Polyendocrine Metabolic Ovarian Syndrome (PMOS), formerly Polycystic ovary syndrome (PCOS)

Key points

- PMOS is a very common hormonal condition that is associated with increased levels of 2 hormones in the body: insulin and androgens (male-type hormones)
- PMOS affects around 1 in 10 women during their reproductive years. Women with family history of PMOS, for example, a mother, aunt, sister or daughter are more likely to have PMOS and some ethnic groups.
- PMOS can cause problems such as an irregular menstrual cycles, impact ovulation, lower sex drive, cause excessive hair growth or hair loss, acne, weight gain, and can increase risk of poor mental health.

Treatment:

- Treatment for PMOS can involve several health professionals such as a GP, endocrinologist, dietitian , psychologist and exercise physiologist.
- Diet and lifestyle modification is at core of management. A healthy lifestyle includes eating a balanced diet, staying within a healthy weight and being as active as possible.
- An Accredited Practicing Dietitian (APD) can individualise dietary changes to target symptom management: which may improve PMOS symptoms such as acne, excess hair growth, menstrual cycle regularity and infertility.

- Support weight loss and prevent weight gain.
- There are benefits to a healthy lifestyle even in the absence of weight loss.
- Ensure you get the right amount of macro and micronutrients to support individual needs.
- Support gut health and function. IBS is also present in a higher percentage of the population with those who have PMOS.
- Help hormones function better and improve insulin sensitivity.
- Reduce further risks associated with unmanaged PMOS such as T2DM, metabolic disturbances and heart disease.
- There is no one diet that is best for PMOS and that's because symptoms vary and so do the severity. It is important to receive advice that targets your health goals and your individual food preferences and lifestyle for an effective and sustainable approach.
- Your GP may also be able to recommend hormonal contraceptives, insulin sensitising medicine like metformin and other medicines like spironolactone to target androgens that are responsible for male pattern balding or provide further referrals to support your mental health.

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What is PMOS?

Polyendocrine Metabolic Ovarian Syndrome (PMOS), formerly Polycystic Ovary Syndrome (PCOS) is one of the most common hormonal conditions affecting people of reproductive age. It affects around 8–13% of people assigned female at birth, but many are undiagnosed.

Despite the former name, you don't need to have "cysts" on your ovaries to have PMOS. The term "polycystic" refers to the appearance of multiple small, immature follicles seen on ultrasound. PMOS is a whole-body condition–not just a reproductive one.

PMOS Types

PMOS can present in different ways. These are known as phenotypes:

Type	Features
A	Irregular periods + high androgens + polycystic ovaries
B	Irregular periods + high androgens (normal ovaries)
C	High androgens + polycystic ovaries (regular periods)
D	Irregular periods + polycystic ovaries (normal androgen levels)

Diagnosis:

How is PMOS Diagnosed?

PMOS is usually diagnosed when 2 out of these 3 features are present:

1. Irregular or no periods
   Your cycles might come less often than monthly or not at all.
2. Higher levels of androgens (male-type hormones)
   This can show up as:

- Physical signs, like acne, excess facial/body hair, or scalp hair thinning, or
- Blood test results showing high androgen levels

3. Polycystic ovaries on an ultrasound
   This means the ovaries look larger or have 20 or more small follicles (fluid-filled sacs).

An AMH (Anti-Müllerian Hormone) blood test can sometimes be used instead of an ultrasound.

Important Notes:

- If you have irregular periods and high androgens, you don't need an ultrasound to confirm the diagnosis.
- Ultrasound is not recommended for teenagers or those under 20, as their ovaries often look "polycystic" even without PMOS.
- An ultrasound is only needed if other signs are unclear or missing.

Symptoms of PMOS

A person with PMOS can have a wide range of symptoms and these can also change with age. Common symptoms of PMOS include:

- Excessive facial or body hair
- Thinning hair or baldness
- Irregular or absent periods
- Acne
- Weight gain or difficulty losing weight
- Fertility problems
- Sleep apnea
- Mental health problems such as depression or anxiety
- Insulin resistance and intense food cravings.

If you have these types of symptoms, speak to your doctor. An early diagnosis of PMOS can help manage the symptoms and reduce the long-term health risks. These health risks include a higher chance of developing type 2 diabetes, heart disease and stroke.

Having PMOS can create problems with falling pregnant and affect infertility. Higher levels of hormones such as testosterone can be responsible for ovulation problems and infertility.

Women with PMOS can still fall pregnant naturally. However, if unmanaged they can have greater problems falling pregnant due to these reasons.

Having infrequent periods may increase your risk of developing endometrial cancer (cancer of the uterus). Regular periods help to maintain a healthy uterus lining and prevent a build-up of abnormal cells.

PMOS is considered a high-risk condition during pregnancy. Doctors need to be aware of PMOS and closely monitor and prevent potential risks.

Causes of PMOS

The exact cause of PMOS is unknown, but there are risk factors that can increase the chance of developing it. Risk factors include:

- Genetics and family history
- Higher body weight

- Poor quality diet
- Insulin resistance
- Sedentary lifestyle

PMOS and insulin resistance

PMOS is a disease where insulin resistance lies at the heart of the condition. Insulin is a hormone made by the pancreas to help the body use glucose in the blood. Insulin resistance means the body's cells don't respond as well to insulin, so more of it needs to be made. That extra insulin can trigger the ovaries to produce more male hormones.

Because of the insulin resistance, people with PMOS have a 2-3 times greater risk of developing type 2 diabetes or a condition of pre-diabetes such as impaired glucose tolerance.

Gut Health and Inflammation in PMOS

Recent studies show that PMOS may be linked to gut health imbalances (dysbiosis) and low-grade inflammation:

- People with PMOS often have less diversity in gut bacteria and signs of a weakened gut barrier
- They are up to 4 times more likely to have IBS
- Even in those with a healthy weight, inflammation may still be present and can contribute to fertility problems and pregnancy complications.

Some emerging studies suggest that probiotics may help improve weight, insulin sensitivity, and inflammation in PMOS, but more research is needed.

Read our PMOS Introduction Guide

Treatment of PMOS

PMOS is a long-term condition, so its management has a long-term focus. Treatment involves diet and lifestyle changes as the first approach. Medical treatment involving medications and sometimes surgery are also used.

Lifestyle changes can include:

- eating a healthy diet
- increasing your physical activity levels

- preventing weight gain
- a modest amount of weight loss, if warranted (5-10% can improve hormonal balance)
- seeing a psychologist, if warranted

Gaining excess weight can cause the symptoms of PMOS to get worse. If you have PMOS, preventing weight gain is very important. Eating a healthy diet and increasing your physical activity will help prevent weight gain.

This can be difficult to achieve and why getting tailored advice from an APD can help. Simple things such as reducing unhealthy sources of carbohydrate from sweets, sugary drinks, lollies and cakes are a good place to start.

For weight loss, it is not about setting some unrealistic weight goal. Instead, aim for a small, but meaningful amount of weight loss. Research has shown that even losing 5 to 10 percent of your body weight can give significant health benefits on insulin levels, fertility, mental health and even the risk of developing type 2 diabetes and heart disease.

PMOS and your diet

Lifestyle changes are the primary treatment approaches for people with PMOS. Diet is a key part of lifestyle. So what is the best way to eat? The optimal diet hasn't yet been determined, but it is likely to be very individual and this is where an APD can help.

A diet that includes healthy low-glycaemic index (GI) foods that are naturally high in fibre combined with guidance around glycaemic Index (GI) load and spreading meals over the day can also help with the management of insulin resistance.

Some examples of low-GI foods include: it may be good here to demonstrate high GI foods and a swap for low GI food options

- Oats
- Beans, lentils and chickpeas
- Bananas, oranges, nectarines and many other fruits
- Wholegrain bread and pasta
- Basmati rice

Small dietary changes that can be maintained in the long term can result in many health benefits, not just achieving or maintaining a healthy weight.

Exercise

Exercise is very important for someone who has PMOS.

- Exercise can help with increased energy levels and fitness, improved emotional wellbeing
- Reduced androgen production
- Weight loss (especially by reducing the dangerous fat around the abdomen) and reduce the risk of heart disease. Even without weight loss, exercise can improve insulin resistance
- Aim for 30 minutes of daily PA and increase this over time. You can break this up into smaller sessions, for example, 10 to 15 minutes, throughout the day
- A combination of cardio and muscle strength activity is recommended.
- Australian physical activity guidelines recommend at least 150 minutes of moderate activity or 75 minutes of vigorous activity each week. Activity should include both aerobic-type exercise (such as brisk walking or swimming) and resistance training (with weights or body weight) for overall health and wellbeing.

When it comes to lifestyle changes to help manage PMOS, focus on the following areas.

- Eat regular meals including a wide variety of foods
- Eat plenty of fruits and vegetables in place of more highly processed convenience snack foods
- Make smart swaps by choosing wholegrain foods over more highly refined grains. Choose wholegrain bread over white bread. Swap white rice for brown rice or popular grains like quinoa. Choose foods where wholegrains are listed high up in the ingredient list
- Go for healthier sources of fat such as extra virgin olive oil, avocado, nuts and seeds
- Be physically active and aim for at least 30 minutes of moderate activity on most days. Aim to be fit and healthy whatever your size
- Prioritize sleep and stress management
- Get help with depression, anxiety or low mood which are very common in people with PMOS

When to see a dietitian

PMOS can be managed by positive lifestyle changes including a healthy diet. An APD can help you meet your individual needs.

We recommend seeing a dietitian if you:

- Are struggling with any of the symptoms of PMOS
- Have been diagnosed with PMOS and want some support on evidence-based dietary management of this condition
- Need nutritional advice to help ensure you're meeting your individual nutrient requirements
- Would like personalised advice and support from a professional
- Need assistance in reducing risks and complications in pregnancy such as gestational diabetes or have a history of gestational diabetes in previous pregnancies
- Want to help improve fertility before or while trying to conceive
- Would like guidance on how to put recommendations for a healthy diet into practice.

APDs are university-trained nutrition experts. They can help you with personalised, easy-to-follow and evidence-based advice.

APDs are Australia's most trusted dietetics professionals.

Find a dietitian

Top tips

- Focus on improving the quality of your diet to meet your unique macro and micronutrient needs
- If you are wanting to shift your body weight be aware of excess calories from refined processed foods and limit discretionary foods, alcohol and high in saturated and trans fatty acids that can come form baked, fried food and a diet high in animal protein
- Adopting a Mediterranean dietary pattern that is rich in healthy fats, antioxidants from having fruit, vegetables in abundance, fish and red meat and poultry to a lesser degree.

- Aim to eat more fresh whole foods particularly for snacks and limit how much highly processed packaged food you eat
- Aim to include high fibre vegetables at meal times that fill ½ your plate
- different approaches to weight management depending on your needs at the time.
- Even a modest 5-10% loss of weight can make a big difference– there is no one approach that fits all for weight loss a APD can tailor your dietary changes to target your symptoms. Even a modest 5-10% loss of weight can make a big difference to improving hormonal function, insulin resistance and fertility.
- Include a mix of aerobic-type cardio exercises such as walking or running as well as some resistance training regularly. Exercise is good not only for your mental health but can help improve insulin sensitivity

This health advice page was peer-reviewed by an Accredited Practising Dietitian (APD) in April 2022.