

Fibre and fibre supplements

Peer reviewed by **Dr Colin Tidy, MRCGP**

Last updated by **Dr Doug McKechnie, MRCGP**

Last updated 11 Aug 2025

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Est. **8 min** reading time

Fibre (roughage) is the part of plant food that is not digested. It stays in your gut and is passed in the poo (stool). Fibre adds bulk to the stools. This helps your bowels to work well and helps to prevent some bowel and anal conditions.

At a glance

- Eating enough fibre helps prevent and treat constipation and eases bowel movements.
- A high-fibre diet may reduce the risk of some bowel conditions, heart disease, stroke, and diabetes.
- Adults should aim to eat 30 grams of fibre per day.
- There are two main types of fibre: insoluble, which bulks up poo, and soluble, which dissolves in water.
- Insoluble fibre is found in skins of fruit, wheat, nuts, and whole grains.
- Soluble fibre is found in oats, barley, nuts, seeds, fruit, vegetables, beans, and pulses.
- When increasing fibre, do so gradually to avoid wind and bloating, and drink plenty of fluids.

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Why is fibre important?

Poo (stool) is usually soft and easy to pass if you eat enough fibre and drink enough fluid. A diet with plenty of fibre:

- Will help to prevent and treat **constipation** and ease bowel movements.
- May help to prevent some bowel conditions such as **diverticular disease**, **piles (haemorrhoids)** and a painful condition of the back passage (anus), which is called **anal fissure**.
- May help you to lose or control weight. Fibre is filling but it has no calories and is not digested.
- May reduce the risk of developing **bowel cancer**.
- May help to lower your blood lipid (**cholesterol**) levels, lower blood pressure, and reduce the risk of **heart disease** and **stroke**.
- May reduce the risk of developing **diabetes** and help to control your blood sugar levels.
- May enhance immunity and fight inflammation.

Increasing your fibre intake has also been shown to improve the population of helpful germs (bacteria) in your gut, known as the microbiome. An unhealthy microbiome has been linked with many conditions, not just gut conditions such as bowel cancer. It has been linked with the immune system, diabetes, mental health, inflammation and obesity. There is still much we don't know about the role that our microbiome plays in our health. However, we do know that a high fibre diet is important in making sure our microbiome keeps us healthy.

How much fibre should we eat per day?

The government recommends that adults should eat 30 grams (g) of fibre per day. (The average person in the UK eats only about 18 g of fibre each day.) You should take into account your medical history and how well you can tolerate fibre (see below).



Types of fibre

You may hear different words being used to describe fibre in the diet. The two best known categories are insoluble fibre and soluble fibre. They work in different ways in the body. A combination of both types of fibre should form part of a healthy balanced diet in order to keep your gut healthy. Many foods containing fibre will naturally contain both types. Fibre can also be categorised according to how thick it is (viscosity) and how well it gets broken down by gut bacteria (fermentability).

Insoluble fibre

This type of fibre cannot be dissolved in water. It passes through the digestive system mostly unchanged. It acts like a sponge and absorbs water, adds bulk to poo (stool) and allows waste to be passed through bowels more quickly. This helps to prevent constipation and other conditions such as piles (haemorrhoids) and diverticular disease. This type of fibre is found in:

- Skin, pith and pips of fruit and vegetables.
- Wheat and bran.
- Corn (maize).
- Nuts and whole grains.

Soluble fibre

This type of fibre dissolves in water. It softens stools and makes them larger, so that they are easier to pass. When mixed with water, it also forms a gel in the stomach. The gel binds with excess cholesterol so it does not get absorbed, which helps to reduce the risk of heart disease. Also, soluble fibre helps to slow down the digestion of food, which results in sugar (glucose – our main source of energy) being released and absorbed slowly. This keeps our blood sugar levels steady. This type of fibre is found in:

- Oats.
- Barley.
- Psyllium and ispaghula.



- Fruit and vegetables.
- Beans and pulses.

Resistant starch is a soluble fibre that is highly fermentable. This means that it can be broken down by the natural bacteria in the bowels. When this happens, it forms short-chain fatty acids (SCFAs), which are good for gut health. Resistant starch has also been shown to lower cholesterol and regulate blood sugar levels. It is a carbohydrate that is found in certain food such as bananas.

Prebiotics are fibre that only our gut bacteria can feed on. They escape being digested in the stomach and upper digestive tract, are fermented by gut bacteria, and promote the growth of good gut bacteria. All prebiotics are fibre, but not all fibre is prebiotic.

High-fibre foods

These include the following:

- Wholemeal or wholewheat bread, biscuits and flour.
- Wholegrain breakfast cereals such as All-Bran®, Bran Flakes®, Weetabix®, Shredded Wheat®, muesli, etc. A simple thing like changing your regular breakfast cereal can make a big difference to the amount of fibre you eat each day.
- Brown rice, and wholemeal spaghetti and other wholemeal pasta.
- **Fruit and vegetables.** Aim to eat **at least** five portions of a variety of fruit and vegetables each day. One portion is:
 - One large fruit such as an apple, pear, banana, orange, or a large slice of melon or pineapple.
 - Two smaller fruits such as plums, satsumas, etc.
 - One cup of small fruits such as grapes, strawberries, raspberries, cherries, etc.
 - One tablespoon of dried fruit.
 - A normal portion of any vegetable (about two tablespoons).
 - One dessert bowl of salad.



Fibre supplements

You may be advised by your doctor or healthcare professional to take extra fibre supplements if you have constipation or other bowel problems such as irritable bowel syndrome. Several fibre supplements are available. You can buy fibre supplements at pharmacies or health food shops:

- **Unprocessed bran** is a cheap fibre supplement. You can sprinkle bran on breakfast cereals, or mix it with fruit juices, milk, stews, soups, crumbles, pastries, scones, etc. However, bran may not be suitable for you (see below).
- **Other fibre supplements** include ispaghula husk (psyllium), methylcellulose, sterculia, wheat dextrin, inulin fibre, and whole linseeds (soaked in water). There are various branded products that contain these fibre supplements (a pharmacist can advise).

Fluid

Fibre needs fluid to work, so have plenty to drink when you eat a high-fibre diet or fibre supplements. Drink around two litres (about 8–10 cups) per day. This is to prevent a blockage of the gut, which is a rare complication of eating a lot of fibre without adequate fluid. This might include water, sugar-free squashes, herbal/fruit teas, tea and coffee.

How to increase fibre intake

Most people can eat more fibre without having any problems. However, if fibre intake is suddenly increased, this can cause wind and bloating. If you experience these symptoms then introduce high-fibre foods gradually to allow the gut to become used to the extra fibre. Introduce one new food over a two- to three-day period. For example, have porridge for breakfast on the first day; then add beans or extra vegetables to a casserole two days later; then maybe have an extra piece of fruit two to three days later. Your gut will gradually become used to the higher fibre intake and the symptoms should settle down.

Some people report that a high-fibre diet causes some persistent mild symptoms such as mild pains and bloating. In particular, some people with **irritable bowel syndrome** find that an increase in fibre makes symptoms worse. This may be related



to the type of fibre you take. Soluble fibre is more helpful than insoluble fibre, especially when aiming to ease symptoms of irritable bowel syndrome. Bran and other insoluble-based fibre may actually make symptoms worse in some people.

So, as you increase fibre intake, make sure you are getting plenty of soluble fibre.

Tips for increasing fibre in your diet

As a general rule, swap out white, processed foods and replace with brown, whole foods and plenty of fruit and vegetables. Tips for increasing fibre include:

- Choose wholegrain bread instead of white.
- Swap refined cereals such as Rice Krispies® or Cornflakes® to wholegrain versions such as porridge/Bran Flakes®/Weetabix®/Shredded Wheat®.
- Swap white rice and pasta to brown/wholewheat varieties
- Add extra vegetables to mince, casseroles, soups, stews, curries or chillies.
- Add beans and pulses to mince, casseroles, soups, stews, curries or chillies.
- Snack on a piece of fruit or on vegetable sticks.
- Sprinkle seeds (eg, pumpkin seeds, golden linseeds, sunflower seeds) over soups, salads or yoghurts.
- Choose foods labelled with 'high-fibre'. On a nutritional label, this is 6 g or more per 100 g.
- Keep the skins on fruit and vegetables when possible.
- Add nuts or dried fruit to breakfast cereals.
- Serve at least one portion of fruit or vegetables at each mealtime

Fibre Content of Some Common Foods



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Breakfast Cereals	Fibre in grams (g)
All-Bran® - one medium-sized bowl (40 g)	9.8 g
Shredded Wheat® - two pieces (44 g)	4.3 g
Weetabix® - two pieces (37.5 g)	3.6 g
Muesli (no added sugar) - one medium-sized bowl (45 g)	3.4 g
Fruit 'n' Fibre® - one medium-sized bowl (40 g)	2.8 g
Porridge - one medium-sized bowl (250 g)	2.3 g
Cornflakes® - one medium-sized bowl (30 g)	0.3 g
Pasta and Rice	Fibre in grams (g)
Pasta (plain, fresh) - one medium portion (200 g)	3.8 g
Brown rice (boiled) - one medium portion (200 g)	1.6 g
White rice (boiled) - one medium portion (200 g)	0.2 g
Breads	Fibre in grams (g)
Wholemeal bread - two slices (70 g)	3.5 g
Brown bread - two slices (70 g)	2.5 g
Granary bread - two slices (70 g)	2.3 g
White bread - two slices (70 g)	1.3 g



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Vegetables/Fruit /Nuts	Fibre in grams (g)
Baked beans (in tomato sauce) – half can (200 g)	7.7 g
Red kidney beans (boiled) – three tablespoons (80 g)	5.4 g
Peas (boiled) – three heaped tablespoons (80 g)	3.6 g
French beans (boiled) – four heaped tablespoons (80 g)	3.3 g
Brussels sprouts (boiled) – eight sprouts (80 g)	2.5 g
Potatoes (old, boiled) – one medium size (200 g)	2.4 g
Carrots (boiled) – three heaped tablespoons (80 g)	2.0 g
Broccoli (boiled) – two spears (80 g)	1.8 g
Apricots (semi-dried) – three whole (80 g)	5.0 g
Prunes (semi-dried) – three whole (80 g)	4.6 g
Pear (with skin) – one medium (170 g)	3.7 g
Orange – one medium (160 g)	2.7 g
Apple (with skin) – one medium (112 g)	2.0 g
Raspberries – two handfuls (80 g)	2.0 g
Banana – one medium (150 g)	1.7 g
Strawberries – seven strawberries (80 g)	0.9 g
Grapes – one handful (80 g)	0.6 g
Almonds – 20 nuts (33 g)	2.4 g
Peanuts (plain) – one tablespoon (25 g)	1.6 g
Brazil nuts – 10 nuts (33 g)	1.4 g



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Frequently asked questions

What is the recommended daily fibre intake for children?

This article discusses the recommended daily fibre intake for adults, which is 30 grams (g) per day. However, it does not specify the recommended amount for children. You should consult a doctor or healthcare professional for advice on children's dietary needs.

Are there different types of resistant starch, and do they all have the same benefits?

The article mentions resistant starch as a type of soluble fibre that is highly fermentable, forming short-chain fatty acids beneficial for gut health. It also notes that resistant starch can lower cholesterol and regulate blood sugar. However, it does not differentiate between various types of resistant starch or suggest if their benefits might vary. More detailed information on different forms of resistant starch is not provided.

What specifically are 'short-chain fatty acids' and how do they benefit gut health?

The article states that when resistant starch is broken down by gut bacteria, it forms short-chain fatty acids (SCFAs), which are identified as 'good for gut health'. However, it does not provide further details on what SCFAs are or the specific mechanisms through which they benefit the gut.

How do prebiotics differ from other types of fibre, and why are they important?

Prebiotics are defined as a specific type of fibre that only our gut bacteria can feed on. They are not digested in the stomach and upper digestive tract but are fermented by gut bacteria, promoting the growth of beneficial gut bacteria. The article clarifies that all prebiotics are fibre, but not all fibre is prebiotic. Their importance lies in supporting a healthy gut microbiome, which is linked to overall health.



Can increasing fibre too quickly cause any serious side effects?

If fibre intake is increased suddenly, it can cause common mild symptoms such as wind and bloating. The article recommends introducing high-fibre foods gradually to allow the gut to adjust, which should help these symptoms settle down. A rare complication of eating a lot of fibre without adequate fluid is a blockage of the gut.

These questions and answers have been generated from the information in this article.

Further reading and references

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- **Simpson HL, Campbell BJ** [\[link\]](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=26011307) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=26011307); Review article: dietary fibre-microbiota interactions. Aliment Pharmacol Ther. 2015 Jul;42(2):158-79. doi: 10.1111/apt.13248. Epub 2015 May 24.
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About the author [View full bio](#)

Dr Doug McKechnie, MRCGP

Medical Writer

MA, MBBS, MSc, DRCOG, MRCP(UK), MRCGP(2021), FHEA

Dr Doug McKechnie is an NHS GP working in London. He works full-time clinically and is also the Deputy Lead for the Clinical and Professional Practice module at University College London Medical School.

About the reviewer [View full bio](#)

Dr Colin Tidy, MRCGP

General Practitioner, Medical Author

MBBS, MRCGP, MRCP (Paediatrics), DCH

Dr Colin Tidy is an NHS Doctor, based in Oxfordshire.

Article history

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• **11 Aug 2025 | Latest version**

Last updated by

Dr Doug McKechnie, MRCGP

Peer reviewed by

Dr Colin Tidy, MRCGP

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