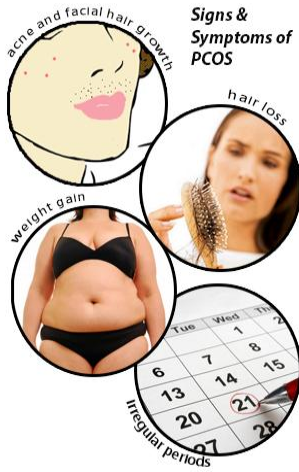


# Patient Information: Polycystic Ovary Syndrome (PCOS)

## WHAT IS POLYCYSTIC OVARY SYNDROME?



Polycystic ovary syndrome (PCOS) is a condition that causes **irregular menstrual periods**, **male-pattern hair growth** on the face, chest and limbs, **acne**, and/or **hair loss** from the head. Women with PCOS may also have difficulty getting pregnant, and may need fertility pills or injections to help. Most, but not all, women with PCOS are overweight or obese, and they are at higher than average risk of developing diabetes and sleep apnea.

The condition is common, and occurs in about 5 to 10 percent of women.

## WHAT CAUSES POLYCYSTIC OVARY SYNDROME?

Although the exact cause is not known, it appears that PCOS may be related to many different factors working together. These factors include **insulin resistance**, **high levels of male hormones called androgens**, and an **irregular menstrual cycle**:

1. **Insulin resistance** is a condition where the body's cells do not respond to the effects of insulin. Insulin is a hormone that helps the body's cells absorb sugar from the bloodstream. When the body does not respond to insulin, the sugar stays in the blood and causes high blood sugar levels. Insulin resistance can lead to diabetes mellitus.
2. **High androgen levels**: all women produce a small amount of male hormones, or androgens, but women with PCOS tend to produce higher levels of androgens. The higher androgen levels prevent the ovaries from releasing an egg each month (a process called ovulation), and they also cause the unwanted hair growth, acne, and hair loss seen in PCOS.
3. **Irregular menstrual periods** can lead to infertility and, in some women, the development of numerous small cysts on the ovaries.

PCOS is not usually inherited from parents, but it may run in some families. There seems to be a hereditary (genetic) factor involved in some cases that is not yet well understood.

## WHAT ARE THE HEALTH RISKS FOR WOMEN WITH PCOS?

Women with PCOS are at an increased risk of **diabetes**, **high blood pressure**, **high cholesterol**, and **obesity**. These conditions can increase one's risk of heart disease and stroke.

Up to half of women with PCOS may have **sleep apnea**, a condition where breathing stops briefly during sleep. Patients may have fatigue and daytime sleepiness, and if left untreated sleep apnea can increase one's risk of diabetes, high blood pressure, heart attacks, and obesity.

Women with PCOS are also more likely to have a condition called **endometrial hyperplasia**, in which the lining of the uterus (the endometrium) becomes too thick. This condition increases the risk of uterine (endometrial) cancer.

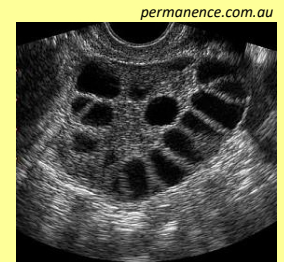
**To detect and prevent or control these conditions, yearly followup and testing with your doctor is very important.**

## HOW IS PCOS DIAGNOSED?

There is no single test for diagnosing polycystic ovary syndrome (PCOS). You may be diagnosed with PCOS based upon your symptoms, blood tests, and a physical examination.

Expert groups have determined that a woman must have **two out of three** of the following to be diagnosed with PCOS:

- **Irregular menstrual periods** caused by anovulation or irregular ovulation.
  - **Evidence of elevated androgen levels**. The evidence can be based upon signs (excess hair growth, acne, or male-pattern balding) or blood tests (high androgen levels).
  - **Polycystic ovaries** on pelvic ultrasound.
- Importantly, not all women with PCOS have polycystic ovaries.



*Continued on the next page*

## ARE TREATMENTS AVAILABLE FOR PCOS?

Although PCOS is not completely reversible, there are a number of treatments that can reduce or minimize symptoms. Most women with PCOS are able to lead a normal life without significant complications.

Treatment is tailored to each woman according to symptoms, other health problems, and whether she wants to become pregnant.

### 1. TREATING IRREGULAR PERIODS:

**Combined hormonal birth control pills** are the most common long-term treatment in women with PCOS who do not wish to become pregnant. Combined hormonal pills contain both **estrogen** and **progesterone**. These pills regulate the menstrual cycle, and reduce male-pattern hair growth and acne.

Some women who have no periods or periods more than 6 weeks apart do not want any treatment for this. However, by inducing a monthly period, **birth control pills decrease the risk of uterus or endometrial cancer**. Moreover, although fertility is reduced, some women with PCOS ovulate now and then. If you want to be sure of not getting pregnant, contraception should be used.

#### \* Alternatives to the pill: \*

- A **skin patch** or **vaginal ring** that contains a combination of estrogen and progestin
- Taking **progesterone** (Provera) 10 to 14 days every one to three months. This will reduce the risk of endometrial cancer, but it does not help with acne or male-pattern hair growth, and does not prevent pregnancy.
- A **progesterone-containing intrauterine device** (Mirena). This reduces endometrial cancer risk and prevents pregnancy.

### 2. REDUCING HAIR GROWTH:

Besides combined hormonal birth control pills, the medication **spironolactone** (Aldactone) can also reduce male-pattern hair growth, acne, and hair loss from the head. Because spironolactone can cause birth defects, effective contraception is required when using the drug, and it's not recommended if you're pregnant or planning to become pregnant.

Excessive hair growth can also be removed by shaving, waxing, use of depilatories, electrolysis, or laser therapy.



Sources: Uptodate, Canadian Women's Health Network, ACOG, Patient.info, myhealth.alberta.c, Mayo Clinic

### 3. WEIGHT LOSS:

**For overweight women, weight loss alone often improves or even reverses PCOS symptoms.**

Weight loss of as little as 5% to 7% over 6 months can reduce androgen levels enough to **restore ovulation and fertility** in more than 75% of women who have PCOS. Weight loss also has been found to improve cholesterol, blood pressure, and diabetes, and relieve symptoms such as excess hair growth and acne.

Losing weight can be difficult. A combination of eating less and exercising more is best. A dietician and a health care provider can help by optimising your medications, food intake, and exercise program.



### 4. TREATING DIABETES:

Metformin is a medicine that is commonly used to treat people with type 2 diabetes, but it has additional benefits in diabetic women with PCOS. It can help with regulating menstrual cycles and losing weight.

### 5. TREATING INFERTILITY:

The primary treatment for women who are unable to become pregnant and who have PCOS is weight loss. In addition to improving ovulation, weight loss can improve the effectiveness of other infertility treatments.

**Clomiphene** is a US FDA-approved pill that stimulates the ovaries to release one or more eggs. It triggers ovulation in about 80 percent of women with PCOS, and about 50 percent of these women will become pregnant.

If a woman is still unable to conceive with clomiphene, **gonadotropin therapy** (follicle-stimulating hormone [FSH] injections) may be recommended.

#### **For more information, visit:**

1. MyHealth.Alberta.ca  
<https://myhealth.alberta.ca/Health/Pages/conditions.aspx?hwid=tw9103>
2. Uptodate: Polycystic ovary syndrome (PCOS)  
[www.uptodate.com/contents/polycystic-ovary-syndrome-pcos-beyond-the-basics](http://www.uptodate.com/contents/polycystic-ovary-syndrome-pcos-beyond-the-basics)
3. Eatright Ontario: Nutrition Tips for PCOS  
[www.eatrightontario.ca/en/Articles/Women-s-Health-issues/Nutrition-tips-for-Polycystic-Ovary-Syndrome-\(PCOS.aspx](http://www.eatrightontario.ca/en/Articles/Women-s-Health-issues/Nutrition-tips-for-Polycystic-Ovary-Syndrome-(PCOS.aspx)