

	Low <i>is not an ideal level</i> ❌	Avg <i>is about continuing progress</i> ✅	High <i>is a great level</i> ✅	
DIVERSITY Shannon Diversity The Shannon Diversity index reflects the number and amount of different species within a microbiome. Average to high diversity is associated with good health. 🖱️ Microbial Diversity	Low diversity means the microbiome has a reduced number of species or is dominated by certain species. A varied diet rich in plant-based foods can help increase microbiome diversity.	The higher the diversity the better. A varied diet rich in plant-based foods can help increase microbiome diversity.	High diversity reflects a resilient microbiome with high functional redundancy and resistance to pathogens. Ensure diet quality to maintain high diversity.	
	COMPOSITION Human DNA A high amount (greater than 4%) of human DNA may indicate gut inflammation or sample contamination. 🖱️ Sample Composition	Low or ND <i>is a good level</i> ✅ This is a good level and no action is needed. The healthy group average is 0.27% human DNA.	1-4% <i>may require action</i> ❌ If levels are above 1%, this may be an indication of mild inflammation. If there are other GI symptoms, consider further investigation.	>4% <i>may require action</i> ❌ If levels are above 4%, this may be an indicator of inflammation or blood in the stool. Should this result not be expected, medical investigation is warranted.
DIGESTION POTENTIAL Fibre Digestion Potential Fibre is the preferred energy source of gut bacteria, who break it down into beneficial short chain fatty acids. 🖱️ Microbiome Digestion Potential	Low <i>is not an ideal level</i> ❌ The microbiome has a low ability to convert fibre into beneficial compounds. Increase the amount and diversity of prebiotic fibre in the diet, using the food suggestions tool..	Avg <i>is a good level</i> ✅ The microbiome has sufficient ability to convert fibre into beneficial compounds. Ensure the diet contains sufficient prebiotic fibre to utilise this important gut microbiome function.	High <i>is a great level</i> ✅ The microbiome has a high potential to convert fibre into beneficial compounds. Ensure the diet contains sufficient prebiotic fibres to utilise this important gut microbiome function..	
	Protein Digestion Potential When adequate fibre does not reach our distal colon, species that can break down protein tend to increase in abundance along with the potential to produce pro-inflammatory metabolites. 🖱️ Microbiome Digestion Potential	Low <i>is a good level</i> ✅ The microbiome has a low potential to digest protein. Ensure the diet contains a high fibre to protein ratio to maintain this beneficial balance of bacteria. Diverse sources of fibre in the diet could help prevent high levels of protein degrading bacteria from growing.	Avg <i>is a good level</i> ✅ The microbiome has an average potential to digest protein. To prevent the production of pro-inflammatory metabolites, check the fibre to protein ratio in the diet. Ensure the diet contains sufficient slowly fermented fibres, such as resistant starch, that will make it to the lower colon.	High <i>is not an ideal level</i> ❌ The microbiome has a high potential to digest protein. Balance the diet to prevent excessive protein intake (>25% energy). Ensure adequate intake of slowly fermented fibres such as resistant starch that will make it to the lower colon.
	Mucin Digestion Potential Some bacteria can use the mucus lining our intestines as a fuel source. Mucus turnover is a normal part of our gut function, however an excess of bacteria that eat mucus can result in a thinning of the mucus layer and activation of the immune system.. 🖱️ Microbiome Digestion Potential	Low <i>may require action</i> — The microbiome has a low potential to digest mucin. Ensure the diet contains sufficient prebiotic fibre to balance the levels of mucin degrading bacteria in the gut.	Avg <i>is a good level</i> ✅ The microbiome has an average potential to digest mucin. Ensure the diet contains sufficient prebiotic fibre to prevent high levels of mucin degrading bacteria from growing.	High <i>is not an ideal level</i> ❌ The microbiome has a high potential to digest mucin. Increase the amount and diversity of prebiotic fibre in the diet, using the food suggestion tool. Ensure the diet contains sufficient slowly fermented fibres, such as resistant starch, that will make it to the lower colon.
	METABOLITES NEUROENDOCRINE IPA 3-indolepropionic acid (IPA) is a strong antioxidant produced by some gut bacteria that can protect the nervous system from damage and may help prevent type 2 diabetes, suppress inflammation and maintain the gut barrier. 🖱️ Microbial Metabolites > Neuroendocrine	Low <i>is not an ideal level</i> ❌ The gut microbiome has low potential to produce IPA. Research suggests foods rich in ellagic acid (e.g. chestnuts, and ellagic acid enriched pomegranate juice), as well as wholegrain wheat and rye may help support IPA production.	Avg <i>is a good level</i> ✅ The gut microbiome has the potential to produce IPA. Research suggests foods rich in ellagic acid (e.g. chestnuts, and ellagic acid enriched pomegranate juice), as well as wholegrain wheat and rye may help support IPA production.	High <i>is a good level</i> ✅ The gut microbiome has a high potential to produce IPA. To maintain this important function ensure diet contain sufficient intake of wholegrains.
Histamine Histamine plays an important role in immune regulation, gut function and the nervous system. Gut microbes that can produce histamine have been observed at increased levels in patients with asthma. 🖱️ Microbial Metabolites > Neuroendocrine	Low <i>is a good level</i> ✅ The gut microbiome is unlikely to be contributing to the body's overall histamine load.	Avg <i>may require action</i> ❌ The gut microbiome may be contributing to the body's overall histamine load. Consider this result in the context of the symptoms presented.	High <i>may require action</i> ❌ The gut microbiome may be contributing to the body's overall histamine load. Consider this result in the context of the symptoms presented.	
METABOLITES SHORT CHAIN FATTY ACIDS Butyrate Butyrate is the main fuel source for gut cells, helps keep the gut barrier intact, suppresses inflammation, helps control appetite, and promotes the production of serotonin in the gut. 🖱️ Microbial Metabolites > SCFA	Low <i>is not an ideal level</i> ❌ The microbiome has a low potential to make butyrate. Prioritise the consumption of foods containing resistant starch using the food suggestions tool to maximise butyrate production.	Avg <i>is about continuing progress</i> ✅ The microbiome has the potential to produce butyrate. Ensure diet includes foods high in resistant starch to utilise this important function.	High <i>is a good level</i> ✅ The microbiome has the potential to produce butyrate. Ensure diet includes foods high in resistant starch to utilise this important function.	
	Propionate Propionate helps maintain blood glucose levels, can reduce inflammation, helps control appetite and promotes the production of serotonin from the gut. 🖱️ Dig-deeper tab > Microbial Metabolites > SCFA	Low <i>is not an ideal level</i> ❌ The microbiome has a low potential to make propionate. Consuming foods rich in beta glucans, such as oats and barley, can help promote propionate production.	Avg <i>is about continuing progress</i> ✅ The microbiome has the potential to produce propionate. Consuming foods rich in beta glucans, such as oats and barley, can help maintain propionate production.	High <i>is a good level</i> ✅ The microbiome has a high potential to produce propionate. Including foods rich in beta glucans, such as oats and barley, will ensure this important function is utilised.
	Acetate Acetate is the most abundant short chain fatty acid produced in the gut. It plays an important role in fat and glucose metabolism and the immune system. 🖱️ Microbial Metabolites > SCFA	Low <i>is not an ideal level</i> ❌ The microbiome has a low potential to make acetate. Prioritise the consumption of pectin rich foods, using the food suggestion tool, to maximise acetate production.	Avg <i>is about continuing progress</i> ✅ The microbiome has the potential to make acetate. Prioritise the consumption of pectin rich foods, using the food suggestion tool, to make use of this potential.	High <i>is a good level</i> ✅ The microbiome has a high potential to make acetate. Prioritise the consumption of pectin rich foods, using the food suggestion tool, to make use of this potential.
	Lactate Lactate/lactic acid can reduce inflammation, help maintain the gut barrier, and reduce colonisation by pathogens by lowering the pH in the gut. 🖱️ Microbial Metabolites > SCFA	Low <i>is not an ideal level</i> ❌ The microbiome has a low potential to produce lactate. Increase the diversity of prebiotic fibre in the diet, using the food suggestions tool to maximise lactate production.	Avg <i>is about continuing progress</i> ✅ The microbiome has the potential to produce lactate. Include diverse sources of fibre to utilise this important gut microbiome function.	High <i>is a good level</i> ✅ The microbiome has a high potential to produce lactate. Ensure the diet includes diverse sources of fibre to make use of this potential.

	Low <i>is a typical level</i> ✓	Avg <i>is a good level</i> ✓	High <i>is not an ideal level</i> ✗
Trimethylamine (TMA) Production TMA is a compound produced by some microbes that is linked to cardiometabolic diseases. TMA produced in the gut is transported to the liver, where it can be converted to TMAO. A high level of TMAO in the blood plasma is strongly associated with cardiometabolic disease. 📄 Microbial Metabolites > Health indicator	The microbiome has a low potential to produce TMA which means the microbiome is not contributing to blood TMAO levels.	The microbiome has the potential to produce TMA. The indoles I3C and DIM, found in cruciferous vegetables, can inhibit the conversion of TMA to TMAO. Excessive red meat consumption is associated with increased TMAO levels. Ensure red meat intake is not excessive while ensuring iron, zinc and vitamin B12 intake.	The microbiome has a high potential to produce TMA. The indoles I3C and DIM, found in cruciferous vegetables, can inhibit the conversion of TMA to TMAO. Excessive red meat consumption is associated with increased TMAO levels. Ensure red meat intake is not excessive while ensuring iron, zinc and vitamin B12 intake.
Ammonia Excess ammonia production has been observed in individuals with impaired gut barrier function and inflammation of the gut. 📄 Microbial Metabolites > Health indicator	The microbiome has a low potential for producing ammonia. This is a good level and no action is needed.	The microbiome has the potential to produce ammonia. To prevent excess ammonia production, balance the diet to prevent excessive protein intake (>25% energy) and ensure that protein intake is balanced with sufficient fibre intake (fibre to protein ratio).	The microbiome has a high potential to produce ammonia. To prevent excess ammonia production, balance the diet to prevent excessive protein intake (>25% energy) and ensure that protein intake is balanced with sufficient fibre intake (fibre to protein ratio).
B. fragilis toxin Bacteroides fragilis toxin can cause symptoms such as diarrhea in some people. 📄 Microbial Metabolites > Health indicator	This is a good level and no action is needed.	If on the higher end this could contribute to GI symptoms including diarrhea. If all other causes of GI symptoms have been ruled out, consider further medical investigation.	This could contribute to GI symptoms including diarrhea. If all other causes of GI symptoms have been ruled out, consider medical investigation.
Beta-glucuronidase Some bacteria use beta-glucuronidase to get energy from compounds the body has deactivated (e.g. drugs and hormones), thus re-activating the compound and possibly increasing sensitivity to specific medicines/hormones. 📄 Microbial Metabolites > Health indicator	This is neutral level and no action is needed. There is emerging evidence to show some beta-glucuronidase activity may have a beneficial role.	The gut microbiome may be contributing to increased sensitivity to specific medicines/hormones. If on the higher end, consider incorporating foods containing glucomannan to inhibit this function.	The gut microbiome may be contributing to increased sensitivity to specific medicines/hormones. Incorporate foods containing glucomannan to inhibit this function.
Hydrogen sulphide Hydrogen sulphide can be protective of the gut at low levels, however, at high levels it can inhibit mitochondrial function and disrupt the gut barrier. 📄 Microbial Metabolites > Health indicator	The gut microbiome has a low potential to produce hydrogen sulphide. No action is needed.	The microbiome has the potential to convert excess sulphur containing amino acids into hydrogen sulphide. To prevent elevated production of hydrogen sulphide, ensure intake of the amino acids methionine and cysteine is not excessive. Rich sources include eggs, cheese, fish, red meat and poultry. Resistant starch and FOS have been shown to suppress hydrogen sulphide production.	The microbiome has a high potential to convert excess sulphur containing amino acids into hydrogen sulphide. To prevent elevated production of hydrogen sulphide, ensure intake of the amino acids methionine and cysteine is not excessive. Rich sources include eggs, cheese, fish, red meat and poultry. Resistant starch and FOS have been shown to suppress hydrogen sulphide production.
Hexa-LPS Hexa-LPS is an inflammatory compound produced by some species of bacteria within the Proteobacteria phylum. Diets high in saturated fat allow hexa-LPS to cross the gut barrier and enter the bloodstream and may contribute to metabolic and inflammatory conditions. 📄 Microbial Metabolites > Health indicator	This is a good level and no action is needed. Ensure the diet contains diverse sources of prebiotic fibres to prevent the growth of hexa-LPS producing Proteobacteria.	The microbiome has the potential to produce hexa-LPS. To prevent hexa-LPS crossing the gut barrier ensure fat quality by limiting saturated fat and maximizing omega 3 intake. Ensuring adequate butyrate production is another important strategy for promoting gut barrier function.	The microbiome has the potential to produce hexa-LPS. To prevent hexa-LPS crossing the gut barrier ensure fat quality by limiting saturated fat and maximizing omega 3 intake. Ensuring adequate butyrate production is another important strategy for promoting gut barrier function.
BCAA High levels of microbial BCAAs have been strongly associated with metabolic diseases. Muscle plays an important role in regulating BCAA levels and maintaining muscle mass through regular physical activity can help support metabolic balance. 📄 Microbial Metabolites > Health indicator	No action is needed. Low levels of BCAAs may have beneficial effects on the gut-associated immune system.	The microbiome has the potential to contribute to BCAA levels in the blood. Blood BCAA levels are associated with western diet and lifestyle. If on the higher end, increase levels of physical activity to maximise muscle mass and help regulate BCAA levels.	The microbiome has a high potential to contribute to BCAA levels in the blood. Blood BCAA levels are associated with western diet and lifestyle. Increase levels of physical activity to maximise muscle mass and help regulate BCAA levels.
Oxalate consumption People who suffer from repeated unexplained kidney stones tend to have a reduced potential for oxalate degradation in their microbiome, compared to non-stone formers. 📄 Microbial Metabolites > Health indicator	The gut microbiome is not contributing to the breakdown of oxalates. If patient suffers from repeated unexplained kidney stones, consider trialling a reduced oxalate diet.	The microbiome has the capacity to break down oxalates and this may help counter the development of calcium oxalate kidney stones.	The microbiome has a high capacity to break down oxalates and this may help counter the development of calcium oxalate kidney stones.
Methane production The gas methane can be produced by some species of the gut microbiome, primarily through the reduction of carbon dioxide and hydrogen. 📄 Microbial Metabolites > Health indicator	The gut microbiome has a low potential to produce methane.	The gut microbiome has the potential to produce methane. Elevated levels of methane production have been associated with increased intestinal transit time and constipation. Insoluble fibres can help increase faecal bulk and reduce intestinal transit time.	The gut microbiome has the potential to produce methane. Elevated levels of methane production have been associated with increased intestinal transit time and constipation. Insoluble fibres can help increase faecal bulk and reduce intestinal transit time.
Folate Folate plays an important role in cell replication and repair. 📄 Microbial Metabolites > Essential Vitamins	The gut microbiome is not contributing folate to the body, so ensure adequate folate is obtained from the diet.	The gut microbiome is likely contributing a portion of the body's daily folate requirement.	The gut microbiome is likely contributing a portion of the body's daily folate requirement.

METABOLITES HEALTH INDICATOR

VITAMINS