

Polycystic ovary syndrome - PCOS

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In the entire field of reproduction and infertility, no topic has as many myths and misconceptions associated with it as polycystic ovary syndrome - PCOS. Even its name causes confusion. Is it PCO or polycystic ovary disease (PCOD) or polycystic ovary syndrome (PCOS)? Since the name includes the word "polycystic" does that mean that all women with this problem have cysts in their ovaries?

What's in a name?

Syndrome: A group of signs and symptoms that occur together and characterize a particular abnormality.

Disease: A pathological condition of the body that presents a specific and consistent group of clinical signs, symptoms, and laboratory findings peculiar to it and setting the condition apart as an abnormal entity differing from other normal or pathological conditions.

The problem we are talking about then is not a disease. It is a syndrome. Not all women with polycystic ovary syndrome (PCOS) will present the same way or have the same symptoms or laboratory findings. Confused? For example, take the disease cystic fibrosis. All individuals with cystic fibrosis have the same underlying problem which is a mutation in the cystic fibrosis gene. In polycystic ovary syndrome (PCOS), on the other hand, there isn't any one common factor that identifies all women as having polycystic ovary syndrome (PCOS).

According to the American college of Obstetrics and Gynecology (ACOG), there is no universally accepted definition of PCOS.

What signs and symptoms can be found in women with polycystic ovary syndrome (PCOS)?

Ovulation problems

Anovulation
No ovulation at all

Oligo-ovulation
Infrequent or irregular ovulation

Irregular menstrual cycles (results from not ovulating regularly)

Amenorrhea

Women does not get any periods at all

Oligomenorrhea

Infrequent periods

Hypermenorrhea

Periods that occur too frequently

Menorrhagia

Heavy periods and/or those that last for many days or weeks

Metorrhagia

Bleeding or spotting that occurs in between apparently normal periods

Insulin resistance The body does not respond to the hormone insulin as it normally should. Insulin's primary function is to keep the levels of blood sugar under control. On laboratory tests, insulin resistance may not show up at all.

If it does, it may appear in one or more of the following ways:

High fasting insulin levels

Low glucose to insulin ratio

High triglyceride levels

Low levels of SHBG (Steroid Hormone Binding Globulin)

*Insulin resistance may lead to diabetes so laboratory findings consistent with diabetes can also be found in polycystic ovary syndrome (PCOS).

Hyperandrogenism Androgens are what most people think of as "male" hormones. This is incorrect. All people have

androgens. Males typically have levels that are much higher than women. However, women with polycystic ovary syndrome (PCOS)

have slightly elevated levels of androgens. Elevated androgen levels can result in the development of some signs and symptoms in women.

Hirsutism

Unwanted hair growth. Usually on the lip, cheeks, chin, neck,

in between the breasts,

beneath the umbilicus(belly button)

Acne

Alopecia

Male pattern hair thinning and loss.

On laboratory evaluation, hyperandrogenism may not show up at all. If it does, it may be seen in high levels in one of the following tests:

Total testosterone

Free testosterone

Dihydrotestosterone (DHT)

3 alpha glucuronide (3AG)

Androstenedione

DHEAS (dehydroepiandrosterone sulfate)

* There are numerous other androgen levels that may be elevated but these are not usually looked at in clinical medical practice)

Androgen levels can be elevated in other types of problems besides polycystic ovary syndrome (PCOS). These other problems should be ruled out before someone is given a diagnosis of polycystic ovary syndrome (PCOS). The most common of

these problems is called congenital adrenal hyperplasia (CAH).

Ultrasound findings

Some women with polycystic ovary syndrome (PCOS) may have one or more of the following findings:

Enlarged ovaries

Large number (>10) of tiny follicles (cysts) just under the surface of the ovaries

The center of the ovaries is echogenic (highly reflective on ultrasound) and with very few follicles seen.

Ultrasound evidence of polycystic ovaries alone are a non-specific finding and are frequently found in women with normal menstrual cycles and regular ovulation. Ultrasound evidence of polycystic ovaries alone does not constitute a diagnosis of PCOS. Women with ultrasound findings are said to have polycystic appearing ovaries (PAO).

IMPORTANT:

Not all women with polycystic ovary syndrome (PCOS) have polycystic appearing ovaries (PAO).

Not all women with polycystic appearing ovaries (PAO) have polycystic ovary syndrome (PCOS). In fact, many normal women with regular ovulation have polycystic appearing ovaries (PAO)

Miscellaneous laboratory findings These laboratory findings can be found in some women with polycystic ovary syndrome (PCOS). Many women with these findings may not have polycystic ovary syndrome (PCOS).

Elevated prolactin levels

High levels of luteinizing hormone (LH)

High ratio of LH:FSH

High levels of inhibin-B

High levels of plasminogen activator inhibitor -1 (PAI-1)

High levels of AMH (anti-mullerian hormone)

Causes of PCOS

Contrary to popular belief, obesity does not cause PCOS. In fact, 20% of women with PCOS are not obese. Obesity can, however, increase the signs and symptoms of PCOS. The genetic contribution to PCOS remains uncertain. There are currently no recommended genetic screening tests for PCOS. Also, there are no specific environmental substances that have been found to cause PCOS.

PCOS is not caused by eating a diet high in carbohydrates. Eating a low carbohydrate diet or a diet with a low glycemic index does not prevent or treat PCOS.

Health risks associated with polycystic ovary syndrome (PCOS)

Women with polycystic ovary syndrome (PCOS) seem to have certain health problems more frequently than you would expect in the general population. It is thought that these problems are either caused by polycystic ovary syndrome (PCOS) or that they have the same underlying cause as polycystic ovary syndrome (PCOS). These include:

Hypertension

Type II Diabetes

Coronary artery disease

Endometrial cancer (cancer of the lining of the uterus) It is not specific to polycystic ovary syndrome (PCOS) however. Any problem which causes a woman not to ovulate is associated with a higher risk of endometrial cancer.

Pregnancy risks associated with polycystic ovary syndrome (PCOS)

Gestational diabetes (diabetes that occurs during pregnancy)

Pregnancy induced hypertension (PIH)

Preeclampsia

Preterm birth

Babies from PCOS mothers have a higher rate of admission to the neonatal intensive care unit

Babies from PCOS mothers have a higher rate of perinatal death

The perinatal mortality rate is the combination of two separate death rates: antenatal mortality, which is defined as the death of a fetus after the 20th week of pregnancy but before delivery, plus neonatal mortality which is the death of a baby up to 28 days after birth.

Contrary to popular belief, a recent analysis has found that PCOS patients do not have a higher risk of miscarriage than non-PCOS infertility patients.

Treatment of polycystic ovary syndrome (PCOS)

There isn't one treatment for polycystic ovary syndrome (PCOS). The type of treatment is dependent on the symptoms that a woman has and her specific desires at that point in her life. Specific goals of treatment might include:

Promotion of fertility

Desire for regular menstrual cycles

Reduction of acne, unwanted hair growth or hair loss

Reduction of other health risks associated with polycystic ovary syndrome (PCOS)

Fertility treatment

Treatment of insulin resistance Can be accomplished by:

Weight loss

Even modest amounts of weight loss have been shown in clinical studies to improve the chance for ovulation and pregnancy.

IMPORTANT: There is no data that low carbohydrate diets are better for women with polycystic ovary syndrome (PCOS)

than any other kind of diet.

Exercise

Particularly aerobic exercise increase the utilization of glucose by the muscle and reduces insulin resistance.

Medication

There are several medications available by prescription that work by reduction of insulin resistance and have been shown in medical studies to increase the chance for ovulation and pregnancy.

Added 01/04/2005 Alternatives to Actos and Avandia for treating insulin resistance

glucophage for treating insulin resistance

Added 01/04/2005 Alternatives to glucophage for treating insulin resistance

Use of fertility medications

Clomiphene citrate

Women with polycystic ovary syndrome (PCOS) do not respond to clomiphene citrate with the same success as other women. This has been called clomiphene resistance. There have been many methods attempted to reduce the chance for clomiphene resistance and include:

Increasing the dose of clomiphene citrate

Prolonging the duration of clomiphene administration

Adding insulin resistance medications

Adding dexamethasone

Adding naltrexone

Aromatase inhibitors

Aromatase inhibitors such as letrozole or anastrozole work in a similar fashion as clomiphene citrate. There is far less medical data that has looked at letrozole and its chances for success. Several small studies indicate that letrozole has a similar level of effectiveness to clomiphene citrate.

Gonadotropins

Women with polycystic ovary syndrome (PCOS) respond to these injectable fertility medications with a very high percentage of ovulation. However, polycystic ovary syndrome (PCOS) patients are more prone to the problems of gonadotropins such as ovarian hyperstimulation syndrome (OHSS) and multiple pregnancy.

Surgery

Ovulation problems in women with polycystic ovary syndrome (PCOS) can also be treated by destroying or removing portions of the ovaries. In the medical literature, there have been several methods described for doing this including:

Wedge resection

Multiple ovarian cystotomy (a.k.a. ovarian drilling)

Ovarian diathermy

The benefits of surgery include the avoidance of OHSS and multiple pregnancy. According to the American college of Obstetrics and Gynecology (ACOG), ovarian drilling and related procedures should be considered as a second line therapy for ovulation problems. The prime candidates are women who have failed clomiphene citrate.

Treatment of polycystic ovary syndrome (PCOS) without concern for fertility

Treatment of the other problems associated with polycystic ovary syndrome (PCOS) involve methods to restore normal menstrual cycle pattern and reduce the effect of high androgens. Hormonal contraceptives are commonly used for this purpose. More recently insulin resistance medications have been used. The combination of these two medications provides a potent one two punch for the treatment of polycystic ovary syndrome (PCOS).

Additional PCOS Information

Depression in PCOS patients may be due to obesity

PCOS Caused by Epilepsy Treatment?

PCOS Benefit from Cholesterol Treatment?