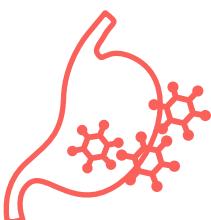


# What Can Clinicians and Patients Expect from Healthpath Gut Health Testing?



The Healthpath Gut Test shows you what's going on in your gut. By looking at imbalances in bacteria, yeasts, parasites and other intestinal health biomarkers, you find out what's contributing to your symptoms. You also receive targeted diet, supplement and lifestyle recommendations to help you take back control.

**The biomarkers provide clinical information on three key areas:**



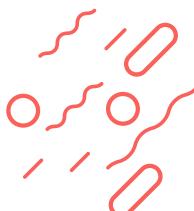
## 1 | Digestion/Absorption

- pH
- Pancreatic elastase
- Zonulin



## 2 | Immune activity/Inflammation

- Calprotectin
- Haemoglobin
- Secretory IgA
- H. Pylori
- Archaea/methanogens
- E. Coli, Lactobacillus species, Enterococcus species
- Akkermansia muciniphila, Faecalibacterium prausnitzii



## 3 | Gut Microbiome/Mycobiome

- Microbiome diversity
- Enterotype
- Dysbiosis index
- Actinobacteria
- Bacteroidetes
- Firmicutes
- Proteobacteria
- Fusobacteria
- Verrucomicrobia
- Hydrogen-sulphide production
- Oxalate-degrading bacteria
- Yeasts/moulds
- Parasites
- Helminths



## Clinical Advantages of The Healthpath Gut Health Test qPCR Technology

This new method of analysis allows for a single sample. This makes the process easier for everyone, and it's particularly helpful for children and those struggling with diarrhoea or constipation.

	Gut Health Test	Advanced Gut Health Test Pro
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	Gut Health Test	Advanced Gut Health Test Pro
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Stool properties		
Colour	✓	✓
Consistency	✓	✓
pH	✓	✓

Diversity:
Your diversity is key, which is why our microbiome analysis covers hundreds of parameters. High bacterial diversity is known to protect against intestinal infections. But low bacterial diversity is common, especially in disease states or after a course of antibiotics. When diversity is low, opportunistic bacteria like pathogens, fungi and viruses can proliferate.
Rather than focusing on individual species, it's more important to investigate how the different bacteria interact. Together, they're responsible for a host of intestinal functions.

Biodiversity		
Diversity	✓	✓
Dysbiosis index	✓	✓

There are four large phyla (groups) of bacteria: Bacteroidetes, Firmicutes, Actinobacteria and Proteobacteria. We also report on two smaller, clinically relevant phyla: Verrucomicrobia and Fusobacteria.
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Bacterial distribution		
Actinobacteria	✓	✓
Bacteroidetes	✓	✓
Firmicutes	✓	✓
Fusobacteria	✓	✓
Proteobacteria	✓	✓
Verrucomicrobia	✓	✓
Other	✓	✓
Firmicutes/ Bacteroidetes Ratio	✓	✓

Enterotype:			
Recent research suggests there are three different types of gut microbiomes, known as 'enterotypes'. Not only do the different enterotypes influence the absorption of minerals, but they also have different metabolic properties.			
Enterotype 1 has high levels of <i>Bacteroides</i> species, which use fat and protein effectively. Enterotype 2 has a strong <i>Prevotella</i> population, which is better at metabolising carbohydrates. Enterotype 3 is the rarest enterotype. It has high levels of <i>Ruminococcus</i> flora, though we don't yet know which macronutrients it prefers.			
Enterotypes aren't affected by a person's age or gender and they remain stable for years. They can be influenced, however, by a long-term change of diet and by taking prebiotics.			
Enterotype	1, 2 or 3	✓	✓

Actinobacteria		
Bifidobacteria	✓	✓
Equol-producing bacteria	✓	✓
Adlercreutzia species		✓
Eggerthella lenta		✓
Slackia species		✓

Bacteroidetes		
Bacteroides	✓	✓
Prevotella	✓	✓
Prevotella copri	✓	✓

	Gut Health Test	Advanced Gut Health Test Pro
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<b>Firmicutes</b>		
Butyrate-producing bacteria	✓	✓
<i>Faecalibacterium prausnitzii</i>	✓	✓
<i>Eubacterium rectale</i>	✓	✓
<i>Eubacterium hallii</i>	✓	✓
<i>Roseburia</i> species	✓	✓
<i>Ruminococcus</i> species	✓	✓
<i>Coprococcus</i>	✓	✓
<i>Butyrivibrio</i> species		✓
<i>Cl. butyricum</i>		✓
Total bacterial count	✓	✓
Clostridia	✓	✓
Clostridia total bacterial count	✓	✓
Clostridia cluster 1	✓	✓
<i>Clostridia histolyticum</i>		✓
<i>Clostridium perfringens</i>		✓
<i>Clostridium sporogenes</i>		✓
Other		✓
<i>Christensenellaceae</i>		✓
<i>Dialister invisus</i>		✓

	Gut Health Test	Advanced Gut Health Test Pro
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<b>Proteobacteria</b>		
Potentially pathogenic bacteria	✓	✓
<i>Haemophilus</i>	✓	✓
<i>Acinetobacter</i>	✓	✓
<i>Escherichia coli</i> biovar	✓	✓
<i>Proteus</i> species	✓	✓
<i>Proteus mirabilis</i>		✓
<i>Klebsiella</i> species	✓	✓
<i>Klebsiella pneumoniae</i>		✓
<i>Enterobacter</i> species	✓	✓
<i>Serratia</i> species	✓	✓
<i>Hafnia</i> species	✓	✓
<i>Morganella</i> species	✓	✓
<i>Campylobacter</i> species		✓
<i>Providencia</i> species		✓
<i>Citrobacter</i> species		✓
Histamine-producing bacteria	✓	✓
H2S production	✓	✓
<b>Hydrogen-sulphide production:</b>		
Bacterial metabolism isn't always a good thing. Some bacteria reduce sulphate to create hydrogen sulphide—a toxic metabolic by-product that can damage the gut lining. The species <i>Bilophila wadsworthii</i> , <i>Desulfomonas pigra</i> and <i>Desulfovibrio piger</i> are thought to be potent hydrogen-sulphide developers.		
Sulphate-reducing bacteria	✓	✓
<i>Desulfovibrio piger</i>		✓
<i>Desulfomonas pigra</i>		✓
<i>Bilophila wadsworthii</i>		✓
Oxalate-degrading bacteria		✓
<i>Oxalobacter formigenes</i>		✓

<b>Fusobacteria</b>		
Fusobacterium species	✓	✓

<b>Verrucomicrobia</b>		
Akkermansia muciniphila	✓	✓

<b>Archaea</b>		
Methanobrevibacter	✓	✓

	Gut Health Test	Advanced Gut Health Test Pro
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Immunogenically effective bacteria		
Escherichia coli	✓	✓
Enterococcus species	✓	✓
Lactobacillus species	✓	✓

Mucin production/mucosal barrier:		
A healthy colon has a protective mucous layer. If this layer is damaged—or only small amounts of mucous are produced—pathogens, pollutants and allergens can come into direct contact with the mucosa. This leads to inflammation.		
The bacterium Akkermansia muciniphila is important because it encourages goblet cells to produce this protective mucous. Parts of this mucous also provide a special type of carbohydrate called oligosaccharides, which feed the bacteria that make gut-healing butyrate. With the right bacteria, it becomes a virtuous circle!		
Mucin production/mucosal barrier		
Akkermansia muciniphila	✓	✓
Faecalibacterium prausnitzii	✓	✓

Yeasts/moulds		
Candida albicans	✓	✓
Candida species	✓	✓
Geotrichum candidum	✓	✓
Moulds	✓	✓

Functional markers		
Calprotectin	✓	✓
Haemoglobin in faeces immunologically	✓	✓
Secretory IgA	✓	✓
Pancreatic elastase	✓	✓
Zonulin		✓

	Gut Health Test	Advanced Gut Health Test Pro
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Parasites:		
The Multiplex Real-time PCR (Multiplex quantitative real-time PCR) is a faster and more effective method for detecting parasites. This new test:		
• provides reliable analysis, even with minimal attack		
• gives no false positives with non-pathogens		
• can be sent out with regular mail		
• gives reliable results in symptom-free patients and also after treatment		
Parasites		
Pathobionts	✓	✓
Blastocystis hominis	✓	✓
Dientamoeba fragilis	✓	✓
Helicobacter AG	✓	✓
Pathogenic intestinal protozoa	✓	✓
Giardia lamblia	✓	✓
Entamoeba histolytica	✓	✓
Cryptosporidium species	✓	✓
Cyclospora cayetanensis	✓	✓
Helminths COMING SOON		✓
Taenia species		✓
Taenia solium		✓
Taenia saginata		✓
Ascaris species		✓
Enterobius vermicularis		✓
Ancylostoma species		✓
Ancylostoma duodenale		✓
Hymenolepsis species		✓
Hymenolepsis nana		✓
Hymenolepsis diminuta		✓
Trichuris trichiura		✓
Necator americanus		✓
Strongyloides species		✓
Strongyloides stercoralis		✓
Microsporidia		✓
Enterocytozoon species		✓
Encephalitozoon species		✓

# GUT HEALTH M.O.T

## EXAMPLE TEST REPORT

Thank you for taking the Gut Health MOT Test. We're delighted to provide your personalised report.

The report is divided into four sections:

### I. Your microbiome

This provides insight into the consistency of your poop, the diversity of your bacteria, your 'enterotype' and your dysbiosis index. These are all important and interconnected components that shed light on the health of your digestive system.

### II. Bacteria, yeasts and/or parasites

This section gives details of organisms that have been detected in your digestive system.

### III. Biomarkers

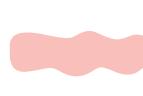
These assess both your ability to break down and absorb your food, and any immune system activity. This helps us understand whether food sensitivities or gut infections are contributing to your symptoms.

### IV. Recommendations

Finally, this section provides your lifestyle and supplement recommendations.

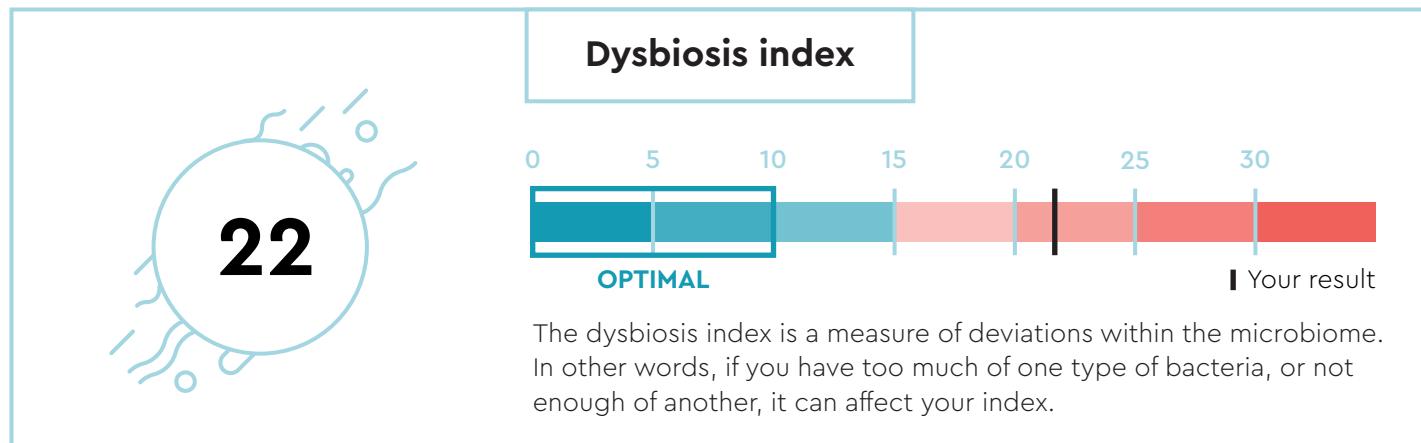
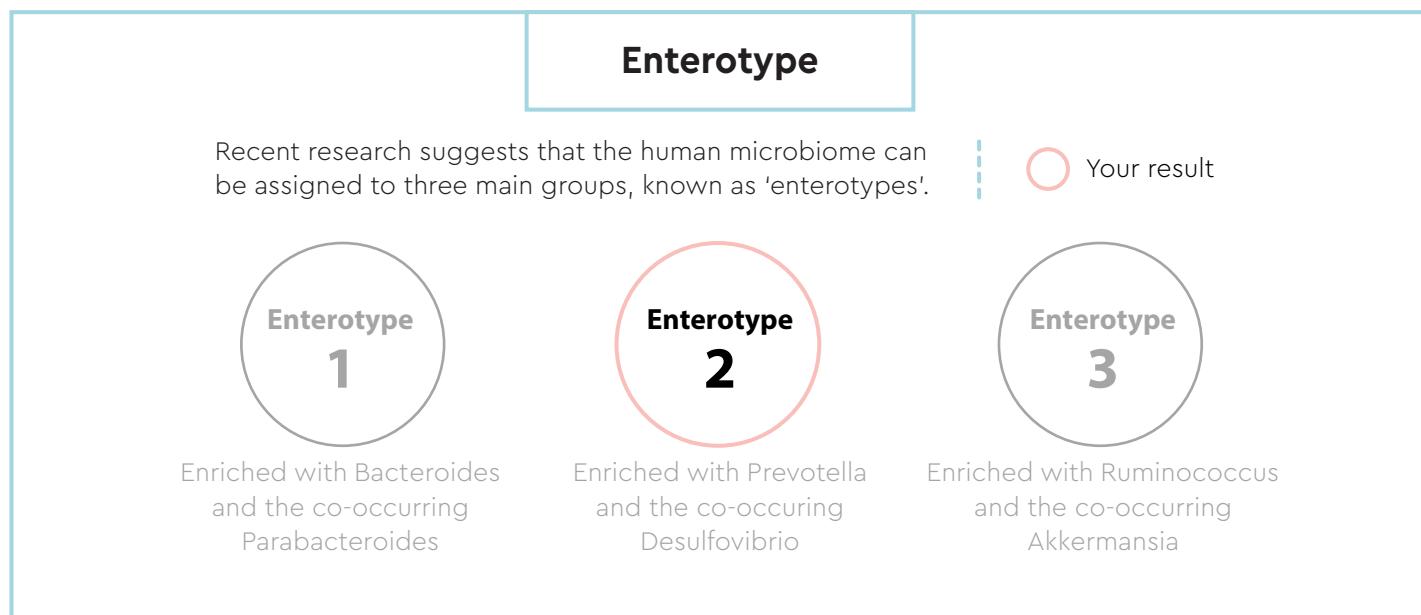
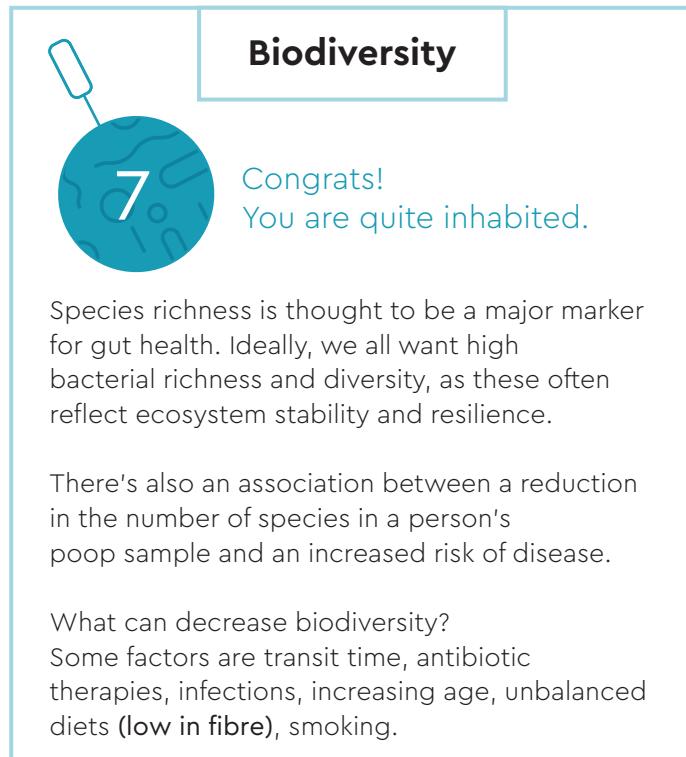
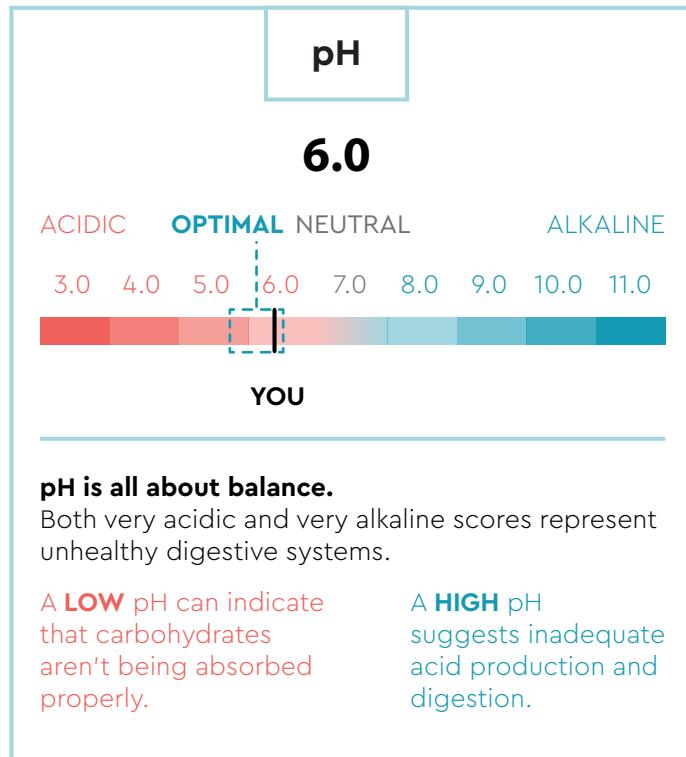
## I. YOUR MICROBIOME

### Consistency

						
TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6	TYPE 7
Separate hard lumps, like nuts (hard to pass)	Sausage shaped but lumpy	Like a sausage but with cracks on its surface	Like a sausage or snake, smooth and soft	Soft blobs with clear-cut edges (passed easily)	Fluffy pieces with ragged edges, a mushy stool.	Watery, no solid pieces. Entirely liquid.
OPTIMAL						

**Decreased water activity**, associated with harder stools and prolonged transit time, is thought to limit bacterial growth by reducing nutrient mobility and enzyme activity.

**Species richness** (the number and types of bacteria in the gut) is known to decline with higher BSS scores, reaching its minimum in those with loose stools (type 7).





## II. BACTERIA, FUNGI AND PARASITES



### Firmicutes

HIGH

**What Is It?** The phylum (family) Firmicutes is a group of Gram-positive bacteria. Out of thousands of bacterial species inhabiting the human gut, the majority belong to two dominant families, the Bacteroidetes and Firmicutes.

**What Is Their Significance?** Firmicutes are a normal inhabitant of the microbiome. In patients with IBD, the number of bacteria belonging to the phyla Firmicutes and Bacteroidetes have been found to be decreased. In obesity, there appears to be a trend towards greater relative abundance of Firmicutes. It is worth noting though that several species within the phylum Firmicutes ferment complex carbohydrates in the colon and produce butyrate, which has potential barrier-protecting functions and are thought to have a direct anti-inflammatory effect in the gut, meaning it helps prevent leaky gut.

### Verrucomicrobia

LOW

**What is it?** A genus (group) of bacteria. They're normal residents of a healthy microbiome.

**Why's it significant?** Akkermansia is the sole intestinal representative of the verrucomicrobia in human stools. Verrucomicrobia are generally found to be higher in vegetarians rather than omnivores.

### Firmicutes/Bacteroidetes

HIGH

**What Is It?** This is a ratio between the two main phyla/families of bacteria, firmicutes and bacteriodetes

**What Is The Significance Of The Ratio?:** Firmicutes and bacteriodetes make up to 90% of our microbiome. The ratio has been of interest to researchers recently as obesity has been characterised by an altered intestinal Firmicutes:Bacteroidetes ratio, with greater relative abundance of Firmicutes, although this hasn't always been found. One study in children found a correlation between elevated firmicutes and inflammation in the body. Also IBD patients tend to have less bacterial diversity as well as lower numbers of Firmicutes - which together may contribute to reduced concentrations of microbial-derived butyrate. Butyrate is thought to have a direct anti-inflammatory effect in the gut.

## II. BACTERIA, FUNGI AND PARASITES

**Bacteroides****LOW**

**What is it?** A genus (group) of bacteria that makes up a large portion of a normal gut microbiome.

**Why's it significant?** Bacteroides are immune-modulating bacteria. They're believed to be involved in microbial balance, the integrity of the gut wall and neuro-immune health. They're more prevalent in people who consume animal-based diets. People with low levels of bacteroides may be more likely to experience gut inflammation.

**Faecalibacterium prausnitzii****LOW**

**What is it?** A species of bacteria. It's one of the most plentiful types of bacteria in the gut microbiome.

**Why's it significant?** Appropriate levels of Facecalibacterium prausnitzii (*F. prausnitzii*) are generally seen as a marker of health, once when its population is altered (decreased), inflammatory processes are favored. It's believed to be a key producer of butyrate, which is a short-chain fatty acid that helps to reduce inflammation and heal the gut. Levels of *F. prausnitzii* can be lower in patients suffering from intestinal and metabolic disorders such as inflammatory bowel diseases (IBD), irritable bowel syndrome (IBS), colorectal cancer (CRC), obesity and coeliac disease.

**Eubacterium rectale****LOW**

**What is it?** A species of bacteria. It's commonly found in the gut microbiome.

**Why's it significant?** *Eubacterium rectale* (*E. rectale*) produces butyrate, a short-chain fatty acid that helps to reduce inflammation and heal the gut. It makes sense that *E. rectale* has been found to be lower in people who suffer from ulcerative colitis. On the other hand, certain subspecies of *E. rectale* have also been associated with lower gut diversity, higher BMI and high blood fasting insulin levels.

## III. BIOMARKERS

**Eubacterium hallii****LOW**

**What is it?** A species of bacteria. It makes up 2–3% of the community found in human faeces (poop).

**Why's it significant?** *Eubacterium hallii* (*E. hallii*) is considered an important indicator of metabolic balance within the intestines. It produces butyrate, a short-chain fatty acid that helps to reduce inflammation and heal the gut. Pre-clinical trials show that it may help inflammatory and metabolic disorders, while animal studies show it may improve insulin sensitivity. *E. hallii* also helps to produce vitamin B12, though it's unlikely much of this is absorbed by the body.

**Roseburia spp.****LOW**

**What is it?** Several species of bacteria. They're part of a normal gut microbiome.

**Why's it significant?** Roseburia species produce butyrate, a short-chain fatty acid that helps to reduce inflammation and heal the gut. Lower levels of Roseburia species have been observed in people suffering from inflammatory bowel disease, including ulcerative colitis. Along with *Faecalibacterium prausnitzii*, low levels of Roseburia species have also been seen in worsening kidney disease. Higher levels of Roseburia species have been associated with weight loss and improved glucose tolerance.

**Clostridia total bacterial count****HIGH**

**What is it?** A class of bacteria. They're part of a normal gut microbiome.

**Why's it significant?** Clostridia can be both friendly and unfriendly. Friendly types help to maintain overall gut function by supporting the immune system and producing butyrate, a short chain fatty acid that provides fuel for intestinal cells (as well as reducing inflammation). The not-so-friendly types of Clostridia (which include *Clostridium botulinum*, *Clostridium tetani* and *Clostridium difficile*) have been associated with various conditions, from diarrhoea to autism.



## II. BACTERIA, FUNGI AND PARASITES



### **Akkermansia muciniphila**

**LOW**

**What is it?** One of the most plentiful single species in the gut microbiome. It makes up 0.5–5% of the total bacteria.

**Why's it significant?** Higher levels of Akkermansia muciniphila (*A. muciniphila*) have been associated with greater metabolic health. Lower *A. muciniphila*, on the other hand, has been associated with obesity, diabetes, cardiometabolic diseases and low-grade inflammation. *A. muciniphila* breaks down mucins (a part of mucus in the intestines) to produce short-chain fatty acids. These short-chain fatty acids help to feed the host (that's you!) as well as other bacteria in the intestines.

### **Sulphate reducing bacteria**

**HIGH**

**What is it?** Certain bacteria in the colon use the compound sulphate (found in lots of foods) to produce hydrogen sulphide. These bacteria include:

- *Bilophila wadsworthii*
- *Desulfomonas pigra*
- *Desulfovibrio piger*

**Why's it significant?** Although sulfate/sulfite-reducing bacteria are positively associated with inflammation, both pro- and anti-inflammatory signaling have been attributed to hydrogen sulphide.

### **Methanobrevibacter**

**HIGH**

**What is it?** A type of archaea. Archaea constitute the domain of single-celled microorganisms, and are thus slightly different to bacteria. They are prokaryotes, meaning they have no cell nucleus.

**Why's it significant?** Methanogens such as *Methanobrevibacter* spp. belong to the domain of the archaea and are not bacteria. In humans, a stable colonisation is found in the gastrointestinal tract and oral cavity, in the vagina and on the skin. Methanogens are able to convert hydrogen to methane, hence are often referred to as methanogens. The frequency of methanogens is related to various diseases. Increased methanogenesis can reduce intestinal motility and promote constipation-type irritable bowel syndrome. Increased methanogenesis is also reported for Diverticulosis patients.

### III. RECOMMENDATIONS

**Based on your results, we recommend the following:**

 **Follow the modified Healthpath plate for a maximum of 8 weeks.**

This encourages a way of eating that's based on whole, natural and nourishing foods. What's more, many of the foods aren't easily fermented by bacteria.

[READ MORE](#)

 **Follow the Fundamentals of Health**

Activity, Stress, Sleeping and Nutritional levels. They come with your test results. These all affect the health of the gut and beyond. In order to fully benefit from a personalised programme, it's therefore important that we pay attention to these foundational habits.

[READ MORE](#)


Fiona Lawson | 05 Apr 2019 | Dysbiosis, SIBO

**Everything you need to know about supplements**

 **Take the following supplements:**

We have partnered with Amrita Nutrition to provide professional-grade supplements. You can find the supplements on our site here.

Targeted supplementation can be powerful, but it's important to realise that it's just one part of the puzzle. Supplements are designed to complement (not replace) sound dietary and lifestyle habits. For more information on how to use supplements, read our blog post.

[READ MORE](#)

PRODUCT NAME	DOSE	HOW TO TAKE	DURATION	BUY
Saccharomyces Boulardii by Seeking Health	1-2 capsules	Take before bed.	8-12 weeks	
Culturelle	1-2 capsules	Take before bed.	8-12 weeks	
Probiota Immune by Seeking Health	1 capsule	Take 1 with or without food.	8-12 weeks	
Oil Of Oregano by Seeking Health	1-2 capsules	Starting Dose: 1 capsule twice per day with food Max Dose: 1 capsule four times per day	8-12 weeks	
Melia Supreme by Supreme Nutrition	1 capsule	1 capsule three times per day with food	8-12 weeks	
Digestive Enzymes by Pure Encapsulations	1-2 capsules	1 -2 capsules with each meal	8-12 weeks	



*Disclaimer: if you're pregnant, breastfeeding, taking medications or suffering from a disease or medical condition, please consult your doctor before following these recommendations.*

## ✓ After treatment:

It's important that you don't stay on an elimination diet for long periods of time. After a maximum of 8 weeks on the modified Healthpath plate, switch to the Healthpath plate.

It's also important to re-test as in our experience, sometimes you can be successful in getting rid of the bacterial overgrowth, or infection, but still have symptoms. In this case, it's best to investigate further. If the re-test is still positive, a change of strategy may be recommended. You could consider re-testing in approximately 12 weeks.

If you continue to struggle with your symptoms after your treatment period, we suggest getting some 1-2-1 support.

## ✓ Additional recommendations:

TESTS	CONSULTATIONS
No additional tests required at this time.  <a class="button" href="#">SEE TESTS</a>	I don't feel at this stage a consultation is required. However, if you would like to organise a consultation to discuss your results, or/and your programme in more detail, you can book this by clicking below.  <a class="button" href="#">BOOK CONSULTATION</a>



### Community Forum

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### Health Programme

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