

POLYCYSTIC OVARY SYNDROME (PCOS)



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INTRODUCTION:

Polycystic ovarian syndrome (PCOS) is a hormonal imbalance caused by the ovaries (the organ that produces and releases eggs) creating excess male hormones (androgens).

In PCOS, your ovaries produce unusually high levels of hormones called androgens. This causes female reproductive hormones to become imbalanced. As a result, people with PCOS often have irregular menstrual cycles, missed periods and unpredictable ovulation and many small sacs of fluid develop along the outer edge of the ovary. These are called cysts. The small fluid-filled cysts contain immature eggs.

ETIOLOGY:

The exact cause of PCOS is unknown.

- **Higher levels of male hormones called androgens:** High androgen levels prevent the ovaries from releasing eggs (ovulation), which causes irregular menstrual cycles. Irregular ovulation can also cause small, fluid-filled sacs to develop in the ovaries. High androgen also causes acne and excess hair growth in women.
- **Insulin resistance:** Increased insulin levels cause the ovaries to make and release male hormone (androgens). Increased male hormone, in turn, suppresses ovulation and contributes to other symptoms of PCOS. Insulin helps your body process glucose (sugar) and uses it for energy. Insulin resistance means your body doesn't process insulin correctly, leading to high glucose levels in your blood. Not all individuals with insulin resistance have an elevated glucose or diabetes, but insulin resistance can lead to diabetes. Having overweight or obesity can also contribute to insulin resistance.
- **Low-grade inflammation:** People with PCOS tend to have chronic low-grade inflammation. Your healthcare provider can perform blood tests that measure levels of C-reactive protein (CRP) and white blood cells, which can indicate the level of inflammation in your body.
- **Heredity.** Research suggests that certain genes might be linked to PCOS. Having a family history of PCOS may play a role in developing the condition.

PATHOGENESIS:

The pathogenesis of polycystic ovary syndrome (PCOS) is not precisely known. There are several mechanisms that have been suggested in the pathogenesis of PCOS, including hormonal imbalance, insulin resistance, and genetic inheritance.

HORMONAL INVOLVEMENT:

- PCOS is associated with abnormal production and metabolism of hormones, such as androgens and estrogen, in the body.
- Some research has suggested that the secretion of luteinizing hormone (LH) from the anterior pituitary gland increases the stimulatory effect on the ovarian theca cells which lead to the secretion of androgenic hormones, that cause irregular or absent ovulation.
- The level of follicle stimulating hormone (FSH) is reduced due to higher level of LH, As a result, there is less estrogen available and ovulation may not be able to occur.

INSULIN RESISTANCE:

- The effect of insulin resistance in the pathogenesis of PCOS is happened when a woman is overweight or obese.
- The excess fat can cause the resistance to insulin. Specifically, the excess insulin may cause the ovaries to produce more testosterone and alter the development of follicles needed for ovulation to take place.
- Ovulation may be inhibited or delayed as a result, leading to PCOS.

CLINICAL MANIFESTATION:

- Irregular periods
- Abnormal hair growth
- Acne
- Obesity
- Darkening of the skin
- Cysts
- Skin tags
- Thinning hair

- Infertility

DIGNOSIS:

- Physical Examination and medical history.
- Ask about family's medical history.
- Perform a physical exam, looking specifically for excess facial hair, hair loss, acne, discolored skin and skin tags.
- Perform a pelvic exam to look for swollen ovaries or other growths in your uterus.
- Order blood tests to check hormone levels and glucose levels.
- Perform a pelvic ultrasound to look for cysts in your ovaries and check the thickness of the lining of your uterus.

PHARM ACOLOGICAL MANAGEMENT:

To regulate periods:

- **Combination birth control pills.** Pills that contain both estrogen and progesterin decrease androgen production and regulate estrogen. Regulating your hormones can lower your risk of endometrial cancer and correct irregular bleeding, excess hair growth and acne.
- **Progesterin therapy.** Taking progesterin for 10 to 14 days every 1 to 2 months can regulate your periods and protect against endometrial cancer. This progesterin therapy doesn't improve androgen levels and won't prevent pregnancy. The progesterin-only minipill or progesterin-containing intrauterine device is a better choice if you also wish to avoid pregnancy.

For ovulation :

- **Clomiphene.** This oral anti-estrogen medication is taken during the first part of your menstrual cycle.
- **Letrozole (Femara).** This breast cancer treatment can work to stimulate the ovaries.
- **Metformin.** This medicine for type 2 diabetes that you take by mouth improves insulin resistance and lowers insulin levels. If you don't become pregnant using clomiphene, your provider might recommend adding

metformin to help you ovulate. If you have prediabetes, metformin can slow the progression to type 2 diabetes and help with weight loss.

- **Gonadotropins.** These hormone medications are given by injection.

To reduce excessive hair growth or improve acne:

- **Birth control pills.** These pills decrease androgen production that can cause excessive hair growth and acne.
- **Spironolactone (Aldactone).** This medication blocks the effects of androgen on the skin, including excessive hair growth and acne. Spironolactone can cause birth defects, so effective birth control is needed while taking this medication. This medication isn't recommended if you're pregnant or planning to become pregnant.
- **Eflornithine (Vaniqa).** This cream can slow facial hair growth.
- **Hair removal.** Electrolysis and laser hair removal are two options for removing hair. Electrolysis uses a tiny needle inserted into each hair follicle. The needle sends out a pulse of electric current. The current damages and then destroys the follicle. Laser hair removal is a medical procedure that uses a concentrated beam of light to remove unwanted hair. You might need multiple treatments of electrolysis or laser hair removal. Shaving, plucking or using creams that dissolve unwanted hair may be other options. But these are temporary, and hair may thicken when it grows back.
- **Acne treatments.** Medications, including pills and topical creams or gels, may help improve acne. Talk to your health care provider about options.

NON- PHARMACOLOGICAL MANAGEMENT:

Lifestyle changes:

- Health care provider may recommend weight loss through a low-calorie diet combined with moderate exercise activities. Even a modest reduction in your weight. Losing weight may increase the effectiveness of medications your provider recommends for PCOS, and it can help with infertility.

- Intake nutritional diet.
- Avoid fatty meals.
- Avoid alcohol and smoking.
- Avoid over the counter medicine.