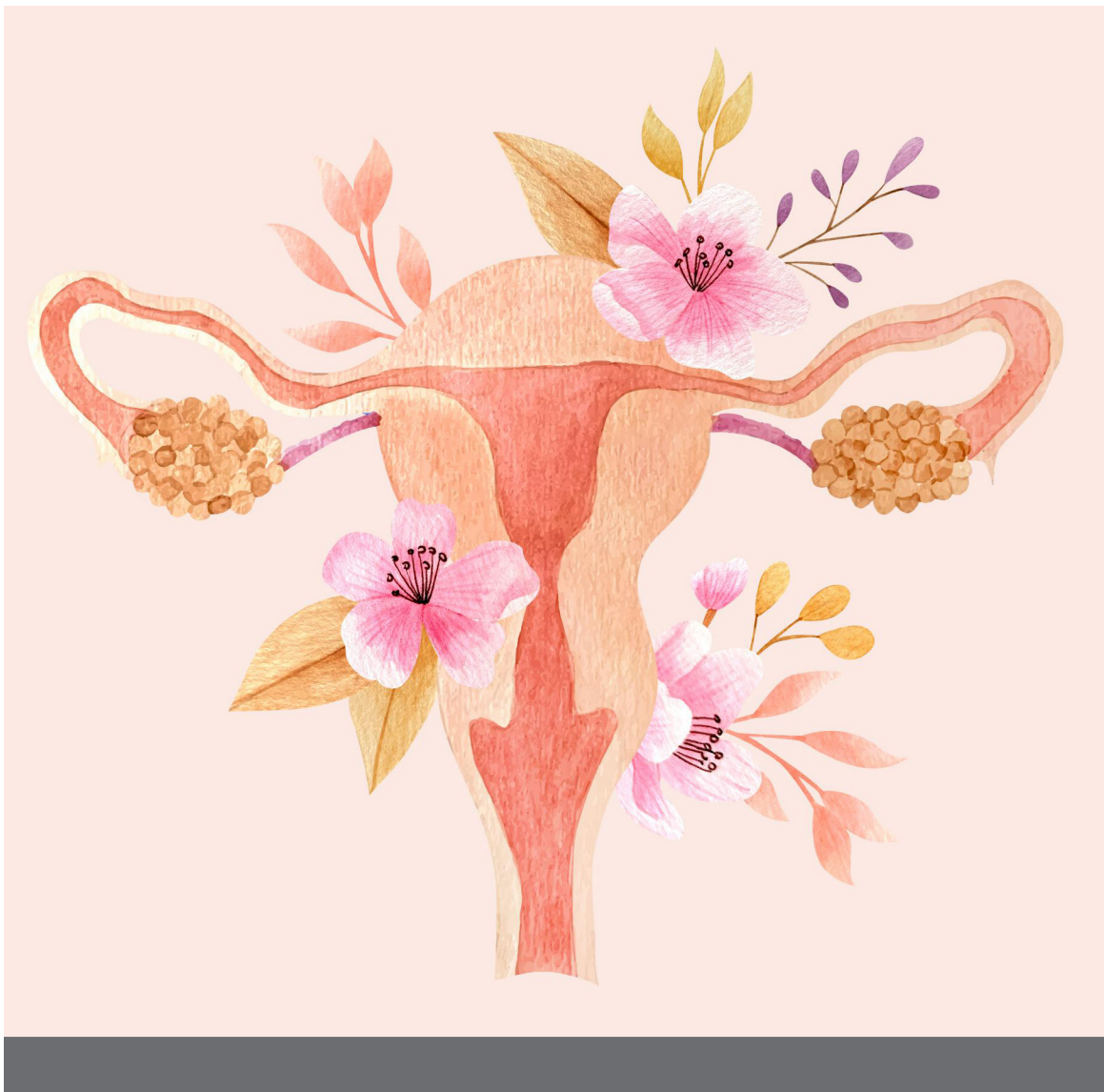


# NEW ROOTS

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## HERBAL

### » A GUIDE TO PCOS

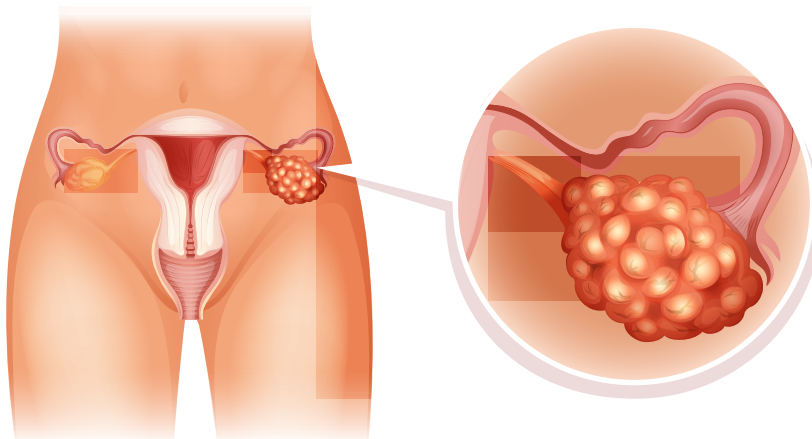


- Exclusive information for health-care professionals -



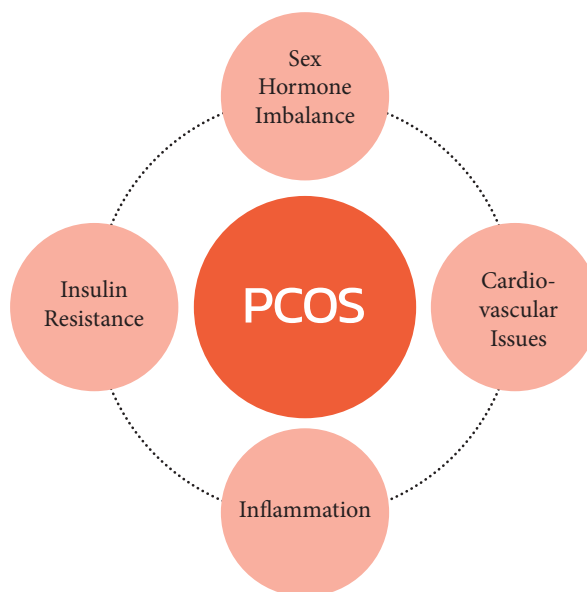
# POLYCYSTIC OVARIAN SYNDROME (PCOS)

PCOS is a very common endocrine disorder affecting approximately 10% of childbearing women and to a lesser extent older women. Women often experience chronic problems with ovulation, menstrual dysfunction, and excess production of androgens. More than 50% of women with PCOS have insulin resistance and women are often at an increased risk of developing diabetes or cardiovascular disease due to obesity and lipid abnormalities. Contributory factors of PCOS include hormonal imbalances, inflammation, oxidative stress, insulin resistance, metabolic syndrome, diabetes (type 1 and type 2) and genetics.



## PHASE 1. TESTING & DIAGNOSIS

- **Diabetes & insulin resistance.** Test fasting glucose, insulin and haemoglobin A1c (HbA1c assesses average level of blood sugar over the past 2 to 3 months). Excess insulin (hyperinsulinemia) can lead to the overproduction of ovarian androgens, which can lead to hormonal imbalances and ovulation issues. To estimate insulin resistance the following calculator may be helpful: <https://www.dtu.ox.ac.uk/homacalculator/>
- **Cardiovascular risk - lipids panel including triglycerides.** Lipid abnormalities often accompany PCOS, increasing the risk of developing diabetes and cardiovascular issues.
- **Inflammation - test for high-sensitivity C-reactive protein (CRP) and Ferritin.** Serum ferritin levels and chronic low-grade inflammation are increased in PCOS, especially when glucose tolerance is abnormal<sup>1</sup>. It is suggested that PCOS is a low-level chronic inflammation<sup>2</sup>.
- **Hormonal - test testosterone levels & sex hormone-binding globulin (SHBG).** SHBG is a protein in the blood that binds to other sex hormones including testosterone. When SHBG levels drop, levels of free testosterone rise which is common in PCOS. SHBG is an integrated marker of insulin resistance<sup>3</sup>.
- **Nutrient status:** Consider testing vitamin D, magnesium and folate.



The underlying issues with PCOS include insulin resistance, lowered SHBG levels, increased testosterone and inflammatory markers. Testing needs to be more thorough to understand the risk factors.

## PHASE 2A.

### Address Insulin Sensitivity/Resistance

Fluctuations in insulin and cortisol can increase inflammatory cytokines which interfere with insulin signalling and can increase the risk of insulin resistance. A dietary approach that is anti-inflammatory, increases fibre and reduces simple sugars is key.

It is important to continually monitor the diet. One study proposed that women with PCOS may underreport the foods being consumed that are rich in simple sugars rather than underreport their total dietary intake<sup>4</sup>.

A further study showed that, those with insulin resistance consumed less fibre, less magnesium, and had a greater glycaemic load than those without insulin resistance.

## PHASE 2B. KEY SUPPLEMENTS AND CONSIDERATIONS

There is accumulating evidence on the beneficial effects of myo-inositol administration for improving reproductive function, insulin resistance, metabolic irregularities, lowering blood pressure, improving lipid parameters, for restoring spontaneous ovulation as well as exhibiting an anti-inflammatory effect.

The addition of  $\alpha$ -lactalbumin with myo-inositol could play a beneficial role in the bioavailability myo-inositol. Peptides deriving from  $\alpha$ -lactalbumin digestion may modulate tight junction permeability allowing increased absorption of myo-inositol<sup>6</sup>. When myo-inositol is used in PCOS, with  $\alpha$ -lactalbumin, improvements in hormone and lipid profile were reported. This combination of myo-inositol with  $\alpha$ -lactalbumin in myo-Inositol resistant PCOS patients allowed for significant progress in the treatment. This combined formulation helped to re-establish ovulation and greatly improved the chances of desired pregnancy<sup>7</sup>.



### Dosages:

Start with inositol with added alpha-lactalbumin for myo-inositol resistant patients.

A daily dose: **2-4 grams Inositol daily** for a minimum of 3-6 months. Gradually increase the daily dose from 2 grams to 4 grams for those clients who are focused on fertility planning, who have higher levels of obesity, insulin resistance and metabolic syndrome and are possibly less compliant to dietary improvements.

**Amino Mix** – made from Hydrolysed Alpha-Lactalbumin. **Take 2 tablets daily between meals.**

Women with PCOS have a significantly lower serum 25(OH)D compared to fertile controls<sup>8</sup>. A compromised vitamin D status in PCOS women is associated with a higher HOMA-IR and an unfavourable lipid profile. Vitamin D supplementation at high doses for a period of at least 12 weeks, may lead to improvements in women with PCOS in the following parameters:

- » **glucose levels / insulin sensitivity / hyperlipidaemia / hormonal functionality<sup>9</sup>**

**Aim to get levels over 110 nmol/L • Supplement 25000-50000 IU per week**



Also consider the clients Omega-3 status. Overall, the co-administration of vitamin D and omega-3 fatty acid for 12 weeks had beneficial effects on mental health parameters (depression, anxiety & stress scores) as well as

- » **serum total testosterone / hirsutism-CRP / plasma total antioxidant capacity**

**Dosage:** 2000+mg (1000 mg EPA) of wild fish oil to lower inflammation and benefit hypertriglyceridemia (20-50% reduction) and reduce fatty liver disease.

Fibre intake of women with PCOS was negatively correlated with insulin resistance, fasting insulin, glucose tolerance, testosterone, and dehydroepiandrosterone sulphate (DHEA-S)<sup>5</sup>. Continually evaluate the diet and consider increasing protein intake in conjunction with fibre. Psyllium & inulin supplementation can help with lowering risk for diabetes & improving the composition of gut bacteria. Psyllium also binds to unconjugated (free) oestrogens in the digestive tract, aiding the excretion and inhibiting reabsorption in the intestinal tract.

**Dosage Psyllium Plus:** start with ½ to 1 teaspoon (especially in those who find it more difficult to tolerate fibre). Slowly increase to 2-3 teaspoons daily if well-tolerated. Monitor blood pressure to ensure there is no increase with licorice root.



Magnesium intake was negatively correlated with insulin resistance, C-reactive protein, and testosterone, but positively correlated with HDL cholesterol<sup>5</sup>. Magnesium Bisglycinate is the most bioavailable magnesium form of this micronutrient, and the amino acid L-taurine to improve the assimilation. Magnesium Bisglycinate Plus provides 150 mg elemental magnesium per capsule.



To improve glycaemic and lipid parameters, as well as ovulation and pregnancy rates; using a combination of Myo-Inositol and Folate, has shown to be beneficial.

**Dosage Folate Ultra:** 1 tablet daily.

## OTHER CONSIDERATIONS WITH PCOS



Oxidative stress participates in the pathophysiology of PCOS. It can induce a proinflammatory state that may contribute to co-morbidities as abdominal obesity, endothelial dysfunction, dyslipidaemia, hyperandrogenism, elevated insulin levels, and insulin resistance<sup>10</sup>. Superoxide dismutase (SOD) is the first line of defence in antioxidant reactions against reactive oxygen species (ROS), with studies reporting a systemic decrease in SOD activity in patients with PCOS<sup>10</sup>.

The antioxidants that address many of the circulating markers of oxidative stress in those with PCOS include superoxide dismutase (SOD), catalase, glutathione and Vitamin E<sup>11</sup>. The S.O.D Complex contains these key antioxidants plus *alpha*-lipoic acid, NAC and Goji, L-Cysteine, Riboflavin along with others that are capable of disposing, scavenging or suppressing the formation of oxidants.



PCOS is caused by an imbalance of the female sex hormones and higher levels of male hormones (androgens). Ingredients such as *vitex agnus castus* and black cohosh are beneficial at reversing the adverse effects of hormonal imbalance of PCOS<sup>12, 13</sup>. Femina Relief is a powerful combination of these extracts, along with dandelion, Siberian ginseng, red clover and other plants to help regulate hormonal function, detoxify the liver and reduce liquid retention. It is also beneficial in increasing energy levels and reducing irritability and depression.



Women with PCOS sometimes have high levels of androgens which causes thinning hair, known as androgenic alopecia or female pattern hair loss. Hair & Scalp is designed using antiandrogenic phytonutrients (pumpkin seed oil, saw palmetto, flaxseed, nettle, grape seeds, green tea), an anti-hair loss multivitamin complex (B-complex, vitamin D<sub>3</sub>), essential fatty acids (EPA, DHA and GLA), horsetail and L-tyrosine. These nutrients act on the different aspects involved in the deterioration of the hair cycle and provide the necessary elements for strengthening, revitalizing and preventing hair loss.

New Roots Herbal products are available from [Amrita Nutrition](#) and [The Natural Dispensary](#)

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