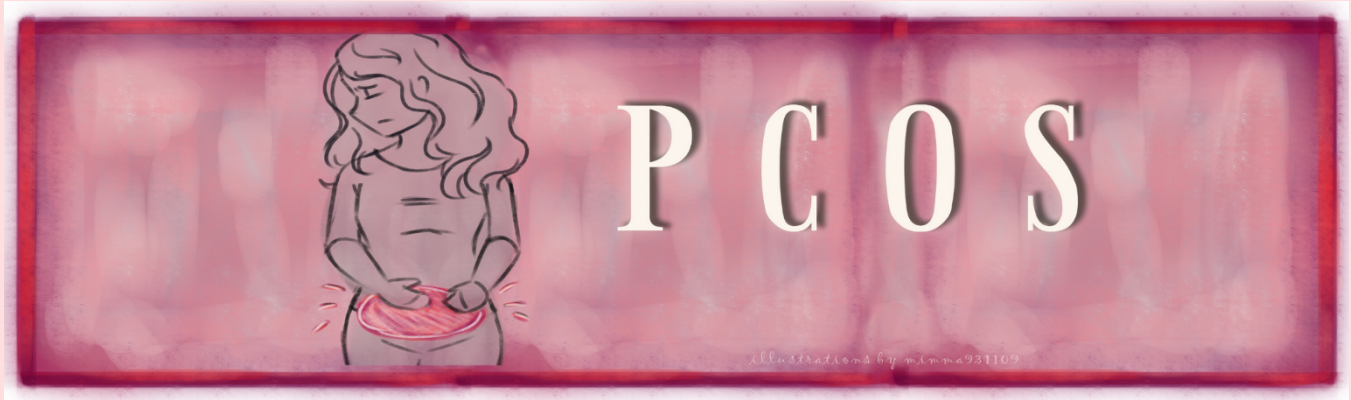


POLYCYSTIC OVARY SYNDROME



Introduction

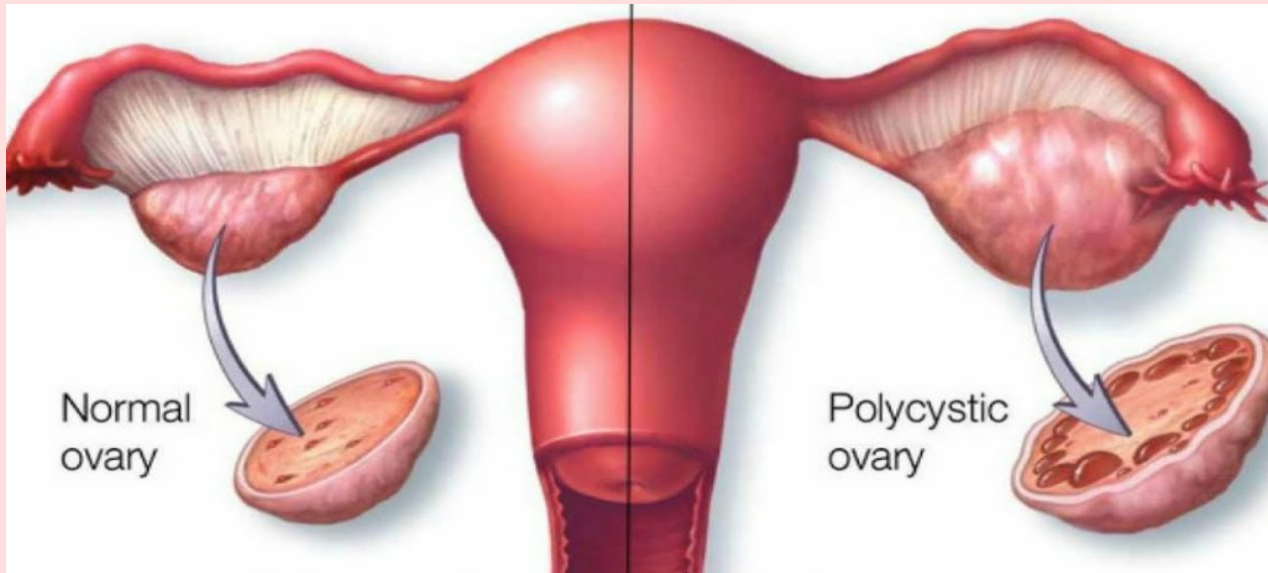
Polycystic ovary syndrome (PCOS) is a condition that affects a woman's hormone levels.

Women with PCOS produce higher-than-normal amounts of male hormones. This hormone imbalance causes them to skip menstrual periods and makes it harder for them to get pregnant.

PCOS also causes hair growth on the face and body, and baldness. And it can contribute to long-term health problems like diabetes and heart disease.

Birth control pills and diabetes drugs can help fix the hormone imbalance and improve symptoms.

What is PCOS?



PCOS is a problem with hormones that affects women during their childbearing years (ages 15 to 44). Between 2.2 and 26.7 percent of women in this age group have PCOS ([1](#), [2Trusted Source](#)).

Many women have PCOS but don't know it. In one study, up to 70 percent of women with PCOS hadn't been diagnosed ([2Trusted Source](#)).

PCOS affects a woman's ovaries, the reproductive organs that produce estrogen and progesterone — hormones that regulate the menstrual cycle. The ovaries also produce a small amount of male hormones called androgens.

The ovaries release eggs to be fertilized by a man's sperm. The release of an egg each month is called ovulation.

Follicle-stimulating hormone (FSH) and luteinizing hormone (LH) control ovulation. FSH stimulates the ovary to produce a follicle — a sac that contains an egg — and then LH triggers the ovary to release a mature egg.

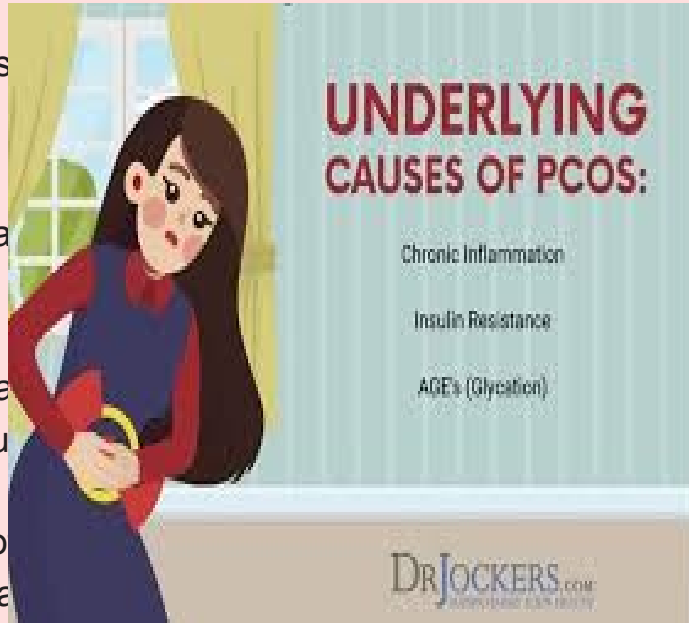
PCOS is a “syndrome,” or group of symptoms that affects the ovaries and ovulation. Its three main features are:

- cysts in the ovaries
- high levels of male hormones
- irregular or skipped periods

In PCOS, many small, fluid-filled sacs are present in the ovaries. This means “many cysts.”

These sacs are actually follicles, each containing an egg. They never mature enough to trigger ovulation.

The lack of ovulation alters levels of hormones. Estrogen and progesterone levels are often higher than usual.



“cystic”

eggs

are

Extra male hormones disrupt the menstrual cycle, so women with PCOS get fewer periods than usual.

What causes it?

Doctors don’t know exactly what causes PCOS. They believe that high levels of male hormones prevent the ovaries from producing hormones and making eggs normally.

Genes, insulin resistance, and inflammation have all been linked to excess androgen production.

- GENES

Studies show that PCOS runs in families ([5](#)).

It's likely that many genes — not just one — contribute to the condition

- INSULIN RESISTANCE

Up to 70 percent of women with PCOS have insulin resistance, meaning that their cells can't use insulin properly.

Insulin is a hormone the pancreas produces to help the body use sugar from foods for energy.

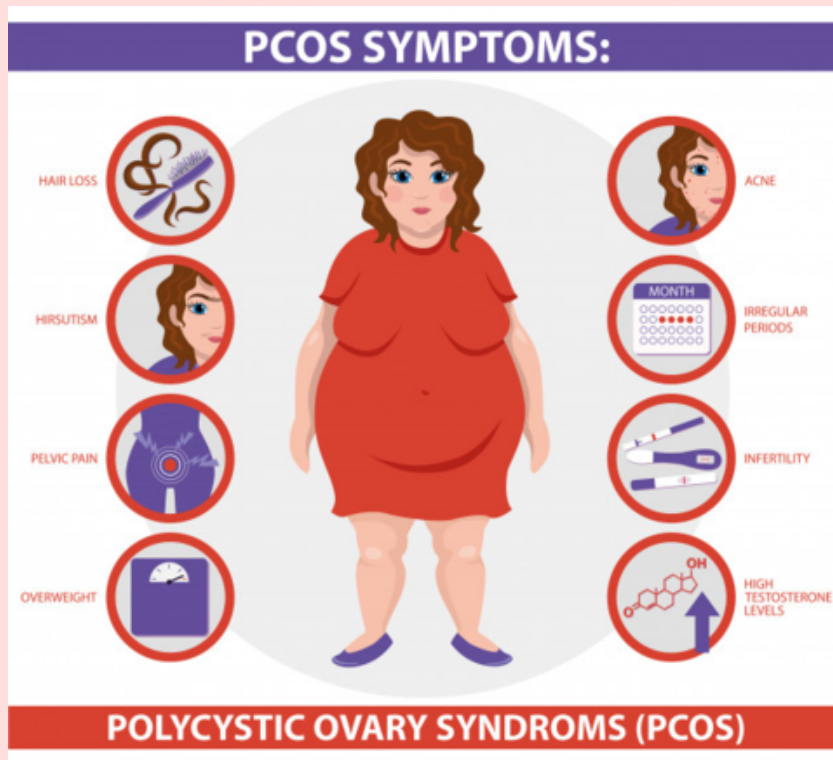
When cells can't use insulin properly, the body's demand for insulin increases. The pancreas makes more insulin to compensate. Extra insulin triggers the ovaries to produce more male hormones.

Obesity is a major cause of insulin resistance. Both obesity and insulin resistance can increase your risk for type 2 diabetes.

- INFLAMMATION

Women with PCOS often have increased levels of inflammation in their body. Being overweight can also contribute to inflammation. Studies have linked excess inflammation to higher androgen levels

Common symptoms of PCOS



Some women start seeing symptoms around the time of their first period. Others only discover they have PCOS after they've gained a lot of weight or they've had trouble getting pregnant.

The most common PCOS symptoms are:

- **Irregular periods.** A lack of ovulation prevents the uterine lining from shedding every month. Some women with PCOS get fewer than eight periods a year.
- **Heavy bleeding.** The uterine lining builds up for a longer period of time, so the periods you do get can be heavier than normal.
- **Hair growth.** More than 70 percent of women with this condition grow hair on their face and body — including on their back, belly, and chest . Excess hair growth is called hirsutism.
- **Acne.** Male hormones can make the skin oilier than usual and cause breakouts on areas like the face, chest, and upper back.
- **Weight gain.** Up to 80 percent of women with PCOS are overweight or obese ([11](#)).
- **Male-pattern baldness.** Hair on the scalp gets thinner and fall out.

- **Darkening of the skin.** Dark patches of skin can form in body creases like those on the neck, in the groin, and under the breasts.
 - **Headaches.** Hormone changes can trigger headaches in some women.
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How PCOS affects your body

Having higher-than-normal androgen levels can affect your fertility and other aspects of your health.

INFERTILITY

To get pregnant, you have to ovulate. Women who don't ovulate regularly don't release as many eggs to be fertilized. PCOS is one of the leading causes of infertility in women .

METABOLIC SYNDROME

Up to 80 percent of women with PCOS are overweight or obese. Both obesity and PCOS increase your risk for high blood sugar, high blood pressure, low HDL ("good") cholesterol, and high LDL ("bad") cholesterol.

Together, these factors are called metabolic syndrome, and they increase the risk for heart disease, diabetes, and stroke.

SLEEP APNEA

This condition causes repeated pauses in breathing during the night, which interrupt sleep.

Sleep apnea is more common in women who are overweight — especially if they also have PCOS. The risk for sleep apnea is 5 to 10 times higher in obese women with PCOS than in those without PCOS .

ENDOMETRIAL CANCER

During ovulation, the uterine lining sheds. If you don't ovulate every month, the lining can build up.

A thickened uterine lining can increase your risk for endometrial cancer .

DEPRESSION

Both hormonal changes and symptoms like unwanted hair growth can negatively affect your emotions. Many with PCOS end up experiencing depression and anxiety

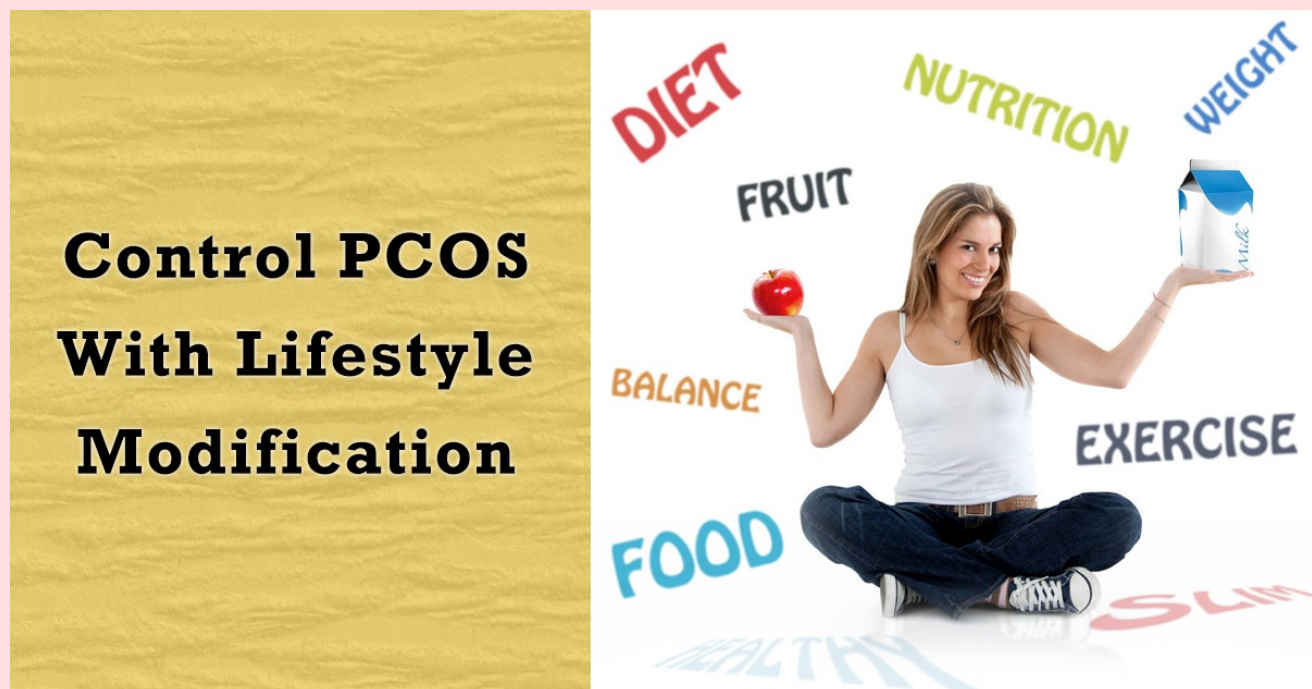
Diet and lifestyle tips to treat PCOS



Treatment for PCOS usually starts with lifestyle changes like weight loss, diet, and exercise.

Losing just 5 to 10 percent of your body weight can help regulate your menstrual cycle and improve PCOS symptoms .Weight loss can also improve cholesterol levels, lower insulin, and reduce heart disease and diabetes risks.

Any diet that helps you lose weight can help your condition. However, some diets may have advantages over others.



Studies comparing diets for PCOS have found that low-carbohydrate diet are effective for both weight loss and lowering insulin levels. A low glycemic index (low-GI) diet that gets most carbohydrates from fruits, vegetables, and whole grains helps regulate the menstrual cycle better than a regular weight loss diet .

A few studies have found that 30 minutes of moderate-intensity exercise at least three days a week can help women with PCOS lose weight. Losing weight with exercise also improves ovulation and insulin levels.

Exercise is even more beneficial when combined with a healthy diet. Diet plus exercise helps you lose more weight than either intervention alone, and it lowers your risks for diabetes and heart disease.

There is some evidence that acupuncture can help with improving PCOS, but more research is needed

Common medical treatments

Birth control pills and other medicines can help regulate the menstrual cycle and treat PCOS symptoms like hair growth and acne.

BIRTH CONTROL

Taking estrogen and progestin daily can restore a normal hormone balance, regulate ovulation, relieve symptoms like excess hair growth, and protect against endometrial cancer. These hormones come in a pill, patch or vaginal ring.

METFORMIN

Metformin (Glucophage,Fortamet) is a drug used to treat type 2 diabetes. It also treats PCOS by improving insulin levels.

One study found that taking metmorfin while making changes to diet and exercise improves weight loss, lowers blood sugar, and restores a normal menstrual cycle better than changes to diet and exercise alone .

HAIR REMOVAL MEDICINES

A few treatments can help get rid of unwanted hair or stop it from growing. Eflornithine (Vaniqa) cream is a prescription drug that slows hair growth. Laser hair removal and electrolysis can get rid of unwanted hair on your face and body.

SURGERY

Surgery can be an option to improve fertility if other treatments don't work. Ovarian drilling is a procedure that makes tiny holes in the ovary with a laser or thin heated needle to restore normal ovulation.

The bottom line

PCOS can disrupt a woman's menstrual cycles and make it harder to get pregnant. High levels of male hormones also lead to unwanted symptoms like hair growth on the face and body.

Lifestyle interventions are the first treatments doctors recommend for PCOS, and they often work well. Weight loss can treat PCOS symptoms and improve the odds of getting pregnant. Diet and aerobic exercise are two effective ways to lose weight.

