

Polycystic Ovary Syndrome (PCOS) Nutrition Advice

PCOS Nutrition and Health

- Adopt a predominantly low fat fibre rich whole food plant-based way of eating to see maximum gain. Focus on foods that are rich in fibre and are absorbed slowly by the body (porridge for example). This will prevent surges of insulin and blood sugar, which can make PCOS more difficult to treat.
- Aim for 10 -13 portions of fruit and vegetables daily (80 grams or what fits in the palm of your hand is one portion for example 2 broccoli florets, one apple, two satsumas).
- Eat a varied and rainbow coloured diet.
- Foods to eat and enjoy without restriction:
- Fruits (the sugar in fruit is bound to fibre and is healthy). There is no limit to the number or type of fruits consumed. Berries, apples and pears and dark fruit are particularly good for you and are rich in antioxidants.
- Vegetables, especially nutrient-rich leafy greens like spinach, spring greens, kale, broccoli, pak choy etc). Limit avocados to one medium sized pear a week if trying to lose weight.
- Legumes: Beans, peas, lentils and pulses are especially rich in fibre and protein. Increased dietary fibre has been shown to predict weight loss in women with PCOS.
- Intact whole grains as close to the original (oat groats, quinoa, wild or black/red rice, millet, spelt, amaranth, barley etc)
- Minimally processed grains (for e.g. steel cut or rolled oats, whole wheat pasta, lentil pasta, whole meal seeded bread, brown rice, brown rice noodles)
- Herbs and spices as they are extremely high in antioxidants
- Aim for two daily portions of minimally processed soya foods as they are naturally rich in isoflavones as well as being rich in iron, potassium, B vitamins and a complete plant protein (one portion is 80 g of tofu or tempeh or a cup of soya milk or soya yoghurt, 80 g of edamame beans, miso soup, natto, mature soya beans)
- Complex starchy carbohydrates such as sweet potatoes, boiled or mashed regular potatoes with the skin, yam, tapioca are also very good choices. Legumes and whole grains are also examples of complex starchy carbohydrates.
- Limit nuts and seeds to a small handful (if trying to lose weight as calorie dense, but these are rich in nutrients and omega 3 (walnuts, flax and chia).
- Water should be the beverage of choice
- Avoid high glycaemic index foods such as refined grains, sweetened beverages, fruit juices and added sugars, all of which are stripped of fibre and promote insulin resistance and inflammation
- Avoid or limit ultra processed foods and commercial snacks (trans fats)
- Avoid foods from animal origin including meat, fish, dairy, poultry and eggs (all of

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which contain saturated fat, no fibre and protein from animal sources contributes to insulin resistance or promotes inflammation and oxidative stress)

- Avoid all oils including olive and coconut oil as they promote inflammation, are nutrient poor, have no fibre and with only empty calories (120 kcal/tbsp) slow down weight loss
- Cut down on salt and caffeine

How can MNT help?

Medical nutrition therapy (MNT) can help women with PCOS make and maintain the lifestyle changes needed to help reduce symptoms and prevent complications. Nutrition interventions are specific actions to remedy the nutrition diagnosis; these can include clinical and behavioural goals collaboratively agreed upon with the patient, as well as specific nutrition interventions such as selecting a meal-planning strategy or education on controlling portion sizes or making healthy choices when dining out. Seeing a plant based nutritionist or dietician for a thorough nutrition assessment can help women with PCOS achieve their goals.

The role of supplements in women with PCOS?

Vitamin D deficiency is common in women with PCOS, and there is some evidence that vitamin D supplementation (Vitamin D3 1000 -2000 IU/day, especially in the winter months) after an initial blood test to measure levels may improve reproductive function and insulin sensitivity

Chromium:

A dietary supplement with at least the minimum intake of the trace mineral chromium (RDA of 25 µg/day) may be helpful, for several reasons. Insulin resistant women with PCOS were found to have significantly lower serum chromium levels compared with controls and on supplementation in a trial of 200-1000 micrograms/day experienced significant improvements in insulin resistance.

Chromium supplementation has also been shown in women with PCOS to significantly improve the chances of ovulation and reduce hirsutism

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Inositol:

One of the key ingredients in a diet that emphasizes whole grain intake, legumes and nuts in place of refined carbohydrates is inositol hexaphosphate. In clinical trials, inositol has been shown to improve insulin action, decrease androgen levels, and improve ovulatory function in both lean and obese women with PCOS.

The benefits of metformin in PCOS appear at least partly due to increasing inositol availability. Myoinositol with folic acid for 3-6 months has shown some promising results in helping women ovulate and is thought to work by reducing testosterone/insulin levels. You will need the advice of your specialist for further guidance.

Omega-3 fatty acid:

Based on current evidence, omega-3 fatty acid may be recommended for the treatment of PCOS with insulin resistance as well as high total cholesterol (especially LDL-C) and triglycerides. Long term benefits beyond 6 months of treatment remain unknown. An algae derived Omega 3 supplement of 250 mg/day may be considered.

Walnuts, chia seeds and flax seed powder also contain good amounts of omega 3 but conversion rate to the active compounds may vary in different people, hence a supplement may also be considered. Marjoram tea: has been shown to be helpful with hormonal profiles in a study of women with PCOS. (couple of cups/day)

Oxidative stress, inflammation and the role of AGE's in women with PCOS:

- AGEs (advanced glycation end products) or glycotoxins are highly reactive molecules thought to accelerate the aging process. AGEs crosslink proteins together, causing tissue stiffness, oxidative stress, insulin resistance, cellular damage and inflammation.
- AGEs are produced internally as natural waste products of metabolism, but the other source is from our diet (foods especially when cooked at high temperatures or animal products).
- Women with PCOS tend to have nearly twice the circulating AGE levels in their bloodstream.
- Women with PCOS also tend to have higher levels of AGEs and AGE receptors in the ovaries. So, ovaries may be particularly sensitive to their effects, with AGEs contributing to the cause of PCOS. High AGE levels were found in lean women with

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PCOS as well.

- Diets low in AGEs reduce inflammation and insulin resistance in women with PCOS while high-AGE foods include beef, pork, poultry, cheese, butter, cream cheese, and processed snack foods
- Low-AGE foods include whole grains, legumes, vegetables, and fruits.
- Increasing intake of foods that may help pull AGEs out of the body like brown rice and mushrooms.
- Eat foods high in antioxidants like berries, herbs, and spices
- Dietary AGE intake can be decreased by changing the method of cooking from the high temperature dry cooking methods to low heat, higher humidity (stewing, steaming, and boiling).
- Choose raw foods (fruits, vegetables, raw nuts and raw nut butters, the latter may have 30 times less AGEs compared to the roasted nuts)
- Avoid trans fats, oils, junk and ultraprocessed foods, carbonated drinks, fruit juices, sugary foods such as cakes and biscuits, as these cause surges of insulin and blood sugar. They are all devoid of fibre and promote oxidative stress and inflammation. Stay away from high AGE ultra-processed foods, such as puffed, shredded, and flaked breakfast cereals and fried foods
- Avoid animal derived foods including eggs, dairy, fish, chicken and red meat. These are full of saturated fat, devoid of any fibre and promote inflammation through the various compounds that are naturally present in animal foods, including TMAO, carnitine, Neu5GC as well as bacterial endotoxins, antibiotics, plastic, persistent organic pollutants and mercury (the latter two particularly in big fish)
- Avoid risky substances including smoking and alcohol, both of which make PCOS symptoms worse similar to processed meat. The glycotoxins in cigarette smoke “may contribute to” the increase of heart disease and cancer among smokers.

Benefits of a Low Fat Whole Food Plant-Based Diet:

- Sustained weight loss
- Reduces insulin resistance
- Reduces circulating androgens, increases sex hormone binding globulin (SHBG) because of the low fat, high fibre dietary content
- Improves lipid profile
- Reduces oxidative stress (impairs glucose uptake in muscle and fat)
- Lowers inflammatory markers (C-reactive protein, homocysteine)
- A whole food plant-based diet rich in fibre will help symptoms of PCOS
- Fibre is beneficial to the gut microbiome.

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- BMI and saturated fat: Among women with PCOS, body mass was significantly higher in US women compared with Italian women. However, total calorie intake and dietary constituents were similar, except for a higher saturated fat in US women. An increased saturated fat intake may worsen the cardiovascular risk profile.
- Increased fibre and reduced trans fatty acid intake are primary predictors of metabolic improvement in women with PCOS who are overweight.
- Advising a fibre-rich diet in women with PCOS, with or without weight loss intentions is sensible
- Soya has been shown to improve PCOS symptoms and metabolic markers
- Eating a varied diet with regular soya intake has been shown to lead to significant decreases in body weight, waist circumference, insulin, insulin resistance, blood sugar, and triglycerides; it also helped counteract hormone disruption.

Further information:

(Please see PCOS leaflet and Lifestyle Medicine and General Nutrition leaflets)

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