

Akkermansia Muciniphila: A Simple Overview (2020)

Akkermansia muciniphila is a type of bacteria found in your gut. Lately, it's been getting a lot of press for its association with leanness and general health.

Read on to discover more about Akkermansia muciniphila, including what it does and how you can cultivate our own Akkermansia population.

What is Akkermansia muciniphila?

Akkermansia muciniphila is a common human gut bacterium. Discovered not long ago, in 2004, this commensal (friendly) microbe makes up one to four percent of our total gut microbes ([Source: AEM](#)).

We all have thousands of species of bacteria in our large intestines. Along with viruses, yeasts and other microbes, this diverse community is known as our microbiome. We're only just beginning to explore the infinite ways our microbiomes impact our health, but we know that all the many different species all have their own roles to play in supporting the health of our whole body and mind.

Recently, Akkermansia has been getting a lot of attention because several studies have linked it to leanness, as well as a resistance to obesity and type 2 diabetes.

Many studies have linked a lack of Akkermansia to several diseases:

- Crohn's disease ([Source: NCBI](#))
- Ulcerative Colitis ([Source: NCBI](#))
- Appendicitis ([Source: NCBI](#))
- Type 2 Diabetes ([Source: Science Direct](#))
- Obesity ([Source: Wiley](#))

The 'muciniphila' part comes from Akkermansia's love of mucus. That's right, it loves to eat the slimy layer of mucus that coats our intestinal walls. It keeps us healthy at the same time, so that's a good thing.

The mucus layer is very important for gut health and for the health of your whole body. This could be a big reason why Akkermansia has been found to be so beneficial. While it chows down, Akkermansia produces nutrients that feed our other good gut bacteria.

Akkermansia doesn't deplete the mucus layer by eating it. Quite the opposite: they actually encourage the cells there to make even more, strengthening the layer further and giving us—their hosts—all the health benefits that come with having a tough gut barrier ([Source: NCBI](#)). A weak

gut barrier is the basis of **leaky gut** and all the health conditions linked to it (Source: NCBI). These include:

- IBS
- Brain fog
- Anxiety
- Fibromyalgia
- Chronic fatigue syndrome

What does Akkermansia muciniphila do?

There's evidence that Akkermansia muciniphila:

- Reduces some risks of heart disease, like insulin resistance, total blood cholesterol and fat tissue storage (Source: OUP)
- Reduces signs of liver dysfunction and inflammation (Source: Nature)
- Strengthens the lining of your intestines (Source: NCBI)
- Produces short chain fatty acids (SCFAs), an energy source for other gut bacteria (Source: Science Direct)
- Regulates your immune system (Source: NCBI)
- Prevents weight gain (Source: Frontiers)

How to increase Akkermansia muciniphila

The best way to increase Akkermansia is to up your intake of:

- Polyphenols (Source: Frontiers)
- Oily fish (Source: NCBI)

Polyphenols

Polyphenols are nature's own food colourings, found in fruits and vegetables. Akkermansia loves them. We already knew that polyphenols reduce inflammation and help to prevent many diseases, so the fact that they increase Akkermansia is even more reason to eat the rainbow.

Basically, the more colourful your plate, the more polyphenols are on it. Your dinner should be a feast for the eyes as well as your stomach.

Polyphenols are powerful antioxidants that fight free radicals (chemical compounds that have been linked to multiple illnesses including diabetes, heart disease and cancer) in your body.

There are many different types of polyphenols. Some of them aren't well absorbed by the body, and stay in the gut, which is good news for Akkermansia, who gobble the polyphenols up and supercharge their power as a result: a win/win.

Oily fish

All fats are not created equal. Akkermansia thrive on the polyunsaturated fats found in oily fish, but they aren't so keen on the saturated fats found in animal foods. The study that revealed this information fed two groups of mice different diets with different fats: one with lard, one with fish oil. The fish oil-fed group grew more Akkermansia, while the lard-fed one actually lost some of theirs.

The study went further: after clearing a new group of mice of all bacteria with antibiotics, some were implanted with stools from the lard-fed mice and some with stools from the fish oil-fed mice. Both groups were fed with lard, but the mice implanted with stools from the fish oil-fed mice showed increased levels of Akkermansia despite this. This tells us that having a strong community of Akkermansia in our guts can protect us from the effects of a less than ideal diet, at least temporarily.

The mice implanted with stools from their fish oil-fed friends also showed reduced levels of inflammation when compared to the other group ([Source: NCBI](#)). The bottom line? The type of fat we choose to eat has a massive potential to influence our microbiomes, and as a result, our health.

Akkermansia muciniphila supplements

The best Akkermansia supplements don't come in a pill, powder or liquid. The best things you can take to encourage Akkermansia to grow are whole foods.

Let's look at polyphenols: because polyphenols act in unison with other nutrients, whole foods give you the full package you need. Some researchers have criticised supplements containing polyphenols, stating that our bodies can only use polyphenols properly in the form of whole foods. This is likely to be because when we digest a whole food, our bodies release and break down the compounds present in a highly complex way that often can't be replicated by isolating one substance and putting it in a pill ([Source: NCBI](#)).

However, if your diet isn't as good as it could be, or you're looking for a boost, high-quality supplements from natural sources can really help. For instance, research has shown that fish oil does boost Akkermansia levels [Source: NCBI](#).

Because we only discovered Akkermansia 15 years ago, research has really only just begun. If you need help to understand how boosting your levels of Akkermansia could help your health condition, and how best to do

it, you can [talk to a Functional Medicine Practitioner or Registered Nutritional Therapist](#).

Akkermansia muciniphila foods

Foods containing high levels of polyphenols and fish oils are the best things to eat for Akkermansia.

High-polyphenol foods

Polyphenols make foods taste slightly bitter or sour. That's why tea that's been brewed a long time tastes bitter: the polyphenol levels rise the longer it steeps. The grassy taste of a strong olive oil or the bite of red wine are good examples too.

There's a good reason for this: in nature, the bitterness wards off insects who want to attack the plant. There are over 8000 types of polyphenols. Some examples are resveratrol in red wine, capsaicin in chilli, thymol in thyme, cinnamic acid in cinnamon and rosmarinic acid found in rosemary. The amount of polyphenols in foods depends a lot on the soil it was grown in, how ripe it is, and how it was farmed, transported and prepared, so the following list is just a guide.

Top 20 high-polyphenol foods (per serving)

- Elderberries
- Blackcurrants
- Blueberries
- Globe artichokes
- Coffee (filter coffee)
- Cherries
- Strawberries
- Plums
- Raspberries
- Flaxseeds
- Dark chocolate
- Chestnuts
- Black tea
- Green tea
- Apple juice
- Apple
- Rye bread
- Hazelnuts
- Red wine

- Soy Yoghurts

Other, common high-polyphenol foods include grapes, olives, spinach, prunes and peaches. Generally, the darker the better, so go for black olives and grapes over green.

Oily fish

We know that *Akkermansia* like fish oil, but we don't yet know if that means they like a specific component of the fish oil—for instance the fatty acids—or they like all of the parts together. So at the moment, it's probably best to eat the fish. In the experiment mentioned earlier, the fish oil came from menhaden fish, which are not famed for their flavour and are usually used to make fish oil supplements.

Fish oil is controversial right now, with some scientists claiming that the benefits of it have been overstated. In one study comparing the effects of fish and fish oil, researchers found that levels of DHA (a fatty acid) in one group of people eating whole salmon were nine times higher than in a group that took fish oil ([Source: NCBI](#)). However, if you don't like fish, or like the convenience of capsules, other research has shown that if you take them with a high-fat meal, you can increase the absorption of fatty acids to a point where they could be as beneficial as whole fish.

If you're a fish fan, try including two or three servings of these per week:

- Sardines
- Mackerel
- Herring
- Pilchards
- Salmon
- Trout
- Anchovies
- Swordfish
- Tuna

***Akkermansia Muciniphila* probiotics**

Akkermansia probiotics are not currently available for the public, although they have been used in scientific research on mice. Because the bacterium was discovered relatively recently, it's likely that scientists just haven't yet carried out the trials needed to produce a probiotic product fit for human use.

But this isn't entirely bad news. Research shows that in the quest for gut health, prebiotics are just as powerful as probiotics. While probiotics are

live beneficial bacteria, prebiotics are the fertiliser for the bacteria you currently have. And as it appears that most of us already carry Akkermansia, it could be that all we need to do is feed them properly.

Prebiotics come from carbohydrate foods—mostly fibre—that our bodies can't use to extract nutrients from. It ends up in our large intestines and becomes food for the bacteria there. That's why fibre is so important: not for us, but for our gut bacteria!

So in addition to polyphenols and fish oil, make sure you add prebiotic foods to your daily menu. Many of them also contain polyphenols, so your Akkermansia can get a double hit of goodness.

For instance:

- Apples: Apples contain over 50 percent pectin, a potent prebiotic
- Potatoes: cooking and cooling them increases the prebiotic power. Eat the skins too!
- Berries: little nutrient powerhouses
- Tomatoes: soup, paste and passata all count
- Artichokes: a top polyphenol source and one of the best prebiotics there is

Where is Akkermansia Munciphila found?

Akkermansia has been detected in the large intestine of babies as early as a few weeks after birth. Research has found that once there, it's likely to remain throughout your life. Other than the large intestine, it's found in breast milk, our mouths, our pancreas, our small intestine and our appendix. Akkermansia in the appendix could play a role in re-populating our guts after food poisoning. Scientists think that the fact that we have Akkermansia all along our digestive tract shows that it might do a lot more for our body than we know right now ([Source: NCBI](#))

Key takeaways

- We don't know for sure, but it's likely that most of us carry Akkermansia in our guts
- It appears that the higher the level of Akkermansia, the better our resistance to a wide range of diseases

- Initial research is telling us that it benefits us mostly through its ability to consume and produce mucus, strengthening the walls of our intestines
- You can't currently buy Akkermansia in a probiotic
- You can encourage it to grow by raising your intake of polyphenol-rich foods, fish oil and prebiotics
- For a bigger picture on how raising your Akkermansia level could improve your health, [talk to a Functional Medicine Practitioner or Registered Nutritional Therapist](#)

Author

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Before her natural health career, Alex was a journalist and copywriter. She continues to write for magazines and media agencies, and now combines her two great passions—writing and health—by creating content that empowers people to claim their right to a healthy body and mind.

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