Account	[redacted]
Profile	[redacted]
Sample	2025 - Jan

Professional report

Kit barcode	E1A784	Activated	Jan 10, 2025
Sample barcode	4048864474	Analyzed	Feb 2, 2025
Activation code	[redacted]		

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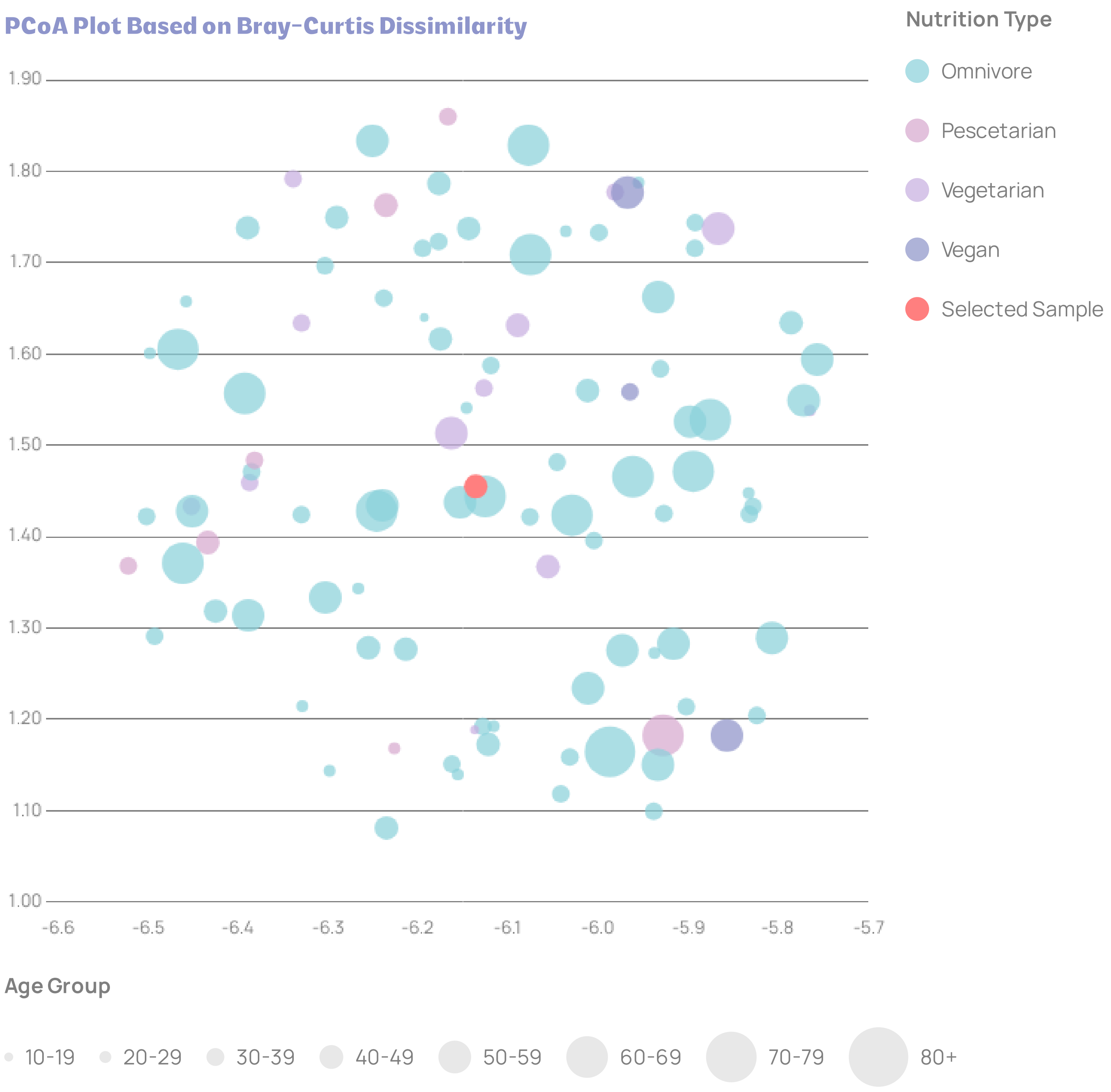
Scorings

Your results paint a predominantly positive picture of your microbiome. Your overview score is in a good range. Particularly pleasing are your very high diversity and the excellent balance of your gut bacteria – both important indicators of a resilient gut ecosystem. The functional diversity of your potentially active metabolic pathways is also remarkably high. The proportion of potentially unfavorable bacterial families is in the average range; there is no cause for concern here, but there is room for optimization. Overall, your values indicate a robust and well-functioning microbiome.

Name	**Description**	**Score (0 100)**
Overview Score	The overview score combines various measured values from the microbiome analysis into an overall indicator. This value serves as a guide to how your microbiome is currently performing.	63
Diversity Score	The diversity score represents the diversity of your microbiome compared to our reference population. In research, a higher diversity is often associated with greater resilience of the microbiome.	90
Balance Score	The balance score indicates the extent to which dysbiosis-associated values are present within the microbiome. Such an imbalance can mean that certain groups of bacteria are over- or under-represented.	96
Unfav Score	This score sums up bacterial families that are frequently associated with unfavorable effects in the literature. A high value indicates an increased proportion of potentially problematic microorganisms.	54
Functional Score Pwy	A functional extrapolation was used to assess how diverse the potentially active metabolic pathways in your microbiome are.	92

Comparison

Your microbiome profile most closely resembles a comparison group characterized by the following main features: The members are predominantly female (61.0%) and eat an omnivorous diet (78.0%). Large cities are their most common place of residence (45.0%), and they are athletically active (74.0%). Their average age is around 40 to 43 years. These characteristics show you the demographic and lifestyle environment in which your current microbiome typically occurs.



PCoA Plot Based on Bray-Curtis Dissimilarity

100 people who have the most similar microbiome are:

- 42.64 years old (mean)
- 39.55 years old (median)
- 61% female
- 39% male
- 78% omnivore
- 7% pescetarian
- 12% vegetarian
- 3% vegan
- 74% train
- 45% live in the big city
- 18% live in the middle city
- 15% live in the small town
- 22% live in the village

Diversity

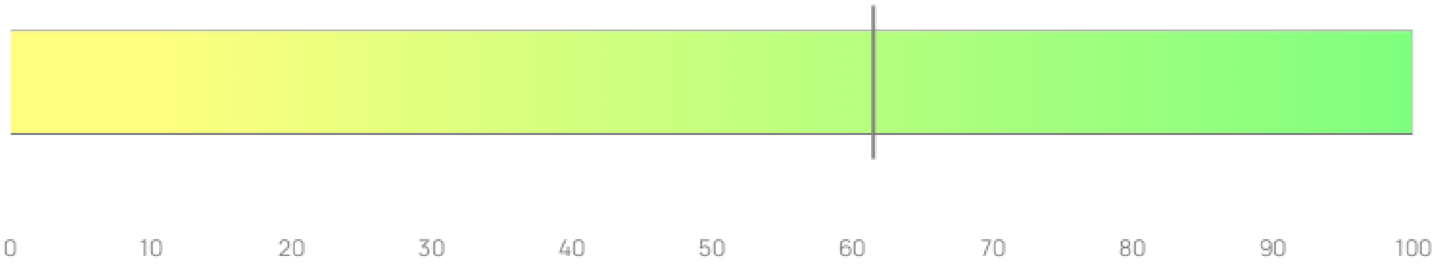
Your results for alpha diversity are consistently positive and indicate a very diverse and resilient gut microbiome. With values in the upper to very high range for all indicators, you show an impressive species richness and an excellent evenness of bacteria. Your summary diversity score underscores this pleasing overall picture and confirms the stability and balance of your gut flora.

Name	User Score	Description	Score (0 100)
Shannon Entropy	8.29	The Shannon index describes both the number of different bacterial species (species diversity) and their relative distribution (evenness). A higher value indicates that the microbiome is more diverse and more evenly colonized, which is often seen as an indication of a more "robust" microbiome structure.	84
Inv Simpson	8.77	The Simpson index measures the probability that two randomly selected individuals come from the same species. The higher the Simpson index, the lower the risk of one species dominating the system, which may indicate a more stable distribution of species.	88
Chao1	261.11	The Chao estimator is used to estimate the actual species diversity (richness), even if not all species could be recorded in a sample. It takes rare species into account and therefore provides an indication of whether other, undiscovered species may still be present in the microbiome.	91
ASV Richness	7,305	The "Amplicon Sequence Variant (ASV) Richness" describes the number of different sequence variants in a sample. It shows how broad the spectrum of the microbial community is and thus provides a direct impression of the diversity of species.	97
Diversity Score	1,895.79	The diversity score summarizes the various metrics (Shannon, Simpson, Chao, ASV Richness) into an average value. It provides a quick overview of the overall diversity and enables a quick comparison between samples or measurement times.	90

Ratios

Ratio of butyrate formers to the microbiome

The ratio of butyrate-forming bacteria to the total microbiome is an important indicator of intestinal health. Butyrate plays a central role in supporting the intestinal barrier and regulating the immune system. A high proportion of these beneficial bacteria is often associated with a stable intestinal mucosa and a lower risk of inflammation. This information can help to better assess the inflammatory potential in the gut and forms a valuable basis for further, targeted analyses (Vacca et al. 2020; Vital et al. 2017; Louis & Flint 2017; Bui et al. 2019).

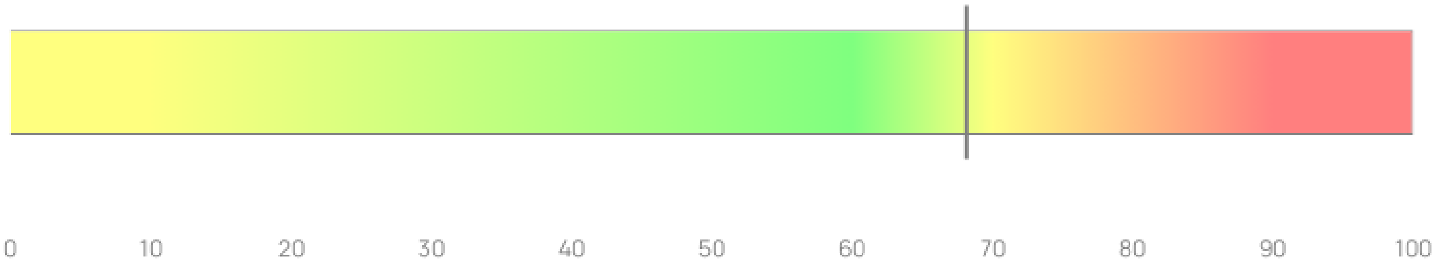


The color scale shows your result (black marker) in comparison to the BIOMES cohort.

Your ratio of butyrate formers to the total microbiome is in the optimal range. This is a positive sign for your gut health and supports your goals of becoming healthier and fitter, as butyrate plays an important role in a healthy gut lining.

Ratio of Firmicutes to Bacteroidetes

The Firmicutes/Bacteroidetes ratio is shown. A typical reference value for a balanced intestinal flora is in the range of 1-3. As the ratio of these two bacterial groups has a direct influence on the composition of the intestinal microbiome, a deviation from the reference range can be considered an indicator of an altered microbial balance (Nasrollah et al. 2022; Johnson & DeLeon 2020).

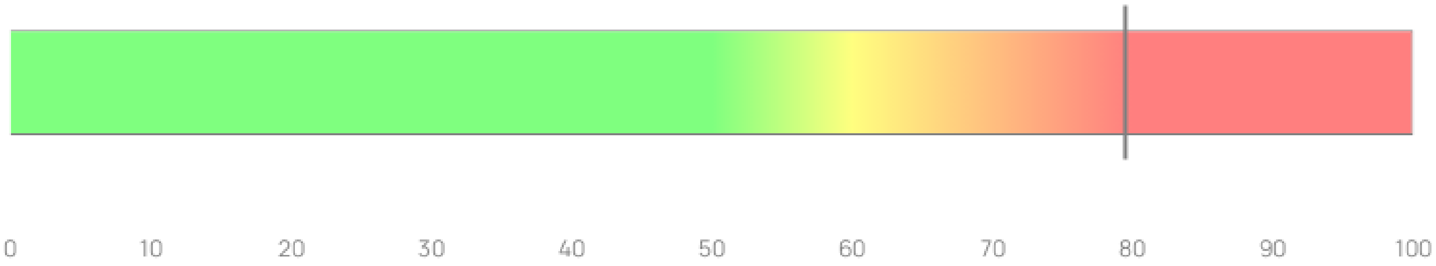


The color scale shows your result (black marker) in comparison to the BIOMES cohort.

Your ratio of Firmicutes to Bacteroidetes is above the optimal range, which may indicate an imbalance in your gut flora. This could be related to your diet and recent weight loss, as this ratio can influence energy absorption from food.

Ratio of Fusobacterium to Faecalibacterium

The ratio of Fusobacterium to Faecalibacterium is used as an indicator of the inflammatory potential in the intestine. As Fusobacterium is partly associated with inflammatory conditions and colorectal changes and Faecalibacterium is considered to be anti-inflammatory, this ratio can be used to draw conclusions about the balance between pro-inflammatory and anti-inflammatory processes in the intestinal microbiome (Wirbel et al. 2019; Rinninella et al. 2022).

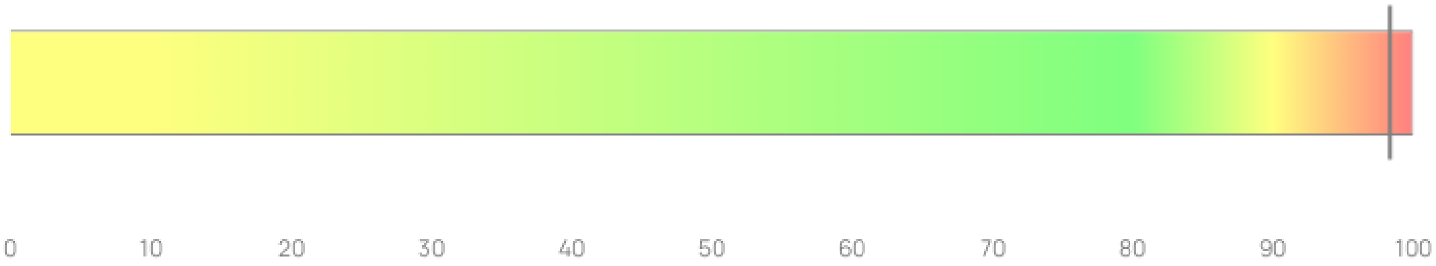


The color scale shows your result (black marker) in comparison to the BIOMES cohort.

Your elevated ratio of Fusobacterium to Faecalibacterium suggests an imbalance that could potentially promote pro-inflammatory processes. Although your Faecalibacterium level is in the optimal range, it is advisable to keep an eye on this ratio.

Ratio of Prevotella to Bacteroides

This ratio provides information about the composition of the gut microbiome. A higher proportion of Prevotella is typically associated with a diet rich in fiber and plants, while a predominance of Bacteroides may indicate a more Western diet (Coster et al. 2023; Sanna et al. 2019).



The color scale shows your result (black marker) in comparison to the BIOMES cohort.

Your ratio of Prevotella to Bacteroides is significantly elevated. This indicates that Prevotella is dominant in your gut microbiome compared to Bacteroides, which is primarily due to a low proportion of Bacteroides.

Bacteria

Max	Min	Name	Level	Mean Value	User Value	Percentile Value
8.256	0.555	Actinobacteria	Normal	3.566	2.443	52.982
0.097	0	Adlercreutzia	Normal	0.041	0.009	34.327
1.234	0.003	Akkermansia	Normal	0.498	0.021	29.893
4.559	0.252	Alistipes	Normal	2.094	1.059	38.609
2.709	0.397	Anaerostipes	Low	1.439	0.213	2.217
18.849	1.622	Bacteroides	Low	9.39	0.496	3.823
29.165	8.609	Bacteroidetes	Normal	18.607	21.858	69.113
7.312	0.098	Bifidobacterium	Low	2.771	0.116	11.086
0.25	0.003	Bilophila	Low	0.11	0.013	18.96
14.271	3.613	Blautia	Normal	8.486	8.735	62.385
0.816	0.103	Butyricicoccus	Normal	0.398	0.244	38.914
0.706	0.004	Butyricimonas	Normal	0.294	0.349	70.948
0.04	0	Butyrivibrio	High	0.136	0.101	92.431
0.298	0	Catenibacterium	Normal	0.446	0.006	58.563
2.877	0.14	Coprococcus	High	1.215	4.037	95.107
1.57	0.357	Dorea	High	0.918	2.099	96.636
0.264	0	Escherichia	Normal	0.304	0.011	38.761
17.487	4.418	Faecalibacterium	Normal	10.701	8.683	38.761
82.79	58.236	Firmicutes	Normal	70.876	74.524	64.144
0.03	0	Holdemania	Normal	0.011	0.014	74.312
0.025	0	Lactobacillus	Normal	0.016	0	27.141
0.364	0.018	Parabacteroides	Low	0.173	0.036	19.572
12.885	0.017	Prevotella	High	3.496	15.445	93.119
8.64	0.835	Proteobacteria	Low	4.116	0.974	13.303
6.938	1.153	Roseburia	Normal	3.819	4.554	69.878
5.926	0.504	Ruminococcus	High	2.953	5.477	86.85

Max	Min	Name	Level	Mean Value	User Value	Percentile Value
0.005	0	Salmonella	Normal	0.011	0	79.281
3.189	0.018	Sutterella	Low	1.277	0.031	12.844
0.093	0	Veillonella	Normal	0.048	0.001	21.254
1.402	0.005	Verrucomicrobia	Normal	0.565	0.024	26.682

Functions

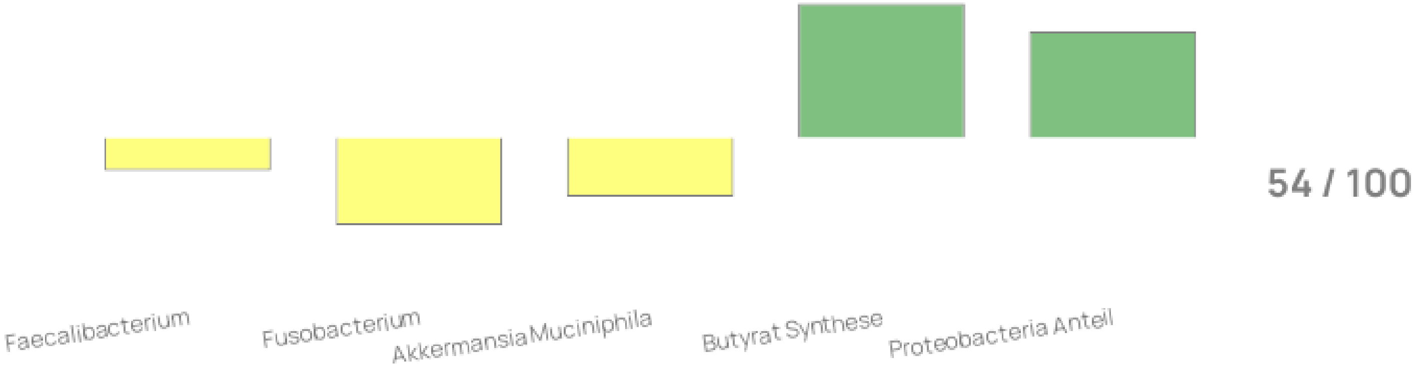
Your gut symbionts show an impressive metabolic performance! A large part of your analyzed functions, such as the production of unsaturated fatty acids, various short-chain fatty acids (SCFAs), vitamin K and B12, as well as the breakdown of fiber and sugars, are in the upper to very high range – a sign of a very active and versatile microbiome that efficiently fulfills many important metabolic tasks. Protein degradation is also well-pronounced. Your histamine metabolism is in the medium range, which may indicate a functional balance between production and degradation.

Function	Description	Score (0 100)
Unsaturated Fatty Acids	Bacteria can produce unsaturated fatty acids such as oleate or vaccenic acid, which influences their own membrane structure and possibly also the fatty acid balance in the intestine.	98
Other S C F A	These include propionate, acetate and lactate. These SCFAs contribute to energy supply, pH regulation and metabolic balance and thus support a balanced intestinal flora.	96
K Production	Bacteria synthesize various menaquinones (vitamin K2). These forms of vitamin K support blood clotting and other physiological processes.	96
B12 Production	Bacteria can synthesize cobalamins (vitamin B12) or activate them from precursors. This means that the microbiome can indirectly contribute to the body's vitamin B12 balance.	97
Fiber Metabolism	Specialized bacteria break down indigestible dietary fibres into short-chain fatty acids (butyrate, propionate, acetate). This process promotes a healthy intestinal barrier and provides energy for the host.	97
Sugar Degradation	Simple sugars (glucose, fructose, lactose, etc.) are used for energy production and metabolic pathways. In this way, the bacteria feed themselves and at the same time provide important metabolic products for the host.	96
Butyrate Synthesis	Here, butyrate molecules are formed from certain precursors (e.g. acetyl-CoA). Butyrate serves as a central energy source for the intestinal epithelial cells and can support a healthy barrier function.	96
Protein Degradation	Proteins and amino acids are fermentatively degraded by some bacteria. In addition to SCFAs, this also produces nitrogen compounds such as ammonia or biogenic amines, which can influence the intestinal environment.	90
Amino Acid Synthesis	Certain microorganisms can produce essential and non-essential amino acids. This contributes to nutrient diversity and the nitrogen cycle in the intestine.	98
Histamine Production	Some bacteria can produce histamine from L-histidine. This can be involved in local signaling in the intestine; however, an excess is often discussed as it could potentially promote intolerances.	75
Histamine Degradation	Other bacteria break down excess histamine to convert it into less active compounds. This reduces a possible imbalance in the intestine.	75
Polysaccharide Degradation	This is where complex carbohydrates such as starch, pectin or hemicellulose are broken down. This produces usable building blocks (e.g. glucose) that can be fermented into SCFAs.	94
Functional Score Pwy	messages.professional-report.functions.functional_score_pwy	92

Dysfunctions

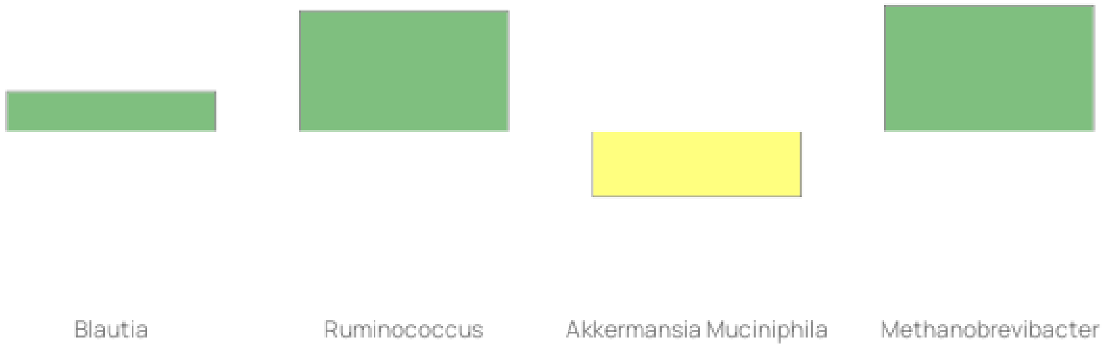
Impaired immune interaction and inflammation

Your gut microbiome constantly interacts with the immune system in the gut (GALT). A balance here is important to avoid misguided immune reactions or chronic inflammation. A positive aspect to highlight is your **very high potential for butyrate synthesis** (Modulation: 96.4, +1), as butyrate has strong anti-inflammatory effects. Furthermore, the proportion of potentially **pro-inflammatory *Proteobacteria* is low** (Modulation: 86.7, -1), which indicates a stable environment with a low LPS load. The risk from *Fusobacterium* also seems low (Modulation 20.0, -1). However, this is contrasted by **significant deficits in important immunomodulatory bacteria**: ***Faecalibacterium*** (Modulation: 38.8, +1), ***Bifidobacterium*** (11.1, +1), ***Lactobacillus*** (too low, Modulation for gut-brain axis: 27.1, +1), and ***Akkermansia muciniphila*** (29.9, +1) are all underrepresented or contribute only slightly. These bacteria are important for the regulation of the immune system. Although you rarely suffer from colds (<1 time/year) and rate your health as good (8/10), these microbial gaps suggest that your immune system could benefit from the targeted promotion of these beneficial bacteria, e.g., by increasing probiotic foods or specific fibers.



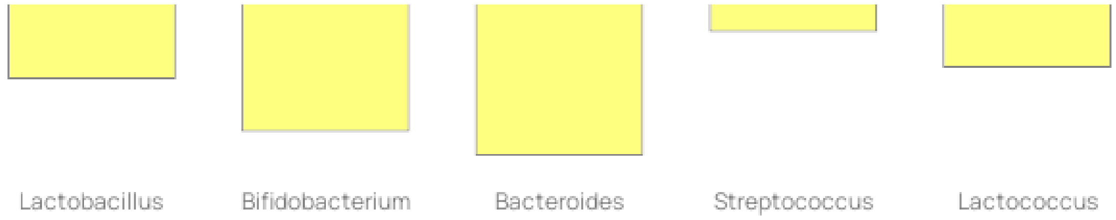
Impaired metabolic potential and energy balance

The microbiome influences how efficiently energy is extracted from food and how metabolic processes run. Your **Firmicutes/Bacteroidetes ratio is elevated at 3.41**. This is sometimes associated with more efficient energy harvesting, which, given your recent weight loss (>5 kg) and normal BMI (24.9), may no longer correspond to your current state but rather reflect an adaptation to previous conditions or your current diet (high in protein from shakes?). Positive for your metabolic profile are the optimal values and contributions of ***Blautia*** (Modulation: 62.4, +1) and ***Ruminococcus*** (86.8, +1). ***Methanobrevibacter*** (88.5, 0) is also present and can increase fermentation efficiency. A major disadvantage, however, is again the **very low level of *Akkermansia muciniphila*** (29.9, +1), which is often associated with more favorable metabolic profiles. The low ***Bacteroides*** levels are also relevant here. Your active lifestyle (3-4x/week high-intensity exercise) and intermittent fasting are positive factors for your goal of 'getting fitter'. Targeted promotion of *Akkermansia* could further optimize your metabolic potential.



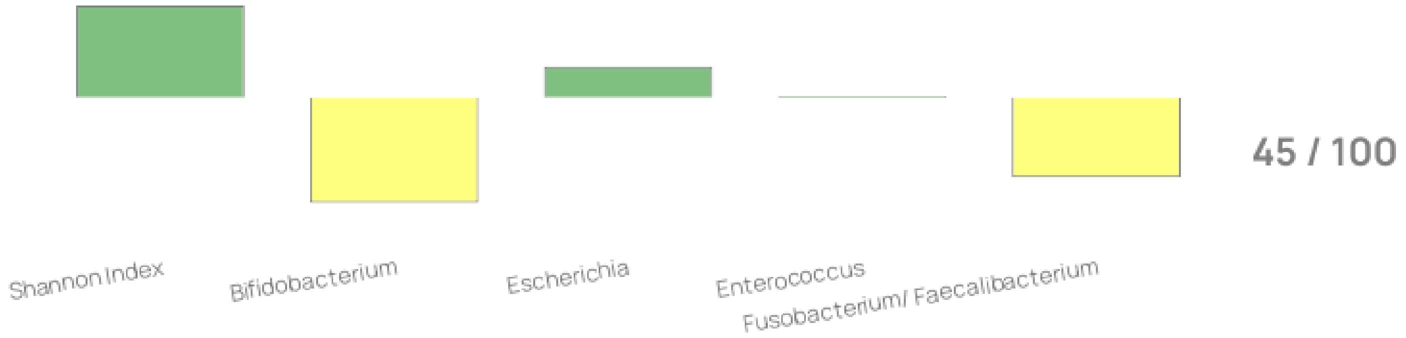
Impaired gut-brain axis

The communication between the gut and brain via the gut-brain axis is strongly influenced by the microbiome. Your **high SCFA production potential**, especially for butyrate, is advantageous here, as butyrate has neuroprotective effects. However, there is a lack of bacteria often referred to as 'psychobiotics': ***Lactobacillus*** **(too low**, Modulation: 27.1, +1) and ***Bifidobacterium*** **(very low**, Modulation: 11.1, +1) are barely present. These groups can produce neuroactive substances like GABA or influence serotonin metabolism. *Bacteroides* (very low, 3.8, +1) and *Streptococcus* (borderline, 41.5, +1) also contribute little. Although you describe your well-being as good (8/10) and your stress level as moderate (4/10), and you feel refreshed after sleep (despite only 5-6 hours), these microbial gaps could be an area where optimization could potentially further support your stress resilience or sleep quality. An increase in probiotic foods or specific prebiotics could be helpful here.



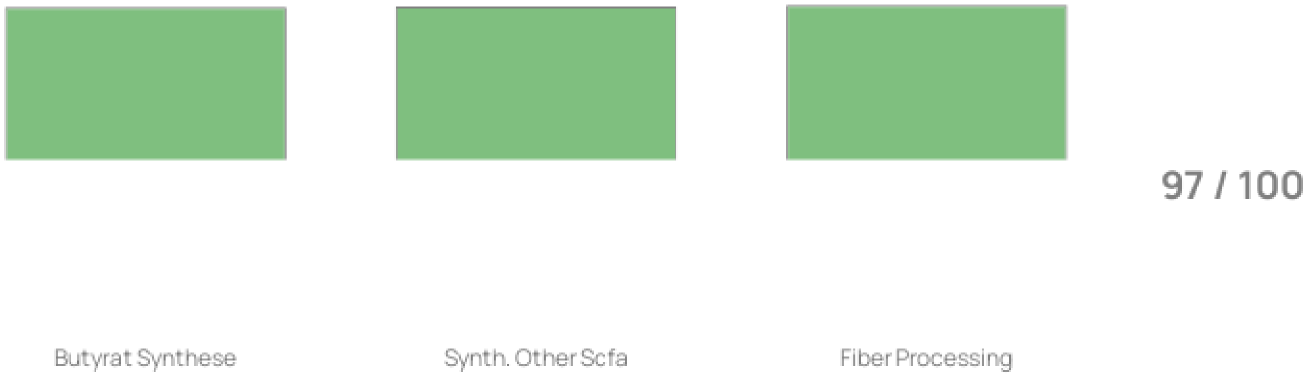
Reduced diversity and microbial stability

High microbial diversity (alpha diversity) is a sign of a healthy and resilient gut ecosystem. Your **Diversity Score of 87 (out of 100)** is **excellent** and indicates a wealth of different bacterial species (Shannon Index Modulation: 83.7, +1). This is an excellent foundation for the stability of your microbiome and its ability to respond to external influences such as dietary changes or your active lifestyle. Potentially problematic bacteria like *Escherichia* (61.2, -1) and *Enterococcus* (50.5, -1) also appear to be well-controlled, which also contributes to stability. However, despite the high overall diversity, there are weaknesses in specific important groups: Your level of **Bifidobacterium is very low** (Modulation: 11.1, +1), which could be influenced by your low intake of probiotic foods. The ratio of Fusobacterium to Faecalibacterium (20.5, -1) also suggests a relative imbalance, even though *Faecalibacterium* was rated as 'optimal' overall. In summary, your diversity is a major asset, but the targeted promotion of specific beneficial bacteria like *Bifidobacterium* could further improve stability.



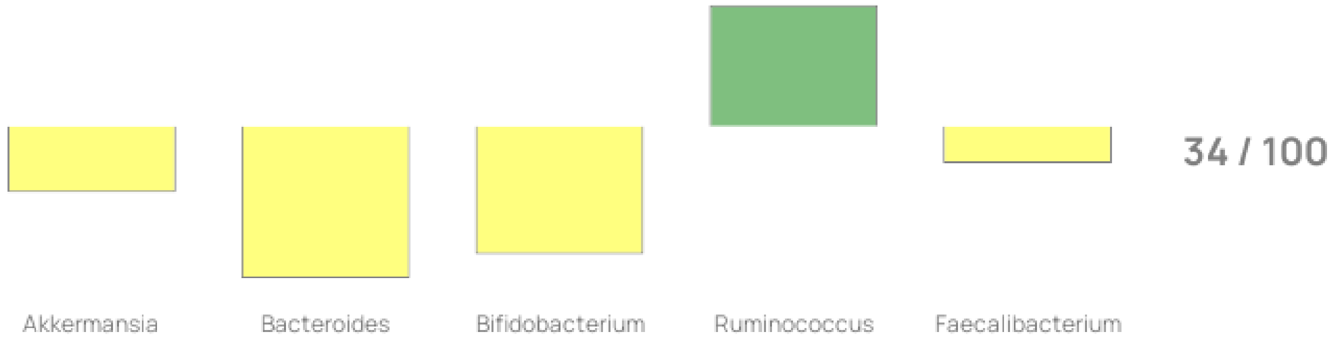
Impaired fiber utilization and SCFA production

Many gut bacteria break down indigestible fibers for you, producing short-chain fatty acids (SCFAs) like butyrate, acetate, and propionate. These are essential for gut health as they nourish gut cells (especially butyrate), strengthen the barrier, and inhibit inflammation. Your results indicate a **very high potential for the production of these important SCFAs**: The modulation values for butyrate synthesis (96.4, +1), general fiber processing (97.0, +1), and the synthesis of other SCFAs (96.5, +1) are excellent. This is likely supported by your diet, which regularly includes whole grains, legumes, and nuts – good sources of fiber. Your intermittent fasting can also contribute positively. However, there is also potential for optimization here: Important fiber degraders like ***Bacteroides* are too low in your sample** (Modulation for gut barrier: 3.8, +1). Furthermore, key butyrate producers like ***Eubacterium* are too low**, and the contribution of ***Faecalibacterium*** (Modulation for immune interaction: 38.8, +1) appears to be rather low despite an 'optimal' total amount. Although your fruit and vegetable consumption is frequent at 5-6 times a week, increasing the daily portion size (currently 1) and the variety of plant-based foods could help to specifically promote these underrepresented groups.



Impaired integrity of the intestinal barrier

An intact gut barrier is crucial to prevent the entry of unwanted substances. Your microbiome shows a mixed picture here. On the positive side, your potential for producing SCFAs, especially butyrate (Modulation for immune function: 96.4, +1), is very high. Butyrate is essential for the energy supply of the intestinal wall cells and strengthens cell junctions. Potentially harmful bacteria such as sulfate-reducers (*Desulfovibrio*, *Bilophila* – both optimal) or *Proteobacteria* (low proportion, Modulation 86.7, -1) also seem to be well-controlled. However, a **significant weakness is the very low level of *Akkermansia muciniphila*** (Modulation: 29.9, +1). This bacterium is crucial for maintaining the protective mucus layer on the intestinal surface. The low levels of ***Bifidobacterium*** (11.1, +1) and ***Bacteroides*** (3.8, +1) also do not contribute optimally to barrier function. Although you report no allergies or intolerances and your well-being is high (8/10), the lack of *Akkermansia* in particular suggests a potential weakness in the gut barrier, strengthening which could contribute to your goal of 'getting healthier'.



Recommendations

Dietary recommendations

Your diet is a crucial factor for your gut microbiome. Your high diversity score (87/100) and good gut balance (71/100) are positive signs, but your microbiome also shows potential for improvement, especially for some beneficial bacteria like *Bifidobacterium*, *Lactobacillus*, and *Akkermansia*, which are currently too low. Your Nutri-Score of 77 is good, but there is still room for improvement to support your goal of 'getting fitter'.

- **Increase plant diversity:** You only eat about one portion of fruit/vegetables daily. This likely correlates with the low levels of some important bacteria that rely on plant fibers. Try to get to **at least 5 portions of vegetables and fruit per day**. Integrate more variety: different types of cabbage, root vegetables, berries, salads, mushrooms. As an omnivore, you can combine this well with your 3-4 meat and 1-2 fish meals per week. This variety feeds a wide range of bacteria and supports your good *Faecalibacterium* levels, while it can help to increase the low *Bifidobacterium* and *Akkermansia* levels.
- **Consistent fiber:** You regularly eat whole grain products, legumes, and nuts – very good! Keep this up and expand on it. Ensure a wide range of fibers (see prebiotic recommendation).
- **Intermittent fasting & protein shakes:** Your intermittent fasting can have positive effects, as often observed in studies. However, what's most important is *what* you eat during your eating windows. Make sure your protein shakes do not displace the intake of whole, fiber-rich foods. They can be a supplement, but the foundation should be a diverse whole-food diet.
- **Sugar & processed foods:** You rarely eat sweets, which is positive. In general, reduce highly processed products to optimally support your microbiome.

A diverse, plant-rich (but not necessarily purely plant-based) diet, similar to the **Mediterranean diet**, is ideal for maintaining diversity and specifically promoting beneficial bacteria, which will bring you closer to your goal of 'becoming healthier and fitter'.

Recommendations for sleep hygiene

The gut-brain axis closely links your microbiome with your sleep. Your microbiome can produce sleep-promoting substances like GABA precursors, and conversely, your sleep affects the composition of your gut flora. You sleep 5-6 hours and feel refreshed afterward, which can vary individually. Your stress level is moderate (4/10) and your well-being is good (8/10).

Even if you feel refreshed, your sleep duration is below the generally recommended 7-9 hours. Longer, high-quality sleep could further stabilize your already good microbiome (high diversity, good balance) and potentially positively influence the currently low levels of bacteria like *Bifidobacterium* (some strains are considered 'psychobiotics').

What this means for you:

- **Maintain regularity:** Keep fixed bedtimes, even on weekends, to support your circadian rhythm.
- **Optimize sleep environment:** Ensure a dark, quiet, and cool sleeping environment.
- **Evening routine:** Avoid heavy meals, caffeine, and intense screen time shortly before sleeping.

- **Potential for more sleep:** Consider whether you can gradually increase your sleep duration towards 7 hours to better leverage the positive interactions between sleep and the microbiome and to support your fitness goals.

Recommendations for physical activity

Your regular and intensive physical activity (3-4 times a week) is excellent and likely contributes to your high microbiome diversity! Exercise generally promotes beneficial bacteria. Your goal of 'getting fitter' is directly supported by exercise, and a healthy microbiome can further optimize this process.

Interestingly, *Akkermansia muciniphila*, a bacterium associated with endurance performance and a healthy gut barrier, and *Veillonella*, which can help in the utilization of lactate, are rather low in your sample. *Eubacterium*, important for energy production from fiber, is also low.

What this means for you:

- **Stay active:** Maintain your exercise routine. It is a crucial pillar for your health and fitness.
- **Focus on recovery:** With high intensity, ensure adequate recovery periods to avoid negative effects such as a potential 'Leaky Gut'. This also supports *Akkermansia*.
- **Nutrition as support:** A diverse, fiber-rich diet (see pre- and probiotic recommendations) is crucial to 'feed' the bacteria that can support your athletic performance (e.g., *Akkermansia*, *Eubacterium*, and potentially *Veillonella*). *Akkermansia* especially loves polyphenols from colorful fruits and vegetables, as well as fiber.
- **Finding balance:** The combination of regular, intensive training and a microbiome-friendly diet is your key to optimally achieving your fitness goals.

Recommendations for the intake of prebiotics

Prebiotics are food for your beneficial gut bacteria. You already regularly eat whole grain products, legumes, and nuts – this is a good foundation and provides important prebiotic fibers like resistant starch and GOS. However, your consumption of fruits and vegetables is low at only one portion daily, which limits the intake of other important prebiotics like inulin (e.g., from onions, garlic, leeks, asparagus, bananas) and pectin (e.g., from apples, carrots, berries).

This is possibly reflected in the low levels of some key bacteria like *Bifidobacterium* (often promoted by inulin and GOS), *Akkermansia* (benefits from certain fibers and polyphenols), and *Eubacterium* (a butyrate producer that likes resistant starch). Although your *Faecalibacterium* is optimal, a broader prebiotic intake could make the entire system more resilient and also support other butyrate producers (*Eubacterium*). *Roseburia*, another butyrate producer, is also high in your sample, which shows that your gut can in principle produce butyrate, but the balance could possibly be optimized with more diverse fibers.

What this means for you:

- **Increase the variety and quantity of plant-based foods:** Focus on eating significantly more different vegetables and fruits (Goal: 5+ portions/day). Consciously integrate sources of:
  - **Inulin:** Onions, garlic, leeks, chicory, Jerusalem artichoke, asparagus.

  - **Pectin:** Apples, berries, carrots, citrus fruits.
  - **Beta-Glucan:** Rolled oats, barley.
  - **Resistant Starch:** Cooked and cooled potatoes/rice/pasta, green bananas, legumes (you already eat these!).
- **Increase slowly:** Since you currently eat few fruits/vegetables, increase the amount gradually over 1-2 weeks to avoid bloating as your microbiome adjusts. This directly supports your goals of 'getting healthier and fitter' through better nutrient supply and an optimized microbiome.

Recommendations for the intake of probiotics

Probiotics are live microorganisms that can specifically influence the microbiome. You took probiotics (BIOMES Alpha Type) 3-6 months ago, but currently rarely consume probiotic or fermented foods. This is consistent with the low levels of typical probiotic genera in your microbiome, especially *Lactobacillus* and *Bifidobacterium*, but *Lactococcus*, *Leuconostoc*, and *Enterococcus* are also low.

These bacteria are important for the production of lactic acid (regulates pH), some B vitamins, and can positively influence the immune system. Their low presence suggests that regular intake through food or targeted supplementation could be beneficial to further optimize your otherwise good microbiome.

What this means for you:

- **Integrate fermented foods daily:** This is the most natural way to consume probiotics. Good options are natural yogurt, kefir, buttermilk, fresh sauerkraut (unpasteurized), kimchi, or miso. Even a small portion daily can help.
- **Regularity is key:** Probiotic bacteria often do not colonize permanently, so continuous intake is important.
- **Consider targeted supplementation:** Given your specifically low levels of *Lactobacillus* and *Bifidobacterium*, a probiotic containing strains of these genera could be useful to specifically raise the levels. However, this should ideally be done in consultation with a doctor or therapist and be seen as a supplement to a microbiome-friendly diet, not a replacement.

Recommendations for postbiotic support

Postbiotics are the valuable metabolic products and cell components produced by your gut bacteria, such as short-chain fatty acids (SCFAs) like butyrate, acetate, and propionate. These substances nourish your intestinal lining, regulate inflammation, and communicate via the gut-brain axis.

Your microbiome shows a mixed picture regarding postbiotic production: *Faecalibacterium*, an important butyrate producer, is present in optimal amounts – that's very good! However, other potentially important producers like *Eubacterium* (butyrate, B vitamins) and *Akkermansia* (SCFAs, mucus layer interaction) as well as *Bifidobacterium* and *Lactobacillus* (lactic acid, acetate, B vitamins) are low. Your high level of *Roseburia* (another butyrate producer) might partially compensate for this, but a broader base would be desirable.

What this means for you:

- **Feed your 'good' bacteria:** The best way to promote the production of postbiotics is to optimally nourish the bacteria responsible for it. This means specifically: Eat a variety of **prebiotics** (fibers from vegetables, fruits, whole grains, legumes – see prebiotic recommendation). This supports both your optimal *Faecalibacterium* and the underrepresented genera.
- **Probiotic foods can help:** Fermented foods (see probiotic recommendation) not only provide the bacteria themselves but often also some postbiotics.
- **Postbiotic supplements (optional):** There are also dietary supplements that directly contain postbiotics like butyrate. Given your mixed picture, this could be worth considering, but the focus should clearly be on optimizing your diet to boost the *body's own* production.

Micronutrient recommendations

Micronutrients (vitamins, minerals) and your gut microbiome strongly influence each other. Your microbiome helps with the absorption of minerals and produces vitamins itself (especially vitamin K and B vitamins). Your intake, in turn, influences which bacteria thrive.

You are already supplementing with Vitamin D, Selenium, and Magnesium, which indicates a conscious approach to micronutrients. However, your low fruit and vegetable consumption could limit the intake of other important vitamins and minerals. At the same time, important vitamin producers in your gut like *Bifidobacterium*, *Lactobacillus*, and *Eubacterium* are low, which potentially restricts the endogenous synthesis of B vitamins and vitamin K.

What this means for you:

- **Diet as the foundation:** Optimize your micronutrient supply primarily through a varied diet. In particular, increasing your fruit and vegetable consumption (Goal: 5+ portions/day) is central here. This not only directly provides micronutrients but also the prebiotics that your beneficial, vitamin-producing bacteria need.
- **Existing supplements:** Continue your current supplementation (Vit D, Se, Mg) as before, presumably it is based on need or recommendation.
- **Caution with overdosing:** Avoid high-dose supplements (especially iron, unless prescribed by a doctor and a deficiency exists), as these can disrupt the microbiome.
- **Support absorption:** A fiber-rich diet promotes the production of SCFAs, which can lower the pH in the gut and improve the absorption of minerals like calcium and magnesium.