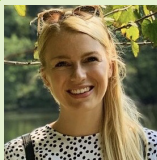


# POLYCYSTIC OVARY SYNDROME (PCOS) AND SYMPTOM MANAGEMENT



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REFERENCES  
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**This article looks at lifestyle interventions for adults with PCOS.**

Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders affecting approximately one in every 10 women of a reproductive age.<sup>1,2</sup> It is caused by an imbalance of female sex hormones,<sup>3</sup> which alters how the ovaries work.<sup>4</sup> An individual with two or more of the following features<sup>4</sup> may be diagnosed with PCOS:

- Irregular periods, which means the ovaries do not regularly release eggs (ovulation).
- Excess androgen: high levels of 'male' hormones (such as testosterone) in the body, which may cause physical signs such as excess facial or body hair.
- Polycystic ovaries: the ovaries become enlarged and contain many fluid-filled sacs (follicles) that surround the eggs.

PCOS is a syndrome and therefore is a collection of symptoms. See Table 1 for commonly associated symptoms.

Individuals with PCOS are also at an increased risk of particular health conditions, such as impaired glucose tolerance, Type 2 diabetes, gestational diabetes, cardiovascular disease, sleep apnoea and psychological difficulties.<sup>1,5</sup> Additionally, insulin resistance is estimated to affect approximately

50-80% of individuals with PCOS.<sup>3</sup> Excess insulin can cause oestrogen to be converted into testosterone and exacerbate symptoms. Insulin resistance can occur irrespective of obesity and, therefore, needs to be screened for in all individuals.<sup>6</sup>

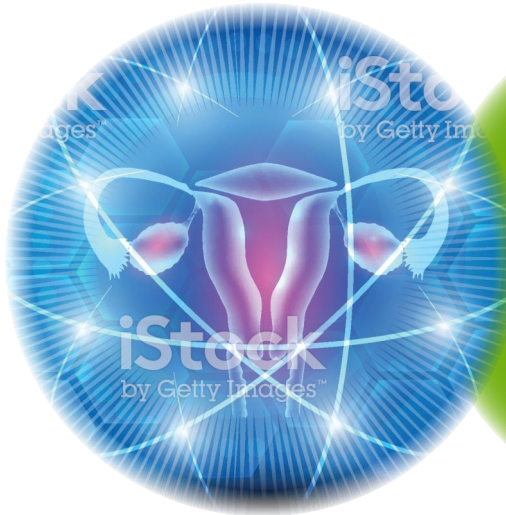
Fortunately, lifestyle interventions can improve hormone imbalance, symptoms, overall health and quality of life (QOL).<sup>7,8</sup> Advice around diet, exercise and behaviour change should be first line for individuals with PCOS.<sup>5</sup>

## WEIGHT MANAGEMENT

Being overweight or obese can heighten symptoms for individuals with PCOS, by worsening hormonal imbalance and increasing insulin resistance.<sup>3</sup> Therefore, where appropriate, promoting weight loss in individuals with a body mass index of >25kg/m<sup>2</sup> is important. If overweight, weight loss of 0.5-2 pounds per week can improve outcomes.<sup>2</sup> Guidance currently recommends gradual healthy weight loss by achieving an energy deficit of 500-700kcal per day.<sup>8</sup> This should be from a nutritionally balanced diet,<sup>6</sup> which is rich in fruit and vegetables and limited in processed foods.<sup>2</sup> There is inconclusive evidence at present to suggest one particular type of diet to be the most beneficial.

Table 1: Common symptoms of PCOS<sup>2,4</sup>

Irregular or absent periods	Oily skin or acne
Hirsutism (excessive hair growth, particularly on the face, chest, stomach, back or buttocks)	Difficulty in maintaining a healthy body weight
Thinning of scalp hair or male-pattern baldness	Fertility problems



Lifestyle advice is essential for all women with PCOS to help manage symptoms, improve insulin sensitivity and reduce the risk of associated health conditions.

If standard weight loss strategies are unsuccessful, bariatric surgery may be an option for individuals with PCOS who meet the referral criteria.<sup>1</sup> Regardless of the dietary approach that an individual chooses to follow, it is important to offer continued support and monitoring,<sup>6</sup> as this can improve weight loss results.<sup>8</sup>

## DIETS

### Low-glycaemic index diet

Glycaemic index (GI) is a ranking system that shows the rate at which a particular carbohydrate-containing food or drink will affect blood glucose levels. A low-GI diet has been shown to effectively help manage PCOS symptoms by improving insulin sensitivity, even for individuals who do not need to lose weight.<sup>2</sup> Therefore, switching over to some lower GI options may be beneficial, such as oats, fruits and vegetables, nuts and seeds, beans and pulses, granary bread, sweet potato and wholegrain rice. It is also important that low-GI advice is in combination with a healthy balanced diet, this is because some low-GI items are still high in fat, added sugar and calories and also because the GI can be affected by other nutrients within our diet.

### Low-carbohydrate or ketogenic diet (KD)

There are a few studies to suggest that a reduced carbohydrate or KD can improve insulin sensitivity in PCOS.<sup>9-11</sup> However, these studies have small participant groups and have only

provided short-term results to date. If a patient wishes to reduce their carbohydrate intake, it is still important to promote a nutritionally balanced and adequate diet. It can be more difficult to obtain enough fibre on a low-carbohydrate or KD. A lack of fibre can result in patients with PCOS becoming constipated, which reduces their ability to remove excess oestrogen. If oestrogen and insulin levels are raised, this can increase testosterone levels further.<sup>6</sup> Therefore, managing constipation is also vital in PCOS.

### Mediterranean diet

A Mediterranean diet is another popular option for weight management and reducing hyperinsulinemia. It has been associated with increased adherence and reduced central adiposity and insulin resistance.<sup>12</sup> This particular approach consists of consuming natural wholesome unprocessed ingredients. Additionally, the carbohydrate containing foods it promotes are typically lower in GI. A Mediterranean diet also encourages relaxed mealtimes, socialising and exercise.

## EXERCISE

Healthcare professionals should highlight the importance of being physically active. Exercise has been shown to reduce androgen levels and improve lipid profile, blood pressure, weight management, insulin sensitivity, regularity of menstrual cycles and mood for individuals with PCOS.<sup>6,3</sup> The aim is a minimum of 150

Table 2: Tips to help improve sleep<sup>15,16</sup>

Avoid alcohol close to bedtime	Keep well hydrated
Exercise regularly, but not directly before bedtime	Avoid late night large meals or snacking
Stop or reduce smoking	Sleep in a dark, cool room
Wear loose fitting clothing in bed	Create a restful environment
Avoid screens close to bedtime	Have a regular sleeping pattern
Relax before bed	Avoid napping during the daytime
Remove pets from the bedroom	Exposure to natural light first thing in the morning
Avoid/ limit caffeine after lunchtime	Relaxation exercises before bed
Take warm baths before bed	Listen to relaxation CDs or soothing music

minutes/week of moderate intensity physical activity (or 75 minutes/week of high intensity), including muscle strengthening activities twice per week.<sup>8</sup> Incorporating resistance exercise is very important in PCOS, as increasing muscle mass can improve insulin sensitivity.<sup>13</sup> However, healthcare professionals should advise against excessive exercise, as this can increase stress and circulating cortisol levels. Higher cortisol levels can heighten insulin resistance.<sup>14</sup>

**QUALITY OF LIFE (QoL) AND STRESS**

Unfortunately, research shows that there is a higher prevalence of anxiety, depression, eating disorders, sexual and relationship dysfunction and a reduced QoL in individuals with PCOS.<sup>1</sup> High levels of stress can have a significant impact on insulin resistance and body composition. Therefore, it is important that healthcare professionals routinely screen for psychological issues and offer support. This support may involve referrals to trained professionals, counselling sessions, signposting to local support groups and charities. Additionally, it is important to provide advice to help manage stress, such as exercise, meditation, yoga, socialising, breathing exercises and sleep management.

**SLEEP**

Poor sleep quality, or duration, can also have a detrimental impact on insulin resistance. Therefore, providing the advice outlined in Table 2 may be beneficial. It is also important to be aware that for individuals with both PCOS and sleep apnoea, Continuous Positive Airway Pressure (CPAP) treatment can improve insulin resistance.<sup>1</sup>

**VITAMIN D**

Vitamin D deficiency has been shown to be common in individuals with PCOS. However, there is limited evidence to say that supplementation will improve associated symptoms.<sup>6</sup> Despite this, it is important for adults to have an adequate vitamin D intake to reduce the risk of osteomalacia. All adults in the UK should consider taking a daily supplement containing 10 micrograms of vitamin D, especially during the autumn and winter months. However, if they are at greater risk of deficiency, then this supplement should be taken all year around.<sup>17</sup>

**SUMMARY**

Lifestyle advice is essential for all women with PCOS to help manage symptoms, improve insulin sensitivity and reduce the risk of associated health conditions. Weight loss is important where appropriate; however, positive diet and lifestyle changes can help irrespective of an individual’s weight.

There is currently no conclusive evidence to suggest one particular type of diet is the most beneficial. Despite this, the use of a low-GI, reduced carbohydrate or a Mediterranean dietary approach could be successful. Dietary methods should also include advice to help avoid or manage constipation.

Exercise, including both cardiovascular and resistance, is also important in the management of PCOS. However, healthcare professionals should encourage patients to avoid both excessive exercise and extreme diets. The impact of sleep and stress management should not be underestimated and regular screening for health complications and psychological issues is vital.