

## PCOS in a nutshell

**PCO** (polycystic ovaries), **PCOD** (polycystic ovarian disease), or **PCOS** (polycystic ovarian syndrome) is the **same condition** with different names. It was reported by Drs. Stein and Leventhal in Chicago in 1935, and was called the **Stein-Leventhal syndrome**. It is a very common condition (5-10% of all women) but **heterogeneous** (in other words, some women will have all the features, and some only minimal changes).

### **What are the features of PCOS?**

- **Irregular and infrequent periods**, usually less than 6-8 cycles a year. As a consequence, there are less ovulation, and some women may have trouble conceiving.
- Signs of **excessive male hormones**, such as growing thick, dark hair on the upper lip, chin, sideburn area, chest, and belly, and develop acne and oily skin. Uncommonly, hair loss in the head may happen. In some women, the excessive male hormone is only seen on a blood test.
- **Weight gain** is common, but it is not mandatory for the diagnosis

### **What is the cause of PCOS?**

It is partially genetic, and partially environmental. It is an example of the “**two-hit theory**”, where ‘nature’ and ‘nurture’ contribute to the development of a disease. It can start in adolescence, but in some women, it only shows up in adulthood. Once the process starts, the ovaries do not work conventionally and produce too much testosterone (male hormone) and estrogen. The hormone imbalance prevents the monthly release of an egg (the ovaries make small structures called follicles, but in PCOS they seldom grow big enough to release an egg). The hormone imbalance also causes our body to develop insulin resistance, similar to type 2 diabetes, with contributes to weight gain. Often the process is a ‘snow ball’ (the more weight you gain, the easier it to put on more). But on the same token, as some women lose weight (more easily said than done with PCOS), the condition tends to improve, and the periods become more regular.

### **How do I find out if I have PCOS?**

In most women, the clinical features mentioned above are sufficient to make the diagnosis, but it is important to rule out other less common conditions (for example, adrenal gland diseases) that can mimic the symptoms of PCOS. The recommended tests are:

- **Blood tests** to measure levels of hormones, male and female. Best done in the morning, (not fasting, but avoid a big meal, exercise and sex prior to the test). In women who cycle every 1-3 months, it is best done on days 2-5 of the menstrual cycle, counting from the first day of bleeding. In women who only cycle 1-2 a year, it can be done anytime of the month. If PCOS is confirmed, tests for diabetes, cholesterol and other medical conditions may be requested.
- **Pelvic ultrasound** – Of note, not all women with PCOS show the classical polycystic appearance on ultrasound, and some women who are perfectly fine will show the picture of PCOS. It is a puzzle why this happens.

### **What are the treatments for PCOS?**

Because the genetic side of PCOS cannot be cured, we focus on treating the symptoms and the main objectives of the woman at the time (to restore life as normal as possible):

- To make the cycles regular, prevent unplanned pregnancy and improve the hair growth and acne, the **birth control pills** work the best. It is important that the progestin side of the pill does not cause acne and hair growth on its own, such as in the older birth control pills. The newer 'generation' pills are better, although they may increase the risk of blood clots a little more.
- To help with weight loss, **metformin** works better as it helps improve insulin resistance. It doesn't improve the skin or menstrual cycles, and does not help prevent a pregnancy. It can cause side effects, such as nausea, vomiting and diarrhea, so the starting dose is low, and increased to the full dose over 1-2 months to minimize the side effects. It should be noted that metformin can help reduce weight only if combined with a diet and exercise. If you get pregnant on it, it is considered safe for the developing fetus.
- If pregnancy protection is not necessary, and the aim is to regulate the menstrual cycles, a **natural progesterone** can be taken.
- If excessive hair growth is the major problem, an anti-androgen pill called **spironolactone**, at a low dose, can be useful.
- If the goal is to get pregnant, an ovulation induction pill taken at the beginning of the cycle is available. Clomid was the classical pill for this, but it has been replaced by **letrozole**.
- A combination of the above is sometimes necessary if a single treatment is not good enough.
- Skin lotions for acne, and laser or electrolysis to remove excessive hair can be added.

### **Are there added risks during pregnancy?**

Yes, women are more prone to develop diabetes and high blood pressure during pregnancy, but they can be managed safely in the majority.

### **Are there other risks later on in life?**

Yes, women are more prone to diabetes, high blood pressure, cancer of the uterus, sleep apnea, heart disease and metabolic syndrome. However, if weight control is achieved, and the hormones are balanced, the risks are much reduced.

Signs and symptoms of PCOS usually begin around the time of puberty, although some women do not develop symptoms until late adolescence or in early adulthood. Because the clinical picture varies from one woman to another, it is vital to make the diagnosis as early as possible.

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