

# Polycystic ovary syndrome and gut health: What you need to know

September 19 2023, by Goitseone Thamae

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Credit: AI-generated image ([disclaimer](#))

[Polycystic ovary syndrome](#) (PCOS) affects around [8% to 13%](#) of women during their reproductive years. Symptoms include irregular menstrual cycles, acne, excessive facial hair growth, voice changes, ovarian cysts and challenges in conception. It can also increase your risk of developing Type 2 diabetes and heart disease.

Despite its prevalence, a significant number—[up to 70%](#)—of PCOS cases worldwide go undiagnosed. This is in part because there isn't one specific test for diagnosis.

The cause of PCOS remains unclear—it's a complex condition influenced by both genes and environmental factors. But what we do know is that it can take a huge emotional toll on women, particularly in relation to [body image](#) and fertility.

[In recent years](#), scientists have started looking at PCOS and the [gut microbiome](#) of sufferers to see if there's a link. These studies have found that the gut microbiome in women with PCOS is different from those without the condition.

[Women](#) tend to have [more diverse](#) gut microbiomes, compared to men. But females with PCOS have fewer types of [bacteria](#) in their stool and that mix of bacteria is different compared to [women without PCOS](#).

Lower diversity of gut bacteria is linked to [higher testosterone levels and excess hair growth](#). It's also connected to problems like [abnormal cholesterol levels](#) and being overweight—as well as [insulin resistance](#), which is when cells in your muscles, fat and liver don't respond well to insulin and can't easily take up glucose from your blood. All of which are seen with PCOS.

## Gut health and PCOS

Many things can affect the types of microbes living in our gut—what we eat, [sex hormones](#), our sleep quality, where we live and our weight. But while the gut microbiome was once viewed primarily as a digestion aid, it's now acknowledged as an intricate player in our overall health.

[Research](#) has found that women with PCOS are more likely to have

[unhealthy dietary habits compared to women without PCOS](#). Women with PCOS are also [more likely](#) to be [overweight or obese](#).

[One recent theory](#) as to the role that gut microbiome plays with PCOS is that an unhealthy diet can upset the balance of bacteria in our gut. This is known as [gut dysbiosis](#). [The theory](#) suggests that [this imbalance](#) might make the lining of the gut permeable allowing [harmful substances](#) from certain bacteria to leak into the bloodstream—also known as leaky gut.

This, in turn, can trigger the [immune system](#) and mess with how insulin works, leading to high insulin levels, more male hormones being made in the ovaries and problems with how the ovaries make eggs.

[New research](#) has found that there seems to be a link between PCOS and some of the chemicals made when good bacteria in the gut digest fiber from food. These chemicals influence the metabolic and hormonal aspects of PCOS and when their production is increased through fiber intake, it seems to improve PCOS symptoms.

[A 2021 study](#) also discovered that specific types of bile acids—which play a role in fat digestion—are present in larger amounts in people with PCOS. In those with PCOS, two types of bile acids are much higher. One of those acids, deoxycholic acid, is linked to how the body stores fat and insulin levels before and after meals and is also affected by testosterone.

So it may be that altered bile acid in people with PCOS negatively affects the gut bacteria. And that these changes weaken the gut walls, contributing to a leaky gut—which then worsens PCOS-related symptoms. But it's also important to note that the relationship between bile acids, insulin and hormones like testosterone is complex and can vary from person to person.

## Gut help

[Probiotics](#), which introduce beneficial microorganisms to the gut, have [been shown to be helpful](#) in restoring microbial equilibrium. [A 2019 publication](#) found that when women with PCOS took a [specific probiotic](#) called bifidobacterium lactis V9, it led to an improvement in gut health.

[A study that's currently underway](#) is looking at whether probiotics or metformin (a diabetic medication used in the treatment of PCOS) can lower the levels of a hormone called free testosterone, which is often high in PCOS. The researchers are also checking other things related to PCOS, like metabolism as well as looking at gut bacteria to see if that changes too.

Other things that have been shown to be good for gut health more broadly are [eating healthily](#), getting [enough good quality sleep](#), [limiting or avoiding alcohol](#) and [exercise](#). Indeed recent research shows that a [keto diet](#)—which involves eating low carb high-fat foods—may also help to reduce testosterone levels in women with PCOS.

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