

Healthy Living

with Polycystic Ovarian
Syndrome (PCOS)

Following a healthful diet, exercising daily, and adding certain nutrients to your diet may help you manage the symptoms of PCOS and reduce your chances of developing other health conditions.



PCOS is an endocrine disorder affecting about 7 million women and teenage girls in the United States.¹ While there is no cure for PCOS, following a healthful diet, exercising daily and adding other important nutrients to your diet may help you manage the symptoms of PCOS and reduce your chances of developing other health conditions. In this eBook we will discuss:

1 Symptoms and health risks

2 The glycemic index

3 Meal planning

4 Healthy recipes

5 Exercise

6 Important nutrients



SYMPTOMS AND OTHER HEALTH RISKS

PCOS symptoms can be different from woman to woman. Some common signs and symptoms include:

- Irregular or no menstrual periods
- Higher levels of the male hormone testosterone, which can cause facial hair growth and acne
- Polycystic ovaries (many small cysts on the ovaries)
- Insulin resistance
- Weight gain or having a hard time losing weight

PCOS has also been linked to a higher risk of diabetes, heart disease, high blood pressure, metabolic syndrome, and certain cancers. PCOS is also a common cause of infertility.²

Insulin Resistance

Insulin is a hormone that allows our cells to use glucose (sugar) to produce energy. When insulin resistance occurs, cells lose their ability to use insulin normally. This causes the body to produce extra insulin. The high blood level of insulin that results is related to many of the symptoms of PCOS. It may also result in impaired ovulation, potentially causing fertility problems. Insulin resistance can also lead to diabetes and heart disease.³

What is Metabolic Syndrome?

Metabolic syndrome is a group of risk factors including insulin resistance, high fat levels in the blood, obesity, and high blood pressure. If you have at least three of the following five measures, this means you have metabolic syndrome:⁴

- **Waist measurement:** 35 inches or more
- **Blood pressure:** 130/85 mmHg or higher
- **Fasting blood sugar level:** 100 mg/dL or higher
- **Fasting HDL (high-density lipoprotein), sometimes called "good" cholesterol:** less than 50 mg/dL
- **Fasting triglyceride level:** 150 mg/dL or higher



THE GLYCEMIC INDEX

The glycemic index (GI) is a measure of how much a food that contains carbohydrates can increase blood sugar and insulin levels.

Carbohydrates are the sugars, starches and fibers that are found naturally in fruits, grains (breads, cereals), vegetables and milk products. They are an essential part of a healthy diet.

When you eat any type of carbohydrate, your digestive system breaks it down into simple sugars that enter the bloodstream. Choosing foods that have a low-GI can result in a slower rise in blood sugar and insulin levels.

Studies have shown that women with PCOS who ate more low-GI foods had better insulin sensitivity and more regular menstrual cycles than women who did not follow a low-GI meal plan.⁵

When planning meals, it is important to include low-GI foods but also to look at the overall glycemic load (GL) of a meal to avoid sudden spikes in blood sugar. This can help manage insulin resistance.⁶

What is GL?

Each food has a unique effect on blood sugar. GL considers both the number of carbohydrates in a specific food and the GI of the food. This measurement gives you a better estimate of the effect a food has on your blood sugar level.

Achieving and maintaining a healthy weight is important. Weighing too much is associated with increased insulin resistance. Losing weight can be a struggle though, especially for women with PCOS.

Work with a registered dietitian or nutritionist who specializes in PCOS to determine a healthy weight for you, and develop a personalized plan to help you reach your goal.

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Moderate weight loss (at least 5% of total body weight), has been shown to improve insulin and testosterone levels and normalize menstrual cycles in women with PCOS.⁷ For example, if you weigh 150 pounds, losing just 8 pounds can be helpful.

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MEAL PLANNING

Following a low-glycemic meal plan can help manage symptoms of PCOS. Here are some tips for planning low-glycemic meals and snacks.

Select lower-glycemic carbohydrate-rich foods in moderation. Choose brown rice instead of white, a sweet potato over white potatoes, and if having a roll with dinner choose a whole grain one.

Combine these carbohydrate-rich foods along with other foods that contain protein and fat, such as fish, eggs or chicken cooked in a healthy fat such as olive oil.

Add vegetables to complete your meal.

Adding vegetables such as carrots, broccoli, cauliflower, celery, tomatoes and zucchini to your meal will provide you a balance of foods to help keep your blood sugar and insulin levels in good control.

Choose low-GI foods, such as:

Dried beans, berries, 100% whole-grain breads, steel-cut oatmeal, quinoa, and vegetables such as greens (kale, spinach, collards), broccoli, mushrooms, tomatoes and peppers.

Eat these high-GI foods less often:

Cookies, cakes, white rice, cornflakes, saltine crackers, candy, sweet drinks and boiled potatoes.

Edamame Avocado Salad

This side dish has low-GI foods plus 9 grams of protein and 5 grams of fiber per serving, which can help keep your blood sugar level stable.

Preparation Time: 7 minutes

Cooking Time: none

Servings: 4

- 2 teaspoons unseasoned rice vinegar
- 1 tablespoon olive oil
- 2 cups cherry tomatoes, halved
- 1 cup fresh or frozen, thawed, edamame
- 1 avocado, peeled and chopped
- ¼ teaspoon salt

1. Whisk together the vinegar and oil.
2. Toss the tomatoes, edamame and avocado with the dressing, sprinkle with salt.





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HEALTHY RECIPES

In addition to the recipe on the previous page, these two recipes balance carbohydrate-rich foods with lean proteins and healthy fats. Incorporate these types of recipes to jump start your healthy low-glycemic meal plan.

Chocolate Mousse Recipe

This simple dessert is so healthy you can enjoy a serving every day. It has 11 grams of protein and the cocoa has polyphenols which can help protect your heart.

Preparation Time: 4 minutes

Cooking Time: none

Servings: 2

- One 7-ounce container plain 2% Greek yogurt

- 2 ½ tablespoons unsweetened cocoa powder
- 2 teaspoons granulated Stevia®
- ½ teaspoon vanilla extract
- 1 tablespoon skim milk

1. Whisk together all ingredients.
2. Divide into two bowls and keep chilled until ready to serve.

Turkey Bacon Wrap with Cheddar and Sliced Pear

This versatile meal is packed with 31 grams of protein. It can be eaten for breakfast, lunch or dinner. For variety, experiment with adding arugula or sliced tomatoes.

Preparation Time: 10 minutes

Cooking Time: 7 minutes

Servings: 1

- Three slices turkey bacon
 - One whole grain wrap
 - One ounce cheddar cheese
 - One pear with skin, thinly sliced
1. Cook turkey bacon according to package directions.
 2. Fill wrap with cheese and heat in microwave for 15 seconds to melt cheese.
 3. Add bacon and sliced pear and fold up wrap.

EXERCISE

Exercising regularly is very important to help manage PCOS symptoms. Exercise helps your cells use insulin more efficiently and ensure your body doesn't have too much insulin.⁸

High-intensity interval training (HIIT)

Research has found that a type of cardio workout called high-intensity interval training (HIIT) can help reduce insulin resistance, improve HDL ("good" cholesterol) levels, and lower body fat in women with PCOS.⁹

HIIT workouts alternate between intervals of challenging, intense exercise and easier, low intensity exercise. Each interval may be one, two, or even up to eight minutes long. The workout usually includes a short warm up and cool down, and lasts at least 30 minutes.

Vigorous Exercise

Another study showed that vigorous exercise improved insulin resistance and lowered the risk of metabolic syndrome in women with PCOS. This study found that for every hour of vigorous exercise per week, a woman with PCOS could reduce her risk of getting metabolic syndrome by 22%.¹⁰ Vigorous exercise includes activities such as running, bicycling fast and playing team sports such as soccer or basketball.

As with any exercise routine, remember to speak with your healthcare team before beginning an exercise regimen.

If you are just starting to exercise, remember any increase in movement each day is good. Start slowly. You can work up to more intense exercise as your fitness level improves.

Here are some easy ways to get started:

- Go for a walk. Ask a friend to go with you for motivation.
- Check out exercise programs at your local community center or gym to see if there are any that interest you, and then try a class for the activities you find exciting.
- Put exercise days and times in your schedule to help ensure that you follow through.
- Choose exercises that you like; you'll be more likely to keep doing them!

As you become more comfortable with exercising on a regular basis and your fitness level improves, you may want to increase the intensity of your workouts.





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IMPORTANT NUTRIENTS

In addition to eating a healthful diet and daily exercise, there is research to suggest that certain nutrients may also be helpful.

NUTRIENT	DOSAGE	BENEFITS
Inositol A nutrient found in fruits, beans, grains, and nuts and is also made by the body.	2,000 mg of myo-inositol (MI) plus 50 mg of d-chiro inositol (DCI), taken twice a day	Two forms of inositol have shown benefit for women with PCOS: MI and DCI. These inositols naturally occur in the body in a ratio of 40 (MI) to 1 (DCI). ¹¹ Studies show that taking a combination of these two forms is more helpful than taking either form alone. Inositols help decrease insulin resistance, improve testosterone levels, support healthy blood lipids, regulate menstrual cycles, and promote ovulation. ¹²⁻¹⁴
Omega-3 Fish Oil Fatty acids found in fish such as salmon, herring, sardines, tuna, trout, and mackerel.	2,000-3,000 mg	Omega-3 fish oil may reduce depression, improve testosterone levels and regulate menstrual cycles. ¹⁵⁻¹⁶ Consider an omega-3 fish oil supplement, especially if you do not eat fatty fish at least twice a week.
Vitamin B₁₂ A water-soluble vitamin found in animal products (fish, poultry, meat, eggs, and milk).	Varies	Research has shown that long-term use of metformin decreases levels of vitamin B ₁₂ in the body. ¹⁷ A deficiency of vitamin B ₁₂ can cause permanent neurological and nerve damage as well as mood changes and decreased energy. If you are taking metformin ask your healthcare provider to check your vitamin B ₁₂ level to determine if taking B ₁₂ is right for you.
Vitamin D₃ A fat-soluble vitamin produced in our skin after being in the sun. Small amounts are found in some foods.	2,000-4,000 IU	Vitamin D may improve total testosterone levels in women with PCOS. ^{15,18,19} Ask your healthcare provider to check your vitamin D blood level to determine how much vitamin D you need.
CoEnzyme Q₁₀ (CoQ₁₀) A naturally- occurring antioxidant produced in the body and found in virtually all cells. CoQ ₁₀ is essential for cellular energy production.	100-200 mg	CoQ ₁₀ may increase ovulation and pregnancy rates in women with PCOS going through fertility treatment. ²⁰ Also CoQ ₁₀ has been found to improve blood sugar and insulin levels, and total cholesterol and LDL ("bad cholesterol") levels. ²¹
Melatonin A hormone secreted by the pineal gland, which helps regulate sleep and also functions as an antioxidant in the body.	2-3 mg	Women with PCOS have low levels of melatonin in follicular fluid, which may decrease fertility. Studies show that melatonin supplements reduce testosterone levels, increase follicle-stimulating hormone (FSH) and improve menstrual regularity. ²²⁻²⁴

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