

Guide Your Gut



**Your handbook to a happy gut
through simple diet and
lifestyle changes**

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Get to know the gut

Your gut keeps your whole body running smoothly. It's easy to take it for granted, but it is actually involved in many important processes around the body. It's home to the largest part of your immune system and communicates with the rest of your body including the brain (which talks back to the gut via two-way communication).



What is the gut?

- The gut refers to your whole gastrointestinal tract - from the mouth to the anus.
- The gut is where the digestion (and absorption) of food and nutrients occurs.
- Each section of the gut is perfectly engineered for its own part in processing food.



The mouth

This is where your body begins to break down food as it gets chewed and mixed with saliva. Saliva contains the enzyme 'amylase' which breaks down larger food molecules into smaller ones which your body can absorb easily.



The oesophagus

Food is pushed down the oesophagus, which connects the mouth to the stomach, by muscular contractions known as peristalsis. These rhythmic contractions travel along your gut to keep food moving.



The stomach

Food remains in the stomach for up to 4 hours. Here, it is mixed with gastric juices containing enzymes (which break down proteins) and acid (which kills most of the bacteria). The rest is passed into the small intestine.



The small intestine

Your "small" intestine consists of 10ft of tubing with folds on the inner surface, known as villi and micro-villi, which increase the surface area for nutrients from broken down carbohydrates, fats, and proteins to be absorbed.



The large intestine (AKA: the colon)

This is where trillions of gut bacteria break down some of the undigested dietary fibre. This is also where your faeces get compacted, and where water, minerals and some remaining nutrients are absorbed into the bloodstream.

What is the gut microbiota?

This refers to the unique community of over 100 trillion bacteria that inhabit your gastrointestinal tract which are vital for your health. The gut microbiota helps to keep your natural defences strong, aids in preventing digestive problems and contributes to your overall health and wellbeing.



Functions of the gut microbiota

Gut bacteria do all sorts to help promote your overall health. From supporting immunity to breaking down the food that we eat, your gut bacteria play many important roles in your day to day health maintenance.



Maintenance of the immune system

Your gut health and your immune system are closely linked as 70% of the immune system located in the gut. Consequently, changes to one can impact the other. Your gut microbiota interact with immune cells to regulate immune responses.



Fermentation of fibres

Gut bacteria break down plant fibres found in foods like fruits and veggies. This process creates energy-boosting short-chain fatty acids, enhances nutrient absorption, and supports a healthy gut and immune system.



Absorption and synthesis of key nutrients

The gut can be thought of as your body's nutrient factory. The gut microbiota assists with the breakdown, and utilisation, of key nutrients. This enables the body to produce essential nutrients and metabolites such as short-chain fatty acids, amino acids and key vitamins (e.g., B vitamins and vitamin K) required for various bodily functions.



Control of undesirable bacteria

The gut microbiota is made up of 3 types of bacteria: the good (symbionts), the bad (pathobionts) and the ugly (commensals). The 'ugly' bacteria play an important role in maintaining the balance of the gut microbiota. Just as weeds compete for space and nutrients in a garden, depriving healthy plants from flourishing, 'bad' bacteria can act similarly in the gut. Your 'good' and 'ugly' bacteria aim to outcompete the 'bad' bacteria to maintain balance in the gut microbiota.



Communication with the rest of the body

The gut can be thought of as a social butterfly as it talks to lots of organs and systems in the body including the brain, skin, liver and the immune system. The gut-brain connection is particularly important as it is a two-way communication pathway meaning that caring for your mental health can help your gut health, and vice versa.

Gut microbiota diversity

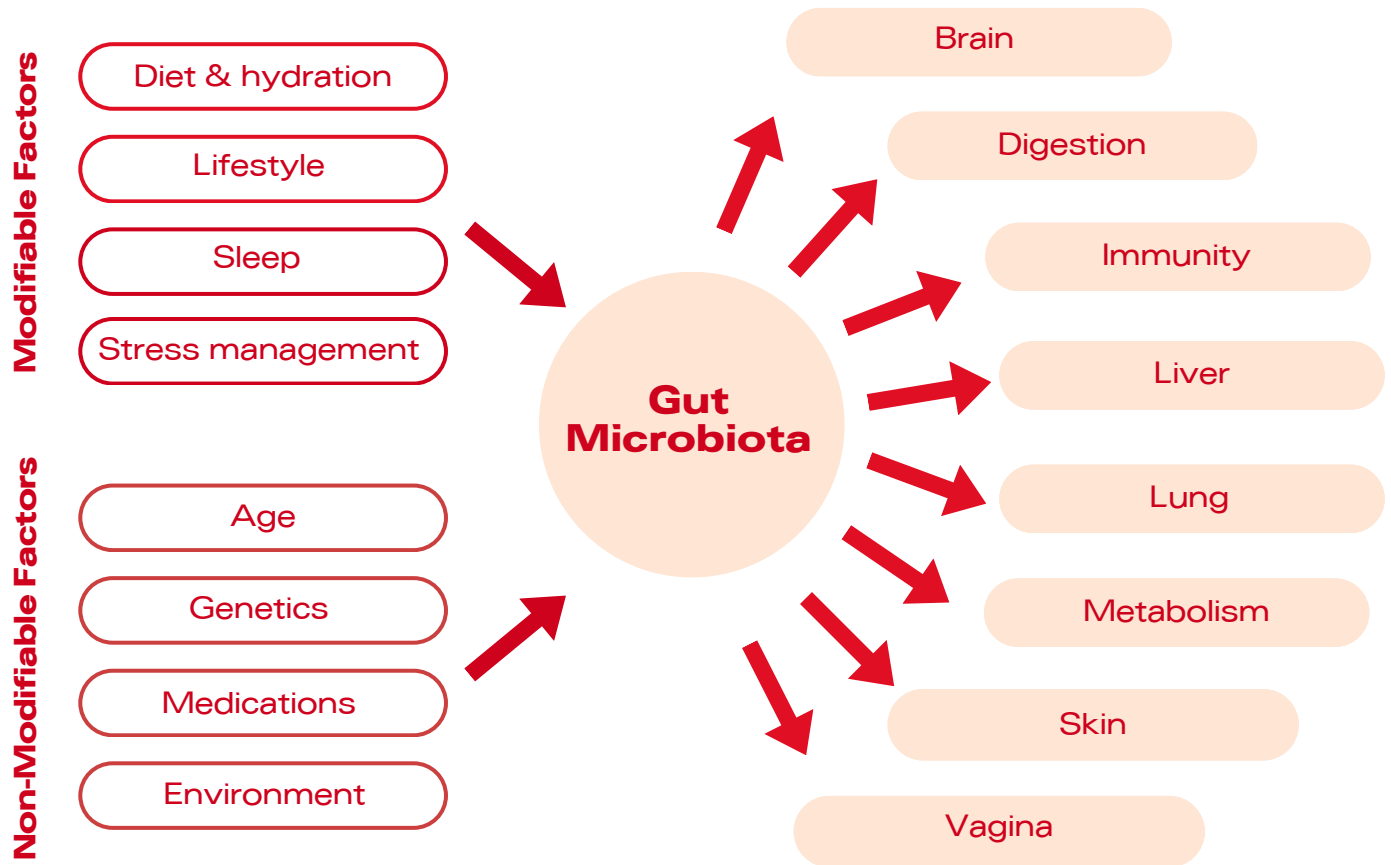
Gut microbiota diversity refers to the different types of bacteria residing in the gut. The greater the variety, the better the bacteria are at carrying out each of these functions.

Read on to discover how you can improve your microbiota diversity.



Factors affecting gut health

The composition of the gut microbiota is affected by a number of different factors, some that we can change (modifiable) and others that we cannot change (non-modifiable). These factors then influence the effect of the gut microbiota on different organs and systems in the body.



How to improve your gut health

Small changes to your diet and lifestyle can have a big impact. These key lifestyle factors can be altered to improve your gut health.



Diet



Exercise



Sleep



Hydration



Stress management

This handbook will guide you through the everyday changes we can make to keep our guts healthy and happy.

Diet



Do you want a healthy gut? Then you'll need a healthy, diverse diet. Food not only keeps you fuelled – but is also essential for keeping your digestive system running smoothly. The gut microbiota adapts according to the foods we eat. Consuming a high fibre diet (aiming for 30g per day) which includes a variety of plants will feed your gut bacteria. This can increase the number and types of 'good' bacteria (e.g., lactobacilli and bifidobacteria) that reside there.



Research spotlight

A landmark study showed that those who ate >30 different types of plants per week had a more diverse gut microbiota compared to those who ate <10 plants. Eating 30 different plants per week (including different types and colours of the same plant) is a great way to support your gut microbiota.

McDonald et al. (2018) mSystems 3(33): 10-128

Plant points

Plant points are an easy way of monitoring, and encouraging, your diet diversity. Points are given to each plant eaten from the 5 categories below:

- 1 point is given per type and colour of plant (e.g., 1 red apple + 1 green apple = 2 points)
- ¼ point is given for herbs, spices, tea, coffee and extra virgin olive oil



Fruit & veg



Wholegrains



Nuts & seeds



Legumes



Herbs & spices

Top tips for consuming a diverse diet



Put a new plant in your shopping trolley every week



Try plant protein sources (e.g., pulses, beans) instead of meat



Make plants the 'hero' of your meal not just a side dish



Sprinkle herbs, spices, nuts and seeds on your dishes



Aim to eat a range of colours to up your plant points



Frozen, canned and dried plant sources also count



Swap solo sources for a mix e.g., cous cous for mixed grains



Diet diversity is all about adding more plants to each meal

Gut-loving foods



Dr. Emily Prpa

Science Manager at Yakult UK & Ireland



"When it comes to feeding your gut microbiota, I can't stress the importance of eating enough fibre - ideally the daily recommended 30g. The best way to do this is by adding more plants with different colours and varieties into your diet. It's important to remember to stay well hydrated and slowly increase your fibre intake. I recommend to start by introducing one new plant each week to your diet and gradually add more."

What are prebiotic foods?

Prebiotic foods typically refers to those high in fibre. Prebiotics commonly occur in the Allium group of plants (such as onions, garlic and leeks), in asparagus and artichokes and, to a lesser extent, in beans and some cereals like oats. Help the beneficial bacteria living in your gut to multiply by eating prebiotic foods.



Fermented foods



Fermented foods are those produced by live microbes (such as bacteria) and enzymes. For example, pickles, kimchi and sauerkraut which may provide a source of live bacteria in the diet*. Studies show that the live microbes in fermented foods that reach the gut alive can play a role in making your gut microbiota more diverse. Different fermented foods provide different bacteria so variety is key.



*Not all fermented foods contain live bacteria due to manufacturing processes.

Fermented foods with live microbes**	Fermented foods without live microbes
<ul style="list-style-type: none">• Dairy products (e.g., cheese, kefir, yoghurt)• Vegetables (e.g., Kimchi)• Soy products (e.g., miso, natto, tempeh)• Kombuchas• Salami, pepperoni and other fermented sausages• Some beer	<ul style="list-style-type: none">• Bread (including sourdough)• Wine, most beers and distilled spirits• Coffee and chocolate beans (after roasting)• Heat-treated and pasteurised equivalents of the foods in the left column

**unless heat-treated/pasteurised



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Sleep



Not only is a broken night's sleep likely to leave you feeling tired and irritable, but irregular sleep patterns are also associated with poorer diet quality, and reduced gut microbiota diversity. Disruption to your natural 24-hour sleep cycle (known as the circadian rhythm) may impact the balance of the bacteria in the gut. Aim for 7-9 hours of good quality sleep per night.

Top tips for a successful slumber



Create a relaxing atmosphere

Ensure that your room is dark, a comfortable temperature and quiet to maximise the quality of your sleep.



Avoid blue light at bedtime

Electronic devices emit blue light that suppresses production of melatonin, the hormone which helps you to fall asleep.



Follow a personalised bedtime routine

Get into a consistent bedtime routine which helps you to wind down at night. Perhaps listen to gentle music, have a herbal tea, or read in bed.



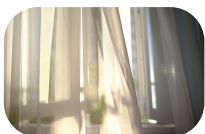
Relax the mind

Slow breathing and meditation can help you to switch off at night. These practices can also reduce stress which could benefit gut health.



Limit caffeine intake

Diet and sleep are closely linked. Having caffeine even 6 hours before bed may disrupt sleep. Limit caffeinated drinks to the morning.



Daylight exposure

Daylight exposure plays a major role in melatonin production. Make sure to get outside throughout the day (even in the winter months).



Exercise

Exercise can tire you out and reduce stress, making it easier to drift off. However, don't exercise in the last hour before bed as this can keep you up.

Hydration

In our busy working lives, it's easy to forget to drink enough water. Water does more than quench your thirst – it's essential to keep your body functioning and feeling healthy. Nearly all of your major systems depend on water to survive. Staying hydrated offers various benefits such as helping your gut flush out waste, preventing constipation, keeping oral bacteria moving and leaving your mouth fresh. Aim to drink 8+ glasses, approximately 1.5 to 2L, of fluid per day to keep your gut and other body systems happy.



Hydration hacks

- 1 Invest in a reusable water bottle to encourage you to drink
- 2 Eat your water - foods such as cucumber, watermelon and strawberries are hydrating
- 3 Set alarms throughout the day to remind you to take a few sips
- 4 Mix it up - tea, coffee (in moderation), and juices can top up your hydration levels
- 5 Add fruit, such as lemons and limes, to your water to make it more exciting to drink

Research spotlight

A recent study shows that being hydrated is important for your gut health. Good hydration means that your gut lining is more hydrated too. This is necessary for the protective gut barrier to function properly so it can assist in the immune response by keeping out any nasty bacteria and viruses.

Redondo et al. (2015) The FASEB Journal, 29, pp.593-1



Drinking enough water will help to prevent you from becoming dehydrated. Fibre draws water into the bowel which helps soften your stool, making it easier to pass. If you don't drink enough water, you're likely to become constipated.

Exercise

Why is exercise important?

Regular exercise is not only a good lifestyle habit, it is also great for physical health and can contribute to improving both your gut health and mood! Exercise can increase the diversity and growth of beneficial bacteria in the gut.



The effects of exercise on your gut



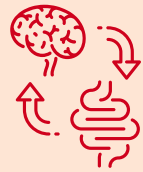
Supports immune function



Eases digestive transit



Enhances gut microbiota diversity



Supports gut-brain communication

Picture your digestive system as a smooth flowing river, with exercise as the magical paddle that keeps the flow moving. By engaging in regular physical activity, you're not only energising your body but also promoting smooth digestion.

Make fitness fun for you

Exercise doesn't have to mean long runs and gym workouts. Finding an activity that you enjoy will mean that you're more likely to stick with it and continue to reap the benefits of an active and healthy lifestyle. Why not try one of the following?



Take the plunge

Whether you're looking to make a splash or refine your skills, swimming is a fun way to exercise.



Stair running

Energise yourself without any fancy kit. Run up and down some stairs 3 times to get your blood pumping!



Gardening

Raking, potting and planting can give you a workout equivalent to taking a walk or a session of yoga.



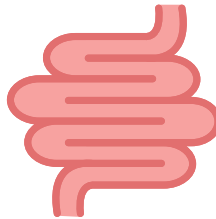
Try a new sport

Perhaps you have always wanted to try roller skating? Or tennis? Why not give it a go!

Stress management

Mood and stress levels impact your gut health, and vice versa, because the gut and brain are linked via two-way communication known as the gut-brain axis.

The gut and brain communicate via a long nerve which connects them called the vagus nerve. The vagus nerve allows the brain to talk to the gut and the gut to talk back.



The gut also has its own nervous system called the enteric nervous system which allows the gut to function independently of the brain. This is why the gut is known as the "second brain".

The gut microbiota helps to control communication between the gut and the brain via different systems around the body including the immune and nervous systems.

Try out some of our favourite mood boosters which will keep both your gut and your brain happy, helping you to feel your best.



Bring nature closer to you

Sharing your space with plants positively influences mental wellbeing. You don't need to have a garden; even fresh flowers and house plants can do wonders.



Write it down

Unleash the power of pen and paper. Journaling can help you to gain control of your thoughts and emotions, and can help improve your mental wellbeing.



Get out in nature

Exposure to natural light helps regulate mood and boost happiness levels as it has been linked to increased levels of a mood-boosting hormone called serotonin. Getting out and about may relieve stress and anxiety, helping you to feel calmer, happier and more positive.



Mindfulness

Mindfulness is the act of being intentionally present, allowing us to feel calmer and less stressed. It has been associated with improved physical, mental and gut health.

Track your gut health habits

To hold yourself accountable to these gut health habits, we have created a tick-off tracker for you to use. Request a free hard-copy today by contacting science@yakult.co.uk.

Gut Health Habit Tracker

Week Commencing / /

Small changes to your diet and lifestyle can have a big impact on your gut health.
Use this weekly tracker to monitor these 5 key gut health habits.

Check-off each day that you meet the habit goal

Diet

Goal: 30 plant points per week

Aim to eat a diverse range of high-fibre foods. Fibre is found in plants (e.g., fruits, vegetables, wholegrain carbohydrates, legumes, nuts and seeds) and feeds your gut bacteria. A high-fibre diet which contains a variety of these plants can increase the number and types of 'good' bacteria that live in your gut.

Counting your plant points

Plant points are an easy way to monitor and encourage your intake of fibre from different plant sources. Aim to eat 30 plant points per week as research suggests that those who eat >30 different types of plants per week have a diverse collection of bacteria in their gut. Check-off every time you get plant point 1 point is allocated for any fruit, vegetable, wholegrain (e.g., wholegrain bread, pasta, rice, oats), legume (e.g., tinned beans, lentils, chickpeas), or portion of nuts/seeds you eat. Different coloured fruits and vegetables count as a new point (e.g., 1 red pepper = 1 green pepper = 2 points). The box below outlines further information on how to count your weekly plant points.

Whole plants	Herbs & spices	Extra virgin olive oil (EVOO)	Tea & coffee
 1 point Points are given per type and colour of plant e.g., 1 red apple + 1 green apple = 2 points 1 portion of wholegrain pasta = 1 point 1 portion of almonds + 1 portion of chia seeds = 2 points	 ¼ point	 ½ point e.g., 1 green tea + 1 peppermint tea = ½ point whereas 2 green teas = ¾ point	 ¼ point Note: coffee and EVOO only count once per week.

Plants

Whole plants = 1 point

Fruits									
Vegetables									
Legumes									
Wholegrains									
Nuts & seeds									
Total:									

The extras = ½ point

Herbs & spices									
EVOO									
Tea									
Coffee									
Total:									

Weekly total:

Mindfulness

Goal: 10 mins daily

Mindfulness is the act of being intentionally present, allowing us to feel calmer and less stressed. It has been associated with improved physical, mental and gut health.

Buddhism
Meditation

Yoga

Sleep

Goal: 7-9 hours of sleep

Irregular sleep is associated with poorer diet quality and reduced gut bacteria diversity. Getting enough high-quality sleep could improve your gut health, and vice versa.

Sleep at bedtime
Reduce caffeine intake

Limited screen time

Hydrate

Goal: 8+ glasses of fluid

Hydration is important for digestion and overall gut health. Check-off when you drink 8+ glasses (~15-2L) of fluid daily. This includes tea and coffee.

Add fluids to water
Get reminded to hydrate

Drink a variety of fluids

Exercise

Goal: 30 mins daily

Exercise increases the diversity of your gut bacteria and increases the growth of beneficial bacteria in the gut, both of which can support immune function.

Home workouts
Local clubs

Regular walks

Created by nutrition scientists at Yakult UK & Ireland

Our mission

"We contribute to the health and happiness of people around the world through the pursuit of excellence in life sciences in general and our research and experience in microorganisms in particular."



Created by nutrition scientists at Yakult UK & Ireland



Charlotte Phillips ANutr
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Dr. Holly Neill
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Put your knowledge to the test

Test your gut terminology and see if you can find the following terms in the word search:

- 1 The collective name for the trillions of bacteria residing in your gut
- 2 Another name for your entire digestive tract
- 3 Method of tracking how diverse your diet is
- 4 Process using enzymes and live bacteria to change the state of a food
- 5 Another name for your large intestine
- 6 The name given to foods high in fibre which feed our gut bacteria
- 7 Small microorganisms which reside in your gut (clue: Lactobacilli)

P	C	O	F	O	N	F	I	M	T
L	P	R	E	B	I	O	T	I	C
A	P	R	R	A	I	O	T	C	O
N	F	E	M	I	E	M	T	R	D
T	K	E	E	R	C	E	C	O	C
P	B	D	N	E	O	N	N	B	O
O	P	G	T	T	I	T	T	I	C
I	F	F	E	C	C	O	L	O	N
N	M	P	D	A	B	G	U	T	N
T	P	R	E	B	I	O	T	A	C

Answers: [1] Microbiota [2] Gut [3] Plant point [4] Fermented [5] Colon [6] Prebiotic [7] Bacteria