myBioma

Microbiome report

Sample ID
Sample report

Laboratory
Medical University of Vienna

Method
Norgen Biotek Corp.

Sample drawing
31 December XXXX

Received
31 December XXXX

Material
Stool

Analysed
31 December XXXX

Your personal microbiome report

The aim of the myBioma microbiome analysis is to examine all bacteria in your stool using next-generation gene analysis. Using this analysis, we exclusively determine the bacterial 16S gene. This makes it possible to classify the bacteria in the gut system and draw scientifically based conclusions about your health with the help of the myBioma knowledge database.

Microbial composition	Nutrition	Health
●	✓	3/9
Excellent!	**Excellent!**	**Improvable!**

Your microbial composition is varied and well balanced. You seem to have a well-balanced diet and can utilize the food you eat well. There is room for improvement of your health, especially regarding the following health conditions: Weight, Irritable bowel syndrome, Gut-liver axis, Gut-heart axis, Gut-skin axis, Joint health, Inflammation.

You can find your personal recommendations for improvement in the section "Recommendations" on page 22.

Please note: The detection of a microorganism by this analysis does not imply any association with a disease. Similarly, failure to detect a microorganism by this analysis does not exclude the presence of a disease-causing microorganism. Other organisms may also be present which are not detected by this analysis. This analysis is not a substitute for established methods of identifying microorganisms or their antimicrobial sensitivity profile.

Summary

Your personal microbiome report is comprehensive and contains a lot of knowledge about the effect of bacteria on your health. Below is a summary of the most relevant results.
Further information about the results can be found on the detail pages - please use the table of contents.

Microbial composition

	Index	Value	Average	Interpretation
✓	Diversity	6.15	5.92 - 6.60	Excellent!
✓	Species richness	270	242 - 366	Excellent!
✓	Species evenness	0.76	0.74 - 0.79	Excellent!

Nutrition

	Parameter	Result	Average	Interpretation
🌽	Enterotype		-	Enterotype 3 (Ruminococcus)
⊖	Caloric intake	0.2	1.1 - 1.8	Improvable!
⊖	Weight			Improvable!
✓	Sugar metabolism	128	100	Above average!
✓	Lipid metabolism	178	100	Above average!
✓	Vitamin metabolism	104	100	Above average!
✓	Protein metabolism	200	100	Above average!

Health

- ⊖ Inflammation
- ✓ Intestinal mucosa
- ⊖ Irritable bowel syndrome
- ✓ Gut-brain axis
- ⊖ Gut-heart axis
- ⊖ Gut-liver axis
- ⊖ Gut-skin axis
- ✓ Insulin balance
- ⊖ Joint health

Table of contents

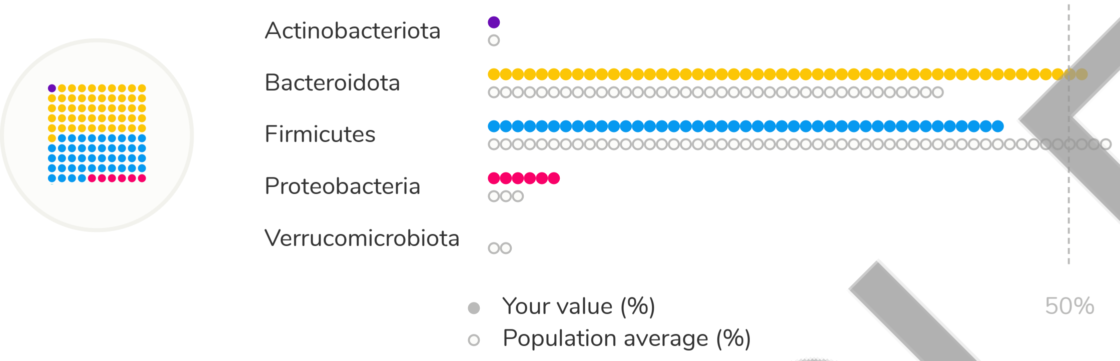
Find out how different and unique your microbiome is.

Find out what effects your intestinal bacteria have on your food intake.

Find out what health conditions your bacteria can be associated with.

Microbial composition

Overview of all bacteria



Your microbiome is unique. Therefore, the composition of the bacteria in your gut system may differ from that of the average population.

Description

The human gut system is dominated by five bacterial strains (phylum) - Actinobacteriota (Actinobacteria), Bacteroidota (Bacteroidetes), Firmicutes, Proteobacteria, Verrucomicorbiota (Verrucomicrobia). These complicated names describe the taxonomy (classification) of the bacterial strains.
The further you read through your personal report, the better your understanding of these will be. In this chapter, we compare the composition of your intestinal bacteria with the average values of the population. Since your microbiome is unique, it is normal for your values to be different from the average.
The complete list of all bacteria types can be found in the chapter "list of bacteria".

The reference and average values given are mainly based on our surveys, the collected data, as well as studies that we have analyzed or were also involved in. Based on the data, such as age, gender, origin, previous diseases, which we collect through questionnaires, we calculate models and categorizes samples. [36,37,38,61]

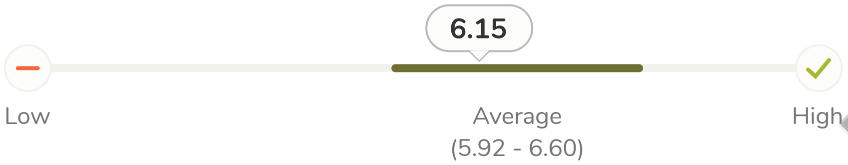
Detailed information

	Type	You (%)	Population (%)
●	Actinobacteriota	0.61%	0.80%
●	Bacteroidota	49.88%	37.89%
●	Firmicutes	43.13%	51.76%
●	Proteobacteria	5.97%	2.78%
●	Verrucomicrobiota	0.01%	1.68%

Diversity

Excellent!

Shannon index (diversity of your microbiome)



The diversity of your microbiome is outstanding. This means that your microbiome ideally supports you during your daily challenges.

Description

Diversity describes the variety of the microbiome and comprises species richness and species evenness. The diversity indicates whether different types of bacteria occur evenly in the gut system or whether some types of bacteria dominate.

The Shannon index (diversity) is the most commonly used numerical indicator to represent this biological diversity. The more different bacterial types are evenly distributed in your gut, the greater the diversity in your gut and the more resilient your microbiome is. Furthermore, many studies have shown that a low degree of diversity is associated with multiple diseases. [36,37,60]

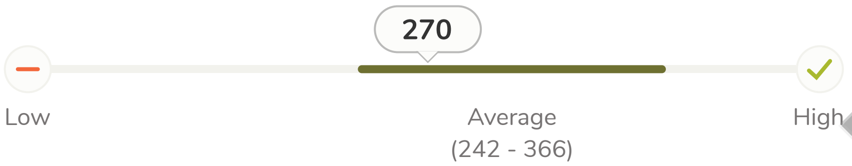
Risk factors

The personal microbiome is individually shaped by various environmental influences, such as antibiotic intake, infections, stays abroad, an unbalanced diet, increasing age or smoking.

Species richness

Excellent!

Number of different bacteria



The number of different bacterial species in your gut system is **270**. Thus, the microbial diversity in your intestine is good. This means that your microbiome supports you in lowering your risk of becoming sick. The more you balance your diet, the more types of bacteria you can feed.

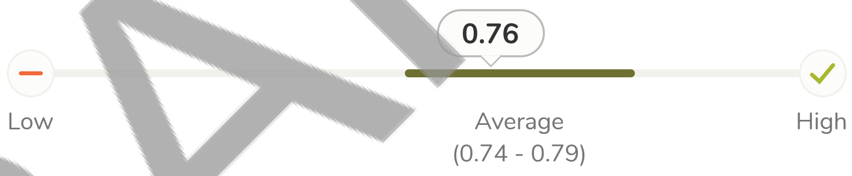
Description

Species richness describes the number of different types of bacteria in your gut system. In a diverse microbiome the large number of different bacterial species can contribute to many different functions being carried out by bacteria. As a consequence, your body can utilize food and nutrients better, as well as handle stress and malnutrition more easily. [39,40]

Species evenness

Excellent!

Pielou index (balance of your microbiome)



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

Description

Species evenness expresses how often one species of bacteria occurs in your gut compared to other bacteria species. The higher the equitability, the more balanced the spread of different bacteria between species.
For example, 2% Lactobacilli, 98% Enterococci display a low species evenness, whereas 50% Lactobacilli, 50% Enterococcis display a high species evenness. [36,37]

Probiotic bacteria

Excellent!

● ● ● ✓ very good
○ ○ ○ – improvable

You have many probiotic bacteria.

Description

The World Health Organization (WHO) defines probiotics as living microorganisms that are beneficial to your health when administered in sufficient quantities. The probiotic bacteria listed here are typically found in readily available foods or probiotic supplements.

Detailed information

	Bacterium	Your result	Food containing the probiotic bacterium
✓	Bifidobacterium 46 47 48 49 50 51 52 65 66 67 68 69	Normal	Yoghurt, kefir
✓	Akkermansia muciniphila 68	Normal	Currants
✓	Lactobacillus 53 54 55	**High**	Yoghurt, kefir, kombucha, cheese, salami, sauerkraut , olives, gherkins, sourdough bread

Enterotype

Enterotype 3 (Ruminococcus)

This enterotype is particularly common in mixed foodies - people who have a very balanced diet. This enterotype is the most common in the Western world. The dominant bacterial strain is Ruminococcus, which quickly and effectively converts food into energy. Ruminococcus bacteria produce enzymes that break down indigestible carbohydrates such as cellulose and then subsequently convert them into energy. In addition, these bacteria can degrade mucous proteins that occur in the mucous membrane of the intestinal mucosa. In doing so, they make particularly effective use of the small sugar molecules produced in the process. Your enterotype is extremely resilient.

Description

Although your microbiome is as individual as your fingerprint, it can still be roughly subdivided into a basic microbiome, the so-called enterotype. The enterotype develops during the first years of life. It is independent of gender, age or geographical origin. Your enterotype is mainly related to your genetics and eating habits. Each enterotype is dominated by a different genus of bacteria. The enterotype affects energy production from food as well as the production of vitamins. [70,71,72]

A distinction is made between three enterotypes:

Enterotype 1
= Especially for people who often eat meat: Bacteroides [49,50,51]

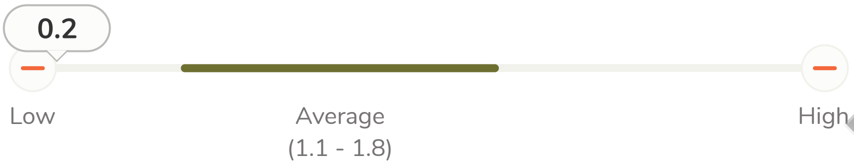
Enterotype 2
= Especially for people who eat vegan or vegetarian food: Prevotella [49,50,53,96]

Enterotype 3
= Especially for people who prefer a balanced diet: Ruminococcus [49,51]

Caloric intake

Improvable!

Ratio of Firmicutes to Bacteroidetes



The ratio of Firmicutes to Bacteroidetes in your gut could be better. A high ratio of Firmicutes is associated with being overweight, whereas a high amount of Bacteroidetes is associated with poor calorie utilization and sometimes even with being underweight. You can find out how to improve the ratio of your Firmicutes and Bacteroidetes in your personalized recommendations.

Description

Bacteroidetes and Firmicutes are the most common representatives of colon bacteria. Firmicutes can split non-digestible fiber and store it for "bad times". Thereby giving the body more energy when needed. The number of Bacteroidetes increases as soon as the bodyweight is reduced. Therefore, one can draw conclusions about how good the calorie utilization in your body is, which in turn can result in weight gain. When you lose weight through a calorie-restricted diet, this ratio usually decreases as well. [71,74,75,76]

Weight

Improvable!

○ ○ ○ ● ● ● ● ● ● ● ✓ very good
● ● ● ○ ○ ○ ○ ○ ○ ○ – improvable

Support your bacteria with a few little tricks. You find these in your personal recommendations for improvement.

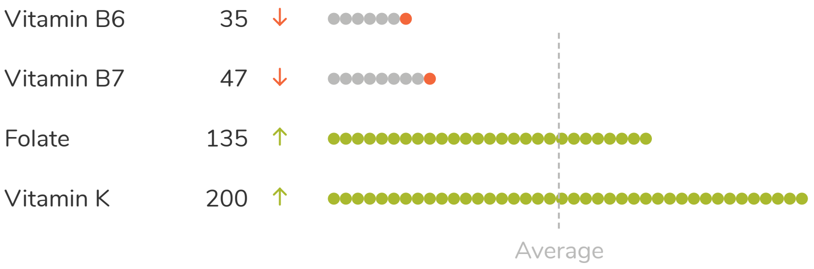
Description

Some bacteria can influence how easily you gain or lose weight. Here you see the bacteria that protect you from being overweight. Your intestinal bacteria are involved in the utilization of your food. They can influence how many calories you get from your food.
However, it does not mean that people who lack certain bacteria have to be overweight. Only that some bacteria can help you lose weight or keep it off. [9,104,114,115,116]

Associations

	Protective bacteria	Your result
–	Bacteroides 104 107 108	**Low**
–	Barnesiella 106	**Low**
✓	Butyricimonas 113	Normal
–	Parabacteroides distasonis 107 108 110 114	**Low**
✓	Lachnospiraceae 103	Normal
✓	Coprococcus catus 112	Normal
✓	Lachnospira 52 76	**High**
✓	Oscillospira 103 104	Normal
✓	Dialister 105	**High**
✓	Akkermansia muciniphila 76 99 100 101 102	Normal

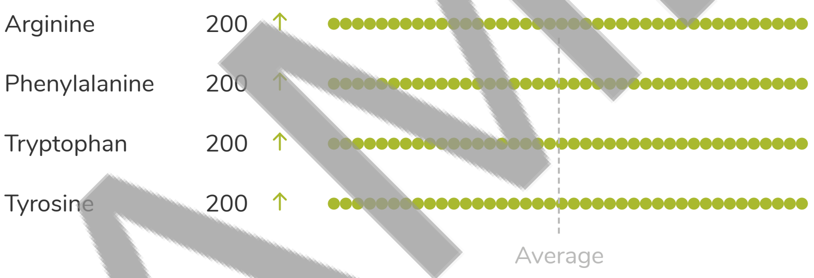
Vitamin metabolism



Description

Vitamins are vital substances and necessary for energy production, immune function, blood clotting and other functions. Minerals, that along with vitamins belong to the group of micronutrients, play an important role in growth, bone health, fluid balance and various other processes.
Some bacteria can produce vitamins themselves. Among other things, they produce vitamin B6, vitamin B7, folate, vitamin K.

Protein metabolism

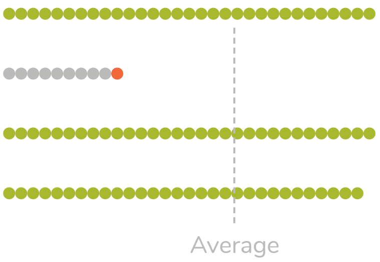


Description

Proteins do most of the work in the cell, such as growth and maintenance of tissue, production of enzymes and hormones, regulation of the concentration of acids and bases in your blood and other body fluids, and formation of antibodies in your immune system to fight infections. Likewise, proteins have a storage function (e.g. ferritin, which stores iron) and they can supply your body with energy. Important protein building blocks (amino acids) are arginine, phenylalanine, tryptophan and tyrosine.

Sugar metabolism

Amino sugar	155	↑
Pentose	52	↓
Sucrose	157	↑
Glucose	148	↑



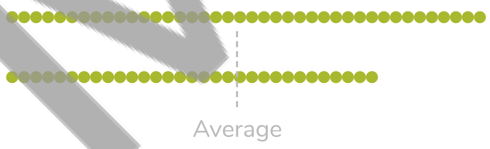
Description

The body obtains about half of the energy it needs from carbohydrates. Dietary carbohydrates can be divided into three main categories:

1. Sugars, such as granulated sugar and fruit juices
2. Starch, such as found in rice and cereals
3. Fibers, such as found in vegetables and nuts. In fact, we humans cannot digest dietary fiber, though they feed your gut bacteria.

Lipid metabolism

Fatty acid	200	↑
Phospholipid	155	↑



Description

Fatty acids and phospholipids are important representatives of fats and are processed and reused by intestinal bacteria. Phospholipids are among the main representatives of the membrane. Fatty acids serve as energy sources, are important for your brain and nervous system, cell building blocks and the basis for the production of hormones.
Lipid metabolism includes all processes involved in the breakdown of dietary fats and the building of fatty acids in the intestine. Important components such as fatty acids and phospholipids from your diet are absorbed by your digestive tract.

Inflammation

⊖ **Improvable!**

○ ○ ○ ○ ● ● ● ● ● ● ✓ very good
● ● ● ● ○ ○ ○ ○ ○ ○ – improvable

Support your bacteria with a few little tricks. You find these in your personal recommendations for improvement.

Description

Gut bacteria can either protect your body from inflammation or cause inflammatory processes. These inflammatory processes can even occur outside the intestines. When your gut bacteria are not in balance or there are too many pro-inflammatory bacteria in your intestines, it can lead to a "leaky gut" syndrome. This occurs when toxins (harmful metabolites) from bacteria or pathogens enter the body through the intestinal barrier and cause inflammation. Anti-inflammatory bacteria have a protective effect on your microbiome.
160,161,162,163

Risk factors

Inflammation can have a wide variety of causes. The microbiome balance plays a major role. However, infections, medications, smoking, alcohol, high-sugar food and the altered composition of bile acids can also contribute to inflammation.

Associations

	Associated bacteria	Your result
–	Prevotella 122	**High**
✓	Erysipelotrichaceae 124 135	Normal
✓	Streptococcus 122 127 129	Normal
–	Intestinibacter 122	**High**
✓	Sutterella 130	Normal
–	Enterobacteriaceae 136 143	**High**

	Protective bacteria	Your result
✓	Bifidobacterium 123 141	Normal
–	Clostridia 123 131	**Low**
✓	Ruminococcaceae 122	Normal
✓	Akkermansia 132 133 137 138 139	Normal

Intestinal mucosa

✓ **Excellent!**

● ● ● ● ● ● ● ● ✓ very good
○ ○ ○ ○ ○ ○ ○ ○ – improvable

Keep it up!

Description

The mucus of the gut mucosa serves as a protective layer and barrier against harmful substances. Additionally, the mucus absorbs fluids and nutrients. Your bacteria determine how much of the mucus is stimulated or broken down. The mucus ensures that your gut bacteria keep enough distance to the mucous membrane, so as not to permanently irritate the local immune cells thereby triggering an inflammatory process and disrupting the barrier function. Regenerating bacteria help to keep the gut mucosal wall intact and reduce intestinal inflammation. When your bacteria are imbalanced, there can be increased breakdown of mucus, resulting in a reduction of this important protective layer. One type of intestinal barrier disorder is the so-called "leaky gut". In this case, the increased intestinal permeability is due to loosened tight junctions between the mucosal cells in the small intestine. These loosened tight junctions create unwanted gaps that allow small amounts of toxins to overcome your intestinal barrier and thus enter your bloodstream. **Note that a lower diversity and an increased ratio of Firmicutes to Bacteroidetes are also crucial for a healthy intestinal mucosa. These values are described in the previous chapters.** [181,182,187,190]

Risk factors

Among the triggers of leaky gut are infections, medication, chronic inflammations, and consumption of toxins.

Associations

	Associated bacteria	Your result
✓	Collinsella **192 227**	Normal
✓	Bilophila **205 214 230**	Normal
✓	Sutterella **130 204 205**	Normal

	Protective bacteria	Your result
✓	Lactobacillus **193 194 195**	**High**
✓	Oscillibacter **214**	Normal
✓	Faecalibacterium prausnitzii **70 203 206 218 219 222 223**	Normal
✓	Ruminococcus **207 207 213 213 224 225**	Normal
✓	Akkermansia muciniphila **100 137 209 210 211 212 213 214 217**	Normal

Irritable bowel syndrome

Improvable!

○○○○○●●●●●●● ✓ very good
●●●●●○○○○○○○ – improvable

Support your bacteria with a few little tricks. You find these in your personal recommendations for improvement.

Description

Irritable bowel syndrome is a functional disorder of the digestive system. Although this disorder is not life threatening, it often reduces the quality of life. Irritable bowel syndrome often manifests itself with constipation, diarrhoea and pain. Therefore, the consistency of the stool may also change.[271,272]

Risk factors

There are many factors that can cause irritable bowel syndrome. Stress and emotions are often associated with this disorder. Other triggers that may aggravate the symptoms and amplify the causes listed above include malnutrition and lack of nutrients, other diseases, toxins, lack of gastric acid, medication, infections and a bacterial imbalance.

Associations

	Associated bacteria	Your result
✓	Blautia 233 242 244 246 249	Normal
✓	Dorea 235 236 242 244	Normal
✓	Ruminococcus 242 252 254 255 256 257	Normal
–	Dialister 242 252	**High**
✓	Veillonella 205 239 240 241 258	Normal
–	Gammaproteobacteria 244 259	**High**
–	Enterobacteriaceae 242 247 248 253 253 267	**High**

	Protective bacteria	Your result
✓	Bifidobacterium 236 250 254 255 258 259 260 261	Normal
–	Bacteroides 238 242 244	**Low**
–	Odoribacter 241 242 244 265	**Low**
✓	Faecalibacterium prausnitzii 234 235 238 240 241 244 264 265 266 267	Normal
✓	Akkermansia muciniphila 212 236 238 266	Normal

Gut-brain axis

✓ **Excellent!**

○●●●●●●●●●●● ✓ very good
●○○○○○○○○○○○ – improvable

Keep it up!

Description

Gut over head! Over 100 million nerve cells connect your gut system with your brain. Therefore, your gut is in a constant exchange of information with your brain. The nervous system of your gut uses the same neurotransmitters (information transmitters between cells) as your brain. These information transmitters are also important in mental illnesses, such as depression. The metabolism of your bacteria in the digestive tract can disturb the balance of these information transmitters, such as noradrenaline, GABA, dopamine or serotonin, and thus influence your state of mind. [117,310,311]

Risk factors

There are many factors that can contribute to listlessness or depression. Often, they are physical or circumstantial causes such as chronic illness, hormonal imbalance, permanent stress and conflicts, loneliness or other misfortunes.

Associations

	Associated bacteria	Your result
✓	Eggerthella 292 299 316 317	Normal
✓	Bacteroidaceae 250 309	Low
✓	Paraprevotella 205 292 300	Normal
✓	Alistipes 250 306 309 314 315	**Low**
–	Turicibacter 205 292 316 317	**High**
✓	Lachnospiraceae 250 287 288 289 290 308	Normal
✓	Anaerostipes 287 292 299 312	Normal

	Protective bacteria	Your result
✓	Bifidobacterium 301 303 305 316 318 319	Normal
✓	Coprococcus 295 298 307 308	Normal
✓	Faecalibacterium 295 297 299 311 315	Normal
✓	Ruminococcus 296 297 311 312 315	Normal
✓	Dialister 43 307 311	**High**

Gut-heart axis

–

Improvable!

○○○○●●●●●●●●● ✓ very good
●●●●○○○○○○○○○ – improvable

Support your bacteria with a few little tricks. You find these in your personal recommendations for improvement.

Description

Diseases of the vascular system and/or the heart (cardiovascular diseases) affect approximately one third of the population. Recently, it has been shown that the microbiome is involved in the development of such diseases.

Risk factors

Bacteria metabolize certain substances such as choline and L-carnitine (contained in eggs and milk) to trimethylamine. These are then converted into trimethylamine N-oxides (TMAO) in the liver . TMAO promotes the absorption of cholesterol and can thus contribute to the development of cardiovascular diseases. In addition, a disturbed barrier function of the intestinal mucosa (see leaky gut) can trigger an inflammatory cascade. Metabolic products of bacteria can penetrate the blood circulation system and contribute to the development of atherosclerosis (deposition of fat, blood clots, connective tissue and calcium in the blood vessels) and heart failure (weakness of the heart muscle). [271,347,348]

Associations

	Associated bacteria	Your result
✓	Alistipes 327 338 343 352	**Low**
✓	Parabacteroides 327 338 343	**Low**
✓	Desulfovibrio 327 338	Normal
✓	Enterococcus 327 330	Normal
✓	Hungatella 341 342 353	Normal
–	Enterobacteriaceae 337 352	**High**
–	Escherichia-Shigella 330 342	**High**

	Protective bacteria	Your result
–	Bacteroides 343 345 352	**Low**
–	Odoribacter splanchnicus 326	**Low**
✓	Prevotella 338 352	**High**
✓	Roseburia 113 330 340 352 354 355	Normal
✓	Faecalibacterium 330 352 354	Normal
✓	Subdoligranulum 330	Normal

Gut-liver axis

⊖ **Improvable!**

○○○○○●●●●●●●● ✓ very good
●●●●●○○○○○○○○ – improvable

Support your bacteria with a few little tricks. You find these in your personal recommendations for improvement.

Description

Your liver is the most important metabolic organ. It is the detoxification center of your body and produces coagulation factors and bile acid. How much the liver is used on a daily basis depends on your healthy gut function. Your gut system and liver are in constant contact and are connected via the blood circulation (portal vein). Nutrients and bacterial components are released into the liver via this large blood vessel. The analysis focuses on the association between gut bacteria and the non-alcoholic fatty liver. Please pay attention to the Firmicutes:Bacteroidetes ratio. This value is described in the previous chapter. [376,379,380,381]

Risk factors

Risk factors for an imbalance of the gut-liver axis are often an unhealthy lifestyle and medication. Often an imbalance of the gut-liver axis occurs as a side effect of chronic disease.

Associations

	Associated bacteria	Your result		Protective bacteria	Your result
⊖	Prevotella 372 373 376 387	**High**	⊖	Odoribacter 366 367 385	**Low**
✓	Enterococcus 373 382 383	Normal	✓	Coprococcus 103 366 366 387	Normal
✓	Streptococcus 363 373 384 385 386	Normal	✓	Oscillibacter 103 366 377 385 387 389	Normal
✓	Blautia 387 388	Normal	✓	Oscillospira 376 386 392	Normal
⊖	Veillonellaceae 365 367 373 375 382 383	**High**	✓	Ruminococcaceae 103 364 365 369 372 375 382 383 385 387 391	Normal
⊖	Enterobacteriaceae 373 382 383	**High**	✓	Faecalibacterium 363 374	Normal
⊖	Haemophilus 373	**High**			

Gut-skin axis

–

Improvable!

○○○●●●●●●●● ✓ very good
●●●○○○○○○○○ – improvable

Support your bacteria with a few little tricks. You find these in your personal recommendations for improvement.

Description

Your skin and your gut are both organs with dense vascular structures and rich in nerve fibers. Overall, your gut-skin axis is composed of a complex communication network that includes the immune system, the hormonal system (endocrine system), the metabolic system and the nervous system. An imbalance in gut bacteria has recently been associated with psoriasis and atopic dermatitis. [421,422,423]

Risk factors

When stressed, certain gut bacteria produce neurotransmitters that can have a negative effect on skin function. Diet and medications can affect your skin through nutrient signaling and long-chain fatty acids. In doing so, a specific protein (SREBP-1) as well as the break down of fatty acids are activated, which in turn influences the condition of the skin. Note also that leaky gut can influence the development of psoriasis. [405,406,407,408]

Associations

	Associated bacteria	Your result
✓	Collinsella 411 412	Normal
✓	Bacteroides 401 410 411 415 417	**Low**
✓	Parabacteroides 401 411 417	**Low**
✓	Lachnospiraceae 401 409 411	Normal
✓	Blautia 411 412 413 416 417	Normal
✓	Ruminococcaceae 411 416	Normal

	Protective bacteria	Your result
–	Bacteroidaceae 409 411	**Low**
✓	Prevotellaceae 409 411	**High**
✓	Prevotella 409 415	**High**
–	Rikenellaceae 411	**Low**
–	Tannerellaceae 411	**Low**

Insulin balance

✓

Excellent!

● ● ● ● ● ● ● ● ● ● ● ✓ very good
○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ – improvable

Keep it up!

Description

The hormone insulin is produced by the pancreas and regulates blood glucose levels by transporting the sugar absorbed by the body into your cells. Depending on whether and how quickly the glucose level in the blood drops after a meal, you can see how well body cells respond to insulin. If the levels do not drop within a certain period of time, i.e. the sugar accumulates in the blood vessels, this can indicate a sugar disorder. Your intestinal bacteria influence the absorption and utilisation of sugar and thus your blood sugar levels.[392,444,445,446]

Risk factors

Lack of exercise, overweight and stress often lead to a disturbance of the insulin balance.

Associations

	Associated bacteria	Your result
✓	Collinsella 430 431 435 447	Normal
✓	Eggerthella 109 428 447 448	Normal
✓	Alistipes 448	**Low**
✓	Parabacteroides 432 448 450	**Low**
✓	Coprococcus 429	Normal
✓	Ruminococcus 432 443 452 453	Normal
✓	Veillonella 109 443 451 454	Normal

	Protective bacteria	Your result
✓	Erysipelotrichaceae 448 452	Normal
✓	Lachnospiraceae 439 448 452 453	Normal
✓	Roseburia 440 441 443 448 453	Normal
✓	Faecalibacterium 432 436 442 443	Normal

Joint health

Improvable!

○ ○ ○ ○ ● ● ● ● ● ● ✓ very good
● ● ● ● ○ ○ ○ ○ ○ ○ – improvable

Support your bacteria with a few little tricks. You find these in your personal recommendations for improvement.

Description

Rheumatoid arthritis is an autoimmune disease that primarily affects the joints. It leads to constant inflammation and destruction of joints and bones because the body’s immune system is directed against its own cell structures. The mechanism is very complex and depends on innate and acquired immune responses. The permeability of your intestinal mucosa and microbial imbalances play a role, because they can throw the immune system off balance. [490]

Risk factors

Rheumatoid arthritis is the result of genetic, environmental and hormonal factors. Bacterial and viral pathogens have been frequently identified as causing poor joint health.

Associations

	Associated bacteria	Your result
✓	Collinsella 192 464 474 480	Normal
✓	Eggerthella 192 459 476 481	Normal
–	Prevotella 458 461 466 478 479 488	**High**
✓	Bacilli 475 477	Normal
–	Lactobacillus 478	**High**

	Protective bacteria	Your result
✓	Bifidobacterium 468 470 471 472 482 483	Normal
–	Bacteroidaceae 462 470	**Low**
–	Bacteroides 458 460 462 463 465	**Low**
✓	Roseburia 463 484	Normal
✓	Faecalibacterium prausnitzii 192 460 468 469 477	Normal

Recommendations for improvement

Personal recommendations

Here are your personal suggestions

General recommendations

Here are the general recommendations

List of bacteria

This bacteria list lists all bacterial genera found in this sample. The abundance describes the frequency (%) with which a bacterium occurs in the sample.

Phylum	Genus	Abundance (%)		Reference (%)
Actinobacteriota	Bifidobacterium	0.22		0.02 - 0.74
Actinobacteriota	**Olsenella**	**0.18**	↑	0.00 - 0.00
Actinobacteriota	Collinsella	0.20		0.02 - 0.28
Bacteroidota	**Bacteroides**	**0.83**	↓	12.52 - 31.24
Bacteroidota	**Barnesiella**	**0.04**	↓	0.14 - 2.04
Bacteroidota	Coprobacter	0.01		0.00 - 0.28
Bacteroidota	Butyricimonas	0.02		0.00 - 0.22
Bacteroidota	**Odoribacter**	**0.07**	↓	0.12 - 0.44
Bacteroidota	**Prevotella**	**48.07**	↑	0.00 - 10.38
Bacteroidota	**Alistipes**	**0.30**	↓	1.56 - 5.44
Bacteroidota	**Parabacteroides**	**0.28**	↓	1.00 - 3.48
Desulfobacterota	Bilophila	0.07		0.04 - 0.34
Firmicutes	**Asteroleplasma**	**0.00**	↑	0.00 - 0.00
Firmicutes	Erysipelatoclostridium	0.01		0.00 - 0.06
Firmicutes	**Erysipelotrichaceae UCG-003**	**0.02**	↓	0.02 - 0.38
Firmicutes	**Holdemanella**	**0.20**	↑	0.00 - 0.06
Firmicutes	Holdemania	0.02		0.00 - 0.06
Firmicutes	**Turicibacter**	**0.11**	↑	0.00 - 0.06
Firmicutes	**Lactobacillus**	**0.27**	↑	0.00 - 0.00
Firmicutes	Streptococcus	0.08		0.02 - 0.24
Firmicutes	Christensenellaceae R-7 group	0.09		0.04 - 1.58
Firmicutes	Anaerostipes	0.06		0.02 - 0.30
Firmicutes	**CAG-56**	**0.03**	↑	0.00 - 0.00
Firmicutes	Coprococcus	0.42		0.04 - 1.68
Firmicutes	**GCA-900066575**	**0.09**	↑	0.00 - 0.08
Firmicutes	**Howardella**	**0.03**	↑	0.00 - 0.00
Firmicutes	Lachnoclostridium	0.49		0.12 - 0.72
Firmicutes	**Lachnospira**	**2.82**	↑	0.00 - 1.84
Firmicutes	**Lachnospiraceae FCS020 group**	**1.24**	↑	0.02 - 0.30

About the test

About myBioma

The gut microbiome consists of 95% gut bacteria. These bacteria are crucial for how you feel and also how healthy you are. They train your immune system from birth and profoundly influence the development of many serious diseases such as irritable bowel syndrome, leaky gut syndrome, diabetes, obesity, Parkinson's disease and even colon cancer.

The myBioma gut microbiome analysis is the lifestyle product of Biome Diagnostics GmbH, which uses the most modern technologies, intelligent algorithms and the latest scientific publications to create the myBioma microbiome report. The myBioma analysis is worldwide the only double certified product according to ISO 13485 and ISO 9001 in the microbiome field. This is crucial and stands for the quality of the analysis. In order to ensure the safety of the product, Biome Diagnostics GmbH has a quality management system that meets the relevant requirements and optimizes processes so that risks and errors are avoided or minimized as much as possible. ISO 13485 regulates the requirements for quality management systems for producers of medical devices, thus ensuring the high standards of development, production and marketing of medical devices. ISO 9001 also ensures that continuous improvements are made to the products and that measures are taken to safeguard the product.

The innovation of the myBioma analysis lies in the unique combination of next-generation DNA sequencing (NGS) with a growing knowledge database on the interactions of the microbiome with the human organism.

Methods & restrictions

For the myBioma microbiome analysis bacterial DNA is extracted from the stool sample, a maker gene (16S) present in all bacteria is amplified by polymerase chain reaction (PCR), and then analyzed by next-generation DNA sequencing (NGS). NGS is a method for determining individual DNA base pairs accurately. Biome Diagnostics analyzes the individual DNA base pairs of gut bacteria, which enables the identification of culturable as well as non-culturable bacteria. The sequence data is processed using a proprietary phylogenetic analysis algorithm. This analysis leads to the identification of your gut bacterial microbiome.

The development of the analytical test as well as the bioinformatic analysis and interpretation of the data after sequencing is performed by Biome Diagnostics. Hence, the company ensures standardization of the procedural steps, which is essential for microbiome testing and enables comparison to follow-up tests.

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