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Like a hormonal stealth bomber, polycystic ovarian syndrome (PCOS) can strike a woman at any age. Naturopath Tania Flack reports.

Understanding PCOS

SARAH (27 years) noticed her periods becoming irregular when she got a promotion; prior to that her cycle was perfect, so she just put it down to the stress of her new job. She was very busy in the first year of her new role, so when she started to gain weight she thought it was probably because she didn't have enough time to exercise and eat properly.

It wasn't until she started to develop deep cystic acne and excess hair growth around her jawline that she realised that something was going horribly wrong with her hormones. A trip to the doctor and a range of tests ultimately led to a diagnosis of polycystic ovarian syndrome (PCOS), a common condition that has the potential to cause complications with fertility and metabolism. So what is PCOS and how can we restore hormonal health and fertility once it has been diagnosed?

Like a hormonal stealth bomber, PCOS can strike at any stage of a women's life, and while some women experience symptoms from puberty, other women only experience

problems later on in life, often after a period of stress. According to the Medical Journal of Australia, PCOS affects between 12-21 percent of Australian women of reproductive age and is more common in women who are overweight or of indigenous background. It is also the most common cause of anovulatory infertility in Australian women. However, its impacts on fertility are only part of the story.

What's in a name?

The term polycystic ovarian syndrome (PCOS) is a misleading name for what is essentially a multifaceted metabolic condition that has broad-ranging systemic effects which impact hormonal and metabolic health. A more appropriate term for the condition would be polycystic ovarian spectrum, as some women may have only a few signs of PCOS, while others may experience the full

Overnight fasting helps to improve insulin sensitivity and support weight loss.

Nutritional medicine

- Inositol is a compound found naturally in legumes and fruit. Research has shown it regulates insulin and follicle-stimulating hormone (FSH), promotes glucose uptake into cells, and protects the quality of women's eggs.
- N-acetylcysteine improves insulin sensitivity. Magnesium, chromium and lipoic acid also help regulate blood sugar levels.
- Peony is a key fertility herb that regulates ovarian function and improves ovulation. Licorice is a powerful adrenal herb that helps regulate production of adrenal hormones, modify the effects of stress, and reduce production of androgens in the ovaries. Together, these herbs reduce testosterone levels and improve pregnancy rates with prolonged use.
- Tribulus, a reproductive tonic, regulates production of oestrogen and androgens. Chaste tree supports ovulation and regulates progesterone. Other herbs that improve insulin sensitivity and glucose tolerance include gymnema, goat's rue, and bitter melon.

range of symptoms. A diagnosis of PCOS comes as a shock for most women and its potential to lead to fertility problems can be terrifying. However natural medicine, along with dietary and lifestyle modification, can achieve great results. With the right type of support, PCOS can be successfully managed and symptoms can be completely reversed in some cases.

The cause of PCOS remains poorly understood. There is no single triggering factor; rather it is the result of a complex interaction between genetics and environment. Like many complex conditions, there is no one quick fix and we must address all of the driving factors simultaneously in order to get the best results. These are:

Genetics: Undoubtedly genetics play a role in PCOS. We all carry subtle genetic polymorphisms (or variations) that may predispose us to certain conditions, especially if those genes are triggered by our environment. In the case of PCOS, it seems that stress and poor diet can trigger genes that influence insulin signalling, hormone metabolism, and the production of androgen hormones from both the ovaries and the adrenal glands, which can contribute to the development of PCOS. However, everyone is individual, and what triggers PCOS in some women may not impact another. The type of treatment required to restore metabolic health needs to be individualised for each woman, as one size does not fit all.

Insulin resistance: Insulin resistance is a major driving factor behind PCOS and the main focus of research. Insulin is a transport molecule that escorts glucose into the cells

in order to provide energy. When women are insulin-resistant, their cells are less able to receive fuel from the bloodstream, so the pancreas makes more and more insulin to compensate. Instead of being transported into the cell for energy, glucose remains in the blood, which leads to weight gain. Ovarian follicles are stimulated prematurely when insulin resistance is present, causing the appearance of multiple ovarian follicles (cysts). It is estimated that 50-80 percent of all women with PCOS have some degree of insulin resistance. Women are often prescribed the oral contraceptive pill to minimise the symptoms of PCOS; however, this is not necessarily the best option as it may cause further deterioration of glucose tolerance.

Once only associated with obesity, normal weight women with PCOS can also have insulin resistance; however, overweight women are more likely to experience more pronounced menstrual irregularity, infertility and signs of androgen excess, such as acne and hair growth. The development of insulin resistance relies on several factors including diet, stress, and inflammation. Some women are more sensitive to a diet high in refined carbohydrates, due to individual genetic susceptibility. So an average Australian diet, which is usually high in refined foods, can be enough to trigger insulin resistance in some women. We should never assume that a woman with insulin resistance has made bad dietary choices: there can be a complex array of triggering factors and genetic influences occurring here.

Stress: Stress can play a significant role in the development of PCOS due to its ability to alter glucose metabolism, insulin sensitivity, and

Women are often prescribed the Pill to minimise symptoms of PCOS; however, this may cause further deterioration of glucose tolerance.

impact the production of adrenal hormones. In fact, it has been suggested that there is a separate subtype of PCOS - "adrenal PCOS" - that tends to surface in women who are over-exercising, have a highly stressful lifestyle, and are fundamentally burning the candle at both ends. These women may have significant signs of androgen excess, including acne and hair growth, and despite their exercise regimen they may experience insulin resistance and weight gain.

In women, both the ovaries and the adrenal glands produce hormones that act as androgens.



In the face of chronic stress and exhaustion the adrenal glands start to produce higher levels of a range of androgenic hormones, including one called dehydroepiandrosterone sulfate (DHEA-S) which can be used as a marker to assess how stress and adrenal function is contributing to PCOS. The treatment of these women needs to be handled very differently from women who have spiralled into PCOS due to a strong genetic tendency towards insulin resistance. When chronic stress and burnout have played a role, it must be addressed differently - and more exercise is not the answer. These women require adrenal support, stress management and lifestyle modification, along with hormonal regulation.

Inflammation: Inflammation is an often overlooked causative factor in PCOS; it acts as a double-edged sword, driving both insulin resistance and the production of androgens from polycystic ovaries. There are many causes of low-grade systemic inflammation, and one of the most common is poor digestive function and leaky gut. Leaky gut is a common condition caused by an overgrowth of normal bacteria (dysbiosis) irritating the pores through which we absorb nutrients. This creates a hyper-permeable gut and leads to the absorption of toxins into the bloodstream, causing low-grade inflammation. Causes of dysbiosis include: a refined, high sugar diet; herbicides, pesticides and additives in food; antibiotics and other medications, including the oral contraceptive pill; and most importantly, stress. Healthy bowel function is imperative for hormone metabolism, so if you have sluggish gut function, bloating or irregular bowels, this needs to be addressed. Treating leaky gut can improve insulin sensitivity and jump-start weight loss.

Take back control

The first line of treatment for women with PCOS is dietary intervention designed to normalise insulin responses and support weight loss. A low glycaemic index diet that avoids all refined carbohydrates and sugars is essential. Carbohydrate intake should be well controlled and include only small amounts of whole grains, such as quinoa, buckwheat, and red rice. Legumes are a great source of low glycaemic index carbohydrate that is rich in fibre to support bowel health and inositol to regulate hormones. The main focus should be on an anti-inflammatory diet: that is, one which is high in plant foods, with a moderate intake of fish, seafood, and nuts and seeds to provide healthy fats. Saturated animal fats from dairy

* PCOS symptom picture

Symptoms	Increased risk of
Irregular or absent periods	Obesity
Weight gain	Metabolic syndrome
Cystic acne	Gestational diabetes
Excess hair growth	Type II diabetes
Male pattern hair loss	High triglycerides
	Vascular disease
	Endometrial cancer



and red meats should be kept to a minimum, due to the increased risk of metabolic syndrome and elevated triglycerides. If this type of diet fails to improve insulin sensitivity and support weight loss, then you may wish to consider overnight extended fasting. This type of eating plan means you fast, usually between the hours of 8 p.m. until noon the following day, and this helps to sensitise insulin and increase weight loss. It's important to note that not all women who present with PCOS have obvious problems with insulin resistance, however this type of clean eating plan can support hormonal health for all women with PCOS. For best results speak to your nutritionist or naturopath for an individualised eating plan.

Exercise is an important part of any PCOS recovery program, but must be individualised for each woman. Overweight women with PCOS primarily driven by insulin resistance should exercise for 45 minutes four to five times per week. This will improve insulin sensitivity, weight loss and all other metabolic markers when combined with a carbohydrate- and calorie-controlled diet. Women with primarily stress-induced PCOS this may need a modified exercise plan. And, while not all women with PCOS are overweight, all will benefit from a healthy nutrition and exercise program. An appropriate exercise and nutrition program will help to improve insulin sensitivity, regulate BMI and promote fertility. Studies have shown that, in overweight women with PCOS, even a weight loss of five percent can lead to significant improvements in fertility and a reestablish regular ovulation. *

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