

Nutrition for Polycystic Ovary Syndrome (PCOS)

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Overview

Polycystic Ovary Syndrome (PCOS) affects 6% to 18% of reproductive aged women in the United States. However, the name can be misleading. PCOS is a complex and highly prevalent *reproductive, endocrine, and metabolic* disorder.

Patients with PCOS may experience:

- reproductive abnormalities
- inflammation correlated with insulin resistance
- irregular or absent menstrual periods
- excess androgens (male hormones such as testosterone)
- polycystic ovaries resulting from the hormonal imbalances
- hirsutism (male-patterned hair growth)
- acne
- alopecia (thinning or loss of scalp hair)

Additionally, both reproductive-age and older women with PCOS have an increased risk for conditions such as:

- impaired glucose tolerance
- type 2 diabetes mellitus
- elevated cholesterol or lipids
- increased abdominal adiposity
- obesity
- hypertension
- metabolic syndrome
- depression
- anxiety
- obstructive sleep apnea
- nonalcoholic fatty liver disease
- endometrial cancer
- cardiovascular disease

Research suggests that medication alone might not be enough to address PCOS. This is where individualized, evidenced-based Medical Nutrition Therapy (MNT) obtained from a Registered Dietitian Nutritionist comes into play.

Symptoms of PCOS

Early diagnosis, intervention, and treatment is key for PCOS patients. So where do you start? It's important to recognize common signs and symptoms of PCOS, such as:

- ✦ Excessive abdominal weight (waist > 35 inches)
- ✦ Difficulty losing weight despite diet and exercise
- ✦ Heavy bleeding or frequent periods
- ✦ Irregular periods or no periods at all
- ✦ Intense carbohydrate cravings
- ✦ Hypoglycemic (low sugar) episodes and/or the need to eat frequently
- ✦ Excessive hair growth on face, chest, stomach, back or toes
- ✦ Hair loss from head (male pattern)
- ✦ Acne
- ✦ Acanthosis nigricans (dark, dry patches of skin)

Interventions for PCOS

Diet Changes

Diet and lifestyle changes are important first-line treatments for PCOS. We know that in nutrition one size does not fit all. However, nutrition interventions for PCOS can support regular menstrual function, regulate hormone levels, and improve other symptoms. They can also help maintain healthy weight and prevent long-term complications.

This can be achieved with:

- ✦ Individualized diets based on the goal of weight maintenance, weight gain, or weight loss
 - For weight loss, gradual and healthy weight loss is important.
- ✦ Reducing excess intake of fats and carbohydrates
- ✦ Eating 4-5 meals/snacks per day

A weight loss of five to ten percent of total body weight over the initial 6 months has been shown to improve issues associated with PCOS. Types and quality of food should also include anti-inflammatory foods, such as:

- 🌿 cold-water fish
- 🌿 olive oil
- 🌿 avocados
- 🌿 red wine
- 🌿 dark chocolate
- 🌿 soluble and insoluble fiber, like whole grains, fruits, vegetables, beans, legumes, nuts, and seeds
- 🌿 pomegranates
- 🌿 onions
- 🌿 garlic

Additionally, it has been shown that zinc deficiencies are related to worsening symptoms. Dietary sources of zinc include meat, liver, fish, eggs, oysters, nuts, and pumpkin and sesame seeds.

Supplements

There are three key therapeutic dietary supplements for PCOS: *Inositol*, *Berberine*, and *L-Carnitine*.

- **Inositol** - Inositol is a vitamin-like substance. It is found in many plants and animals. Research shows that taking inositol reduces fasting blood glucose, fasting insulin, total cholesterol, triglycerides, and testosterone levels. Another study showed myo-inositol is similarly effective to Metformin for improving fasting insulin, insulin resistance, androgen levels, and body mass index (BMI), but with a much lower risk for adverse effects.
- **Berberine** – Berberine’s lipid-lowering and insulin-resistance improving actions have been demonstrated in numerous randomized clinical trials. Research shows that berberine may improve some metabolic characteristics in PCOS patients and insulin resistance. Berberine seems to improve lipid parameters, including LDL cholesterol and total cholesterol, when compared with Metformin.
- **L-Carnitine** - L-carnitine is an amino acid that is produced in the body. L-carnitine helps the body turn fat into energy. L-Carnitine supplementation reduces body weight, BMI, waist circumference, and hip circumference when compared with placebo in women

with PCOS. There were also noted improvements in markers of glycemic control and insulin sensitivity.

Other Therapies

Regular mindful yoga practice can be a useful complementary therapeutic option for people with PCOS, particularly for improving serum androgen levels. Yoga practices can help with anxiety and depression as well. Overall, the Academy of Nutrition and Dietetics recommends a goal of 30 minutes or more of moderate intensity physical activity daily.

There are numerous other therapies and dietary supplements studied for PCOS treatment but they all have insufficient reliable evidence, and therefore I would proceed with caution.

Additionally, collaboration with a team of healthcare professionals is so important for people with PCOS. Patients should seek out a multidisciplinary team, including a nutrition professional and a mental health professional. It is so important to be advocating for yourself on your journey to healing by requesting copies of your routine lab work to be able to discuss the results with your doctor. That way you will be able to monitor the effectiveness of your treatment plan and hard work while educating and empowering yourself along the way!

Take Home Points

- ✔ PCOS is a highly complex and prevalent reproductive, endocrine, and metabolic disorder that needs to be detected and treated as early as possible to mitigate long-term complications
- ✔ Diet and physical activity should be the first line nutrition intervention for polycystic ovary syndrome (PCOS). Weight loss of 5% to 10% of total body weight has been shown to improve both metabolic and reproductive aspects of PCOS.
- ✔ Physical activity level should be assessed and individualized long-term goals should be established to accumulate at least 30 minutes or more of moderate-intensity physical activity on most—preferably all—days of the week, unless medically contraindicated. Physical activity contributes to weight loss, may decrease abdominal fat, and may help with maintenance of weight loss

- Berberine, Inositol, and L-Carnitine rank highest in the literature as the most effective therapeutic dietary supplements for PCOS

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