive system [38].

Suggestion

Our intestines maintain a close relationship with our brain. Healthy eating habits, a consistently functioning digestive system, and a strong gut structure can have a positive impact on our mood. Omega-3 fatty acids, folic acid, and vitamin B are vital for safeguarding mental health. It's advisable to reduce the consumption of processed and refined foods. This means opting for whole grain breads over white bread, brown rice instead of white rice, and choosing pasta made from whole wheat or bran flour. It's also best to limit the intake of ready-to-eat foods containing refined sugars whenever possible.

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Bipolar Disorder

Associated Species

Species	Level
s Anaerotruncus colihominis	Increased
s Bacteroides cellulosilyticus	Normal
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Eggerthella lenta	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
S. Lachnospiraceae bacterium 3 1 57FAA CT1	Normal
s Methanobrevibacter smithii	Increased
s Oscillibacter	Decreased

Associated Genus

Genus	Level
g Anaerotruncus	Increased
g Clostridiales	Normal
g Eggerthella	Increased
g Flavonifractor	Increased
g Oscillibacter	Increased

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Bipolar Disorder

Protective Species

Species	Level
s Barnesiella intestinihominis	Decreased
s Eubacterium siraeum	Normal
s Streptococcus salivarius	Increased

Protective Genus

Genus	Level
g Barnesiella	Normal
g Odoribacter	Normal

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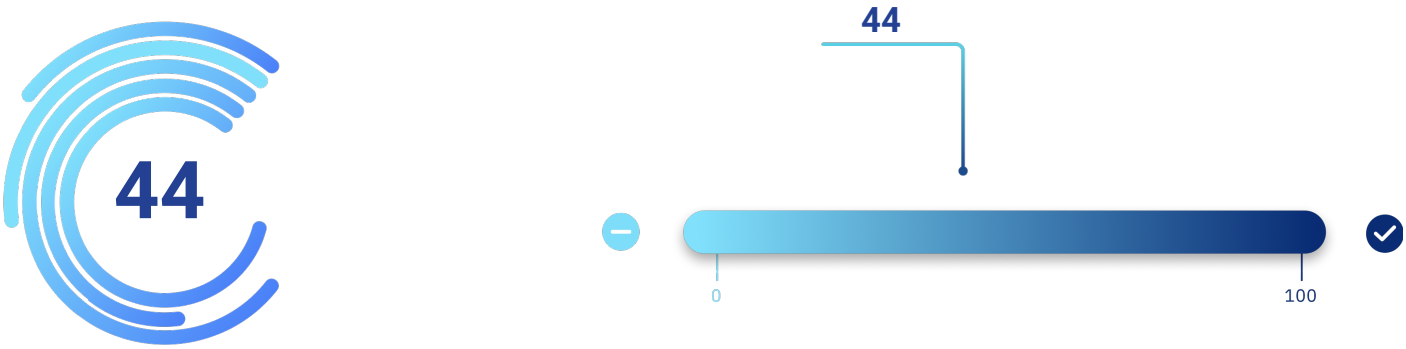
Chronic Fatigue Syndrome



Analysis

The level of bacteria that could be an indicator of Chronic Fatigue Syndrome is in an acceptable condition. The quantity of bacteria known to be protective against Chronic Fatigue Syndrome is also at an acceptable level. The amount of protective bacteria can be increased, and the levels of bacteria that might pose a risk can be reduced.

Definition

Fatigue, a common condition characterized by a state of persistent tiredness or weakness, can be influenced by various factors, including imbalances in the gut microbiota. The gut microbiota refers to the diverse community of microorganisms residing in the gastrointestinal tract, playing a critical role in human health. There's mounting evidence to suggest that alterations in the composition and diversity of the gut microbiota can impact systemic energy metabolism and immune function, potentially leading to the development of fatigue. Disruptions in the microbial ecosystem, referred to as dysbiosis, may contribute to fatigue through mechanisms such as inflammatory processes, modulation of neural function, and alterations in nutrient absorption [56].

Suggestion

For individuals with a medium risk of Chronic Fatigue Syndrome, a balanced and healthy diet is very important. A nutrition program suitable for the person's food sensitivity profile is suggested to maintain general health and prevent gut dysbiosis. Intake of EFAs to increase healthy fatty acids, Folic Acid and Vitamin B12 for a balanced vitamin profile, Vitamins D, A, C, E, K, minerals such as Magnesium, zinc, selenium, amino acids like Glutamine that protect the gut barrier, and Coenzyme Q10 to support energy metabolism are recommended. If a Candida detection is present, a specific treatment and diet should be applied.

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Chronic Fatigue Syndrome

Associated Species

Species	Level
s Enterococcus faecalis	Normal
s Escherichia coli	Increased
s Salmonella enterica	Normal
s Staphylococcus aureus	Normal

Associated Genus

Genus	Level

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Chronic Fatigue Syndrome

Protective Species

Species	Level
s Akkermansia muciniphila	Decreased

Protective Genus

Genus	Level
g Bifidobacterium	Decreased
g Faecalibacterium	Decreased
g Lactobacillus	Increased
g Roseburia	Decreased

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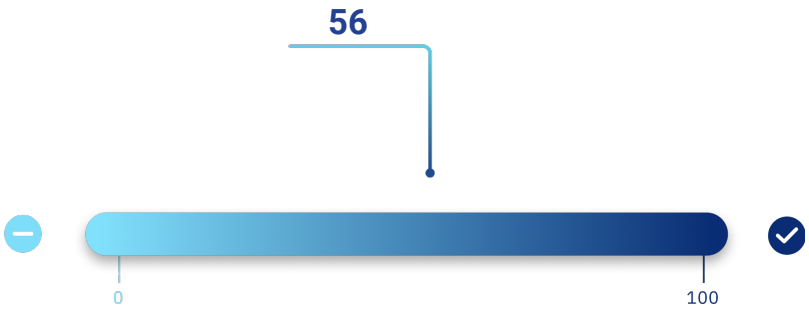
Asthma



Analysis

The gut bacteria associated with asthma fluctuate between good and bad. You should raise your score.

Definition

Asthma is a condition that affects people's respiratory systems. This is caused by the narrowing of the air passage in the lungs due to inflammation inside the lungs and tightening of the muscles around the small airways. People with asthma experience symptoms such as coughing, wheezing, shortness of breath, and chest tightness. Many factors might lead to microbial dysbiosis in the gut and lungs. Dysbiosis and the dysregulation of immunological processes connected to the microbiota have an impact on the onset of the illness, its symptoms, and how it responds to treatment [49].

Suggestion

For individuals with a moderate risk of asthma, there are several dietary recommendations to consider: Consume foods rich in antioxidants, such as carrots, green leafy vegetables, whole grain bread, and nuts like walnuts and hazelnuts. Incorporate a generous amount of fruits in the diet, especially those high in vitamin C like oranges, tangerines, strawberries, and kiwis. Increase the consumption of foods rich in flavonoids, such as bananas, apples, and apple juice. Opt for the Mediterranean Diet, which includes fresh fatty fish and plenty of olive oil, both rich in Omega-3. Avoid pre-packaged foods that contain saturated plant fats. Prefer naturally-prepared, fresh foods whenever possible. Consider taking a vitamin D supplement.

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Asthma

Associated Species

Species	Level
s Bifidobacterium dentium	Increased
s Burkholderiales bacterium 1 1 47	Normal
s Clostridium asparagiforme	Increased
s Clostridium citroniae	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Holdemania filiformis	Increased
S. Lachnospiraceae bacterium 1 1 57FAA	Increased
s Parasutterella excrementihominis	Normal
s Pseudoflavonifractor capillosus	Increased
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased
s Streptococcus parasanguinis	Increased
s Veillonella atypica	Increased
s Veillonella parvula	Increased
s Veillonella	Normal

Associated Genus

Genus	Level
g Adlercreutzia	Normal
g Bacteroides	Normal
g Burkholderiales	Normal
g Clostridium	Increased
g Eggerthella	Increased
g Flavonifractor	Increased
g Holdemania	Increased
g Parasutterella	Normal
g Pseudoflavonifractor	Increased
g Ruminococcaceae	Increased
g Veillonella	Normal

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Asthma

Protective Species

Species	Level
s Alistipes senegalensis	Decreased
s Bacteroides caccae	Normal
s Bacteroides plebeius	Normal
s Bifidobacterium adolescentis	Normal
s Butyrivibrio crossotus	Normal
s Collinsella aerofaciens	Decreased
s Desulfovibrio piger	Normal
s Dorea longicatena	Normal
s Faecalibacterium prausnitzii	Normal
s Mitsuokella	Normal
s Parabacteroides merdae	Normal
s Paraprevotella clara	Normal
s Paraprevotella	Normal
s Phascolarctobacterium succinatutens	Normal
s Prevotella copri	Decreased
s Prevotella stercorea	Normal
s Ruminococcus callidus	Normal
s Ruminococcus lactaris	Increased
s Sutterella wadsworthensis	Normal

Protective Genus

Genus	Level
g Bifidobacterium	Decreased
g Butyrivibrio	Normal
g Collinsella	Normal
g Desulfovibrio	Normal
g Dorea	Decreased
g Faecalibacterium	Decreased
g Mitsuokella	Normal
g Paraprevotella	Normal
g Phascolarctobacterium	Normal
g Prevotella	Increased
g Roseburia	Decreased
g Sutterella	Normal
g Sutterellaceae	Normal

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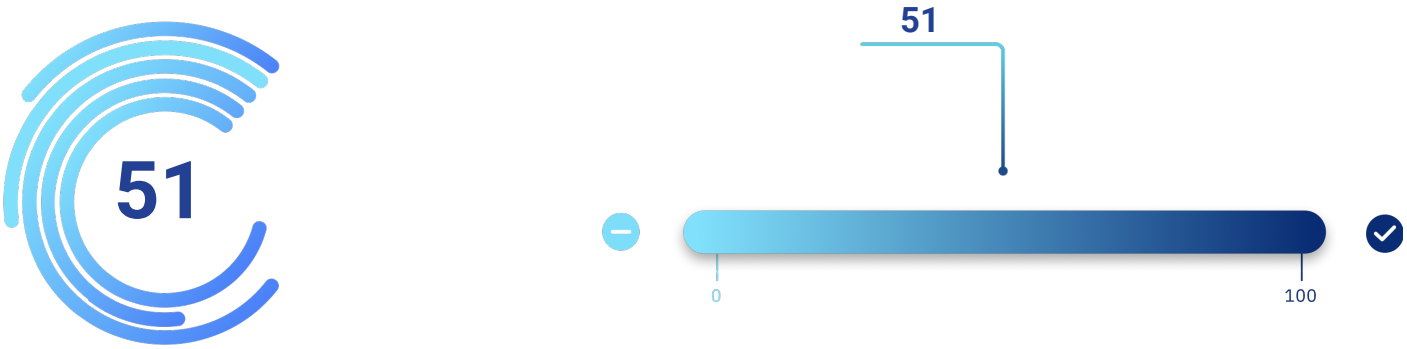
Chronic obstructive pulmonary disease



Analysis

Your gut bacteria associated with COPD are good, but it would be good to improve your score.

Definition

Chronic obstructive pulmonary disease (COPD) is a lung disease that causes obstructed airflow from the lungs, and it shows symptoms like breathing difficulties, coughing, mucus production, and wheezing. The most common cause is long-term exposure to irritating gases or particulate matter, most commonly cigarette smoke. The importance of gut microbiota in terms of lung health has been emphasized in various studies. Some of these studies emphasize the importance of gut microbiota for COPD. The research results demonstrate close interactions between gut microbiota and lung immunity [50]. In one of these studies, fecal microbiota transplantation was observed to improve the pathogenesis of COPD [51].

Suggestion

For individuals with a moderate risk of developing COPD (Chronic Obstructive Pulmonary Disease), the following recommendations can be made: Consume a limited amount of carbohydrates, and when you do, opt for complex carbohydrates like legumes, whole grains, oats, and buckwheat. While increasing fat intake, it's essential to choose healthy fats such as coconut oil, avocados, olive oil, and fatty seeds. Prioritize the consumption of protein, which is a crucial part of a healthy diet. Regularly consume healthy protein sources like meat, chicken, turkey, fish, eggs, and cheese. Dark leafy greens, arugula, asparagus, beets, potatoes, bananas, oranges, apples, pumpkin, turmeric, tomatoes, cocoa, blueberries, and yogurt are foods that support respiratory function. Vitamins like A, C, and E have antioxidant properties which are known to protect lung health and improve breathing functions. Vitamin D supplement is also recommended.

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Chronic obstructive pulmonary disease

Associated Species

Species	Level
s Alistipes sp AP11	Normal
s Bacteroides fragilis	Increased
s Bifidobacterium dentium	Increased
s Burkholderiales bacterium 1 1 47	Normal
s Clostridium asparagiforme	Increased
s Clostridium bolteae	Increased
s Clostridium citroniae	Increased
s Eggerthella	Increased
s Escherichia coli	Increased
s Escherichia	Normal
s Flavonifractor plautii	Increased
s Holdemania filiformis	Increased
s Holdemania	Increased
S. Lachnospiraceae bacterium 3 1 57FAA CT1	Normal
s Oscillibacter	Decreased
s Pseudoflavonifractor capillosus	Increased
s Ruminococcaceae bacterium D16	Increased
s Ruminococcus gnavus	Increased
s Ruminococcus torques	Increased
s Streptococcus parasanguinis	Increased
s Veillonella parvula	Increased

Associated Genus

Genus	Level
g Bacteroides	Normal
g Burkholderiales	Normal
g Clostridium	Increased
g Eggerthella	Increased
g Escherichia	Normal
g Flavonifractor	Increased
g Holdemania	Increased
g Oscillibacter	Increased
g Pseudoflavonifractor	Increased
g Ruminococcaceae	Increased

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Chronic obstructive pulmonary disease

Protective Species

Species	Level
s Alistipes indistinctus	Normal
s Alistipes putredinis	Normal
s Alistipes senegalensis	Decreased
s Alistipes shahii	Decreased
s Bacteroides caccae	Normal
s Barnesiella intestinihominis	Decreased
s Bifidobacterium adolescentis	Normal
s Bifidobacterium longum	Decreased
s Bilophila	Decreased
s Butyrivibrio crossotus	Normal
s Collinsella aerofaciens	Decreased
s Coprococcus catus	Normal
s Coprococcus comes	Normal
s Desulfovibrio piger	Normal
s Dorea longicatena	Normal
s Eubacterium hallii	Normal
s Faecalibacterium prausnitzii	Normal
s Mitsuokella multacida	Normal
s Oxalobacter formigenes	Normal
s Parabacteroides merdae	Normal
s Paraprevotella clara	Normal
s Paraprevotella	Normal
s Prevotella copri	Decreased
s Roseburia hominis	Increased
s Rothia mucilaginosa	Normal
s Subdoligranulum	Decreased
s Sutterella wadsworthensis	Normal

Protective Genus

Genus	Level
g Barnesiella	Normal
g Bifidobacterium	Decreased
g Bilophila	Increased
g Butyrivibrio	Normal
g Collinsella	Normal
g Coprococcus	Decreased
g Desulfovibrio	Normal
g Dorea	Decreased
g Faecalibacterium	Decreased
g Mitsuokella	Normal
g Oxalobacter	Normal
g Paraprevotella	Normal
g Prevotella	Increased
g Rothia	Normal
g Subdoligranulum	Decreased
g Sutterella	Normal

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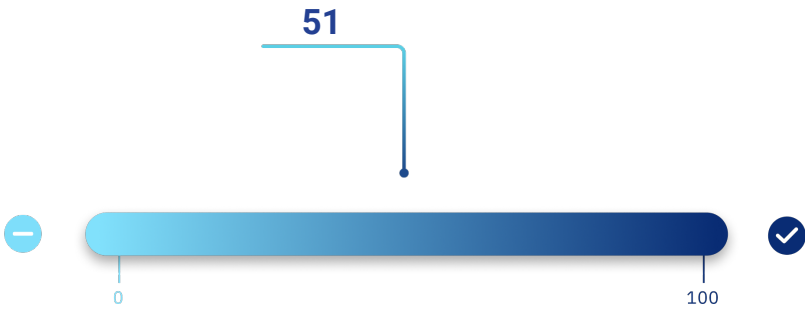
Atopic dermatitis



Analysis

Results show that your score related to atopic dermatitis is an acceptable level. However, you should improve yourself.

Definition

Atopic dermatitis (eczema) is a skin disease that causes redness and itching. It is a chronic disease that can be seen in all age groups. It may be accompanied by asthma or hay fever. Some gut bacteria produce neurotransmitters when they are under stress, which can have a negative impact on skin function [52]. Diet and medications can affect the production of these neurotransmitters as well. As a result, particular proteins and the accumulation of fatty acids are activated, which in turn affects the state of the skin.

Suggestion

For individuals with a moderate risk of developing atopic dermatitis, it is essential to adhere to healthy eating principles. Consumption of processed foods should be avoided, and a diet focusing on collagen, amino acids, and proteins is recommended. It's vital to consume antioxidant-rich fruits and vegetables, fatty fish, and healthy fats. Additionally, supplements like vitamins C and E, as well as essential minerals like zinc and selenium, can be considered.

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Atopic dermatitis

Associated Species

Species	Level
s Eggerthella lenta	Increased
s Eggerthella	Increased
s Flavonifractor plautii	Increased
s Holdemania filiformis	Increased
s Holdemania	Increased
s Oscillibacter	Decreased
s Pseudoflavonifractor capillosus	Increased
s Ruminococcaceae bacterium D16	Increased

Associated Genus

Genus	Level
g Eggerthella	Increased
g Flavonifractor	Increased
g Gordonibacter	Increased
g Holdemania	Increased
g Oscillibacter	Increased
g Pseudoflavonifractor	Increased
g Ruminococcaceae	Increased

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Atopic dermatitis

Protective Species

Species	Level
s Bacteroides caccae	Normal
s Bacteroides clarus	Normal
s Bacteroides stercoris	Normal
s Bacteroides vulgatus	Increased
s Barnesiella intestinihominis	Decreased
s Bifidobacterium adolescentis	Normal
s Bifidobacterium bifidum	Normal
s Bilophila	Decreased
s Butyrivibrio crossotus	Normal
s Collinsella aerofaciens	Decreased
s Desulfovibrio piger	Normal
s Dorea longicatena	Normal
s Parabacteroides merdae	Normal
s Paraprevotella clara	Normal
s Paraprevotella	Normal
s Paraprevotella xylaniphila	Normal
s Prevotella copri	Decreased

Protective Genus

Genus	Level
g Barnesiella	Normal
g Bilophila	Increased
g Butyrivibrio	Normal
g Collinsella	Normal
g Desulfovibrio	Normal
g Dorea	Decreased
g Paraprevotella	Normal

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Dictionary

Microbiome

The microbiome is the community of microorganisms (including fungi, bacteria, and viruses) that live in a specific environment. This term is often used to describe the bacteria living in or on specific parts of the human body, such as the skin or the digestive tract. These microorganisms are dynamic and respond to a wide range of environmental factors, including exercise, diet, medications, and other stimuli.

Metagenomics

Metagenomics refers to the study and investigation of the structure and function of all nucleotide sequences obtained from all microorganisms (mainly bacteria) in a sample. Metagenomics is often used to study a specific microbial community, such as those found on human skin, in soil, or in water.

DNA Sequencing

DNA sequencing is a laboratory technique that precisely determines the sequence of nucleotides in a DNA molecule. Some sequences encode the biological information used by cells to grow and function. The order of these bases encodes the biological information that cells use to grow and function. Identifying the roles of genes and other elements in the genome depends on determining the DNA sequence. Currently, there are several alternative techniques for DNA sequencing, each with its own unique characteristics; developing new methods is an active area of genomics research.

Next-Generation DNA Sequencing (NGS)

The term ‘Next-Generation DNA Sequencing’ refers to next-generation DNA sequencing technologies, which became widely available shortly after the completion of the Human Genome Project. NGS is more efficient and cost-effective compared to previous technologies.

Shotgun Sequencing

Shotgun sequencing is a technique used in laboratories to determine the nucleotide sequence of an organism's genome. This process involves randomly breaking the genome into small pieces of DNA, each of which is individually sequenced. Computer software searches for overlapping DNA sequences and uses these sequences to piece the genome back together in the correct order.

Precision Medicine

Precision medicine, also known as personalized medicine, is a new approach that combines information about an individual's genetic, environmental, and lifestyle factors to guide medical care decisions. The goal of precision medicine is to more accurately prevent, diagnose, and treat diseases.

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Microbiome-Disease Relationship

The human gut microbiome has been associated with various health issues, but comparing these effects across different disorders has been limited. A recent meta-analysis discovered that some gut microbiome relationships are common across many disorders, although comparisons between studies are inevitably constrained by experimental and analytical differences.

Species

A species is a group of bacteria that are genetically and/or phenotypically much more similar to each other compared to other bacterial communities.

Genus

A genus is a generic name that includes species closely related to each other.

Bioinformatics

Bioinformatics is a scientific discipline related to genetics and genomics that involves using computer technology to collect, store, and analyze biological data and information. Databases that organize and index such biological information are critical in health and disease research, and are also used by scientists and doctors to improve medical treatment.

About Us

At Phenome Longevity, we leverage cutting-edge technology and comprehensive data analysis to unlock the full potential of the human gut microbiome. After obtaining high-quality genomic DNA, our process continues with Shotgun Next-Generation Sequencing (NGS), which offers superior coverage and sensitivity. The resulting data is analyzed using advanced algorithms that precisely characterize your bacterial microbiome, and our team of bioinformatics experts and medically trained professionals performs rigorous statistical analysis to evaluate the results. This integrated approach empowers you with actionable insights for informed health decisions.

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