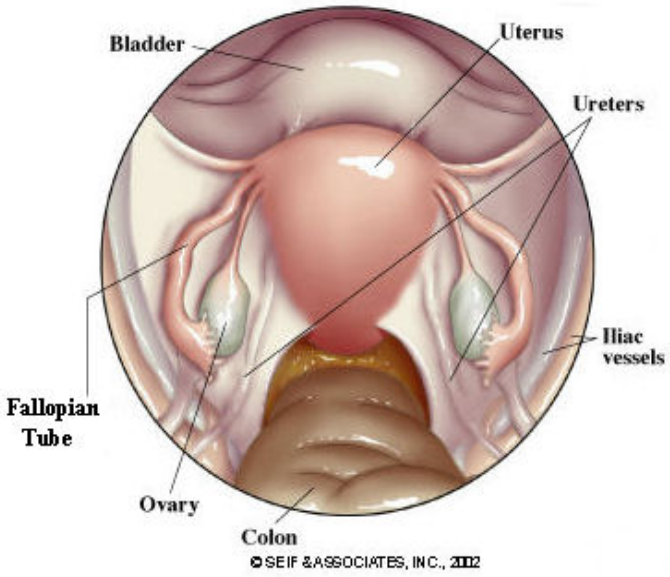
Polycystic Ovarian Syndrome (PCOS)

Polycystic ovarian syndrome is a condition with a number of problems. One problem is with the ovaries.
The ovaries are organs located in the female pelvis, on each side of the uterus. Usually, during the menstrual cycle, an egg is released from 1 ovary every month. This is called ovulation. When the egg is fertilized, it goes into the womb (*uterus*), which allows for the growth of a baby. The egg travels from the ovary through the fallopian tube to the uterus. The ovaries also make the hormones estrogen and progesterone. These hormones help the development of a woman's breasts, body shape, and body hair. They also regulate the menstrual cycle and pregnancy.



Sometimes, cysts form in the ovaries. A cyst is a fluid-filled sac. On the ovary, different types of cysts can form. The most common type of ovarian cyst is called a functional or ovulation cyst. It is normal, and often forms during the normal menstrual cycle. Each month, a woman's ovaries grow tiny cysts that hold the eggs. When an egg is fully grown, the sac breaks open. This releases the egg. Then, the sac which released the egg from the ovary dissolves. In one type of functional cyst, called a follicle cyst, the sac does not break open to release the egg. It may actually continue to grow. This type of cyst usually disappears within 1 to 3 months.

One type of cyst problem with the ovaries is called Polycystic Ovarian Syndrome (PCOS). In this condition, many follicle cysts form, but do not rupture and produce an egg. This health problem can affect the following:

- Menstrual cycle.
- Heart.
- Obesity.
- Cancer of the uterus.
- Fertility.
- Blood vessels.
- Hair growth (face and body) or baldness.
- Hormones.
- Appearance.
- High blood pressure.
- Stroke.
- Insulin production.
- Inflammation of the liver.
- Elevated blood cholesterol and triglycerides.

SYMPTOMS

- Infrequent or no menstrual periods, and/or irregular bleeding.
- Inability to get pregnant (*infertility*), because of not ovulating.
- Increased growth of hair on the face, chest, stomach, back, thumbs, thighs, or toes.
- Acne, oily skin, or dandruff.
- Pelvic pain.
- Weight gain or obesity, usually carrying extra weight around the waist.
- Type 2 diabetes (this is the diabetes that usually does not need insulin).
- High cholesterol.
- High blood pressure.
- Male-pattern baldness or thinning hair.
- Patches of thickened and dark brown or black skin on the neck, arms, breasts, or thighs.
- Skin tags, or tiny excess flaps of skin, in the armpits or neck area.
- Sleep apnea (*excessive snoring and breathing stops at times while asleep*).
- Deepening of the voice.
- Gestational diabetes when pregnant.
- Increased risk of miscarriage with pregnancy.

WOMEN WITH PCOS HAVE THESE CHARACTERISTICS:

- High levels of male hormones called androgens.
- An irregular or no menstrual cycle.
- May have many small cysts in their ovaries.
- An estimated 5 to 10 percent of women of childbearing age have PCOS.

PCOS is the most common hormonal reproductive problem in women of childbearing age.

CAUSES

- No one knows the exact cause of PCOS.
- Women with PCOS often have a mother or sister with PCOS. There is not yet enough proof to say this is inherited.
- Many women with PCOS have a weight problem.
- Researchers are looking at the relationship between PCOS and the body's ability to make insulin. Insulin is a hormone that regulates the change of sugar, starches, and other food into energy for the body's use, or for storage. Some women with PCOS make too much insulin. It is possible that the ovaries react by making too many male hormones, called androgens. This can lead to acne, excessive hair growth, weight gain, and ovulation problems.
- Too much production of luteinizing hormone (LH) from the pituitary gland in the brain stimulates the ovary to produce too much male hormone (*androgen*).

WHY DO WOMEN WITH PCOS HAVE TROUBLE WITH THEIR MENSTRUAL CYCLE?

Each month, about 20 eggs start to mature in the ovaries. As one egg grows and matures, the follicle breaks open to release the egg, so it can travel through the fallopian tube for fertilization. When the single egg leaves the follicle, ovulation takes place. In women with PCOS, the ovary does not make all of the hormones it needs for any of the eggs to fully mature. They may start to grow and accumulate fluid, but no one egg becomes large enough. Instead, some may remain as cysts. Since no egg matures or is released, ovulation does not occur and the hormone progesterone is not made. Without progesterone, a woman's menstrual cycle is irregular or absent. Also, the cysts produce male hormones, which continue to prevent ovulation.

DIAGNOSIS

There is no single test to diagnose PCOS.

- Your caregiver will:
  - Take a medical history.
  - Perform a pelvic exam.
  - Perform an ultrasound.
  - Check your female and male hormone levels.
  - Measure glucose or sugar levels in the blood.
  - Do other blood tests.
- If you are producing too many male hormones, your caregiver will make sure it is from PCOS. At the physical exam, your caregiver will want to evaluate the areas of increased hair growth. Try to allow natural hair growth for a few days before the visit.
- During a pelvic exam, the ovaries may be enlarged or swollen by the increased number of small cysts. This can be seen more easily by vaginal ultrasound or screening, to examine the ovaries and lining of the uterus *(endometrium)* for cysts. The uterine lining may become thicker, if there has not been a regular period.

TREATMENT

Because there is no cure for PCOS, it needs to be managed to prevent problems. Treatments are based on your symptoms. Treatment is also based on whether you want to have a baby or whether you need contraception. Treatment may include:

- Progesterone hormone, to start a menstrual period.
- Birth control pills, to make you have regular menstrual periods.
- Medicines to make you ovulate, if you want to get pregnant.
- Medicines to control your insulin.
- Medicine to control your blood pressure.
- Medicine and diet, to control your high cholesterol and triglycerides in your blood.
- Surgery, making small holes in the ovary, to decrease the amount of male hormone production. This is done

through a long, lighted tube (*laparoscope*), placed into the pelvis through a tiny incision in the lower abdomen.

Your caregiver will go over some of the choices with you.

For more information, contact:
National Women's Health Information Center (NWHIC): 1-800-994-9662, www.womenshealth.gov
Polycystic Ovarian Syndrome Association, Inc. (PCOSA): 1-877-775-7267, www.pcosupport.org

Most of this information is courtesy of the U.S. Department of Health and Human Services and The Federal Government Source for Women's Health Information.

Document Released: 04/13/2006 Document Re-Released: 12/06/2010
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