

Living With Polycystic Ovary Syndrome (PCOS)

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Introduction

Polycystic ovary syndrome (PCOS) is a common but often misunderstood condition that affects an estimated 7% of women of childbearing age. Women with PCOS commonly complain of irregular menstrual cycles along with symptoms related to overproduction of androgens such as excess facial or body hair, acne and thinning hair on the scalp. Androgens are hormones, including testosterone, DHEAS, and androstenedione, that are normally present in both men and women, though in far greater amounts in men. Many women with PCOS are overweight or obese, usually with a tendency to gain weight around the waist. PCOS is caused by a combination of genetic and environmental factors. Many women with PCOS have relatives with diabetes, and they themselves may be at increased risk for diabetes. For many years, women with mild cases of PCOS remained unaware of their diagnosis. Today, increased awareness of this condition can help women with PCOS to seek the help they need not only to address fertility concerns but also to stay healthy well past the reproductive years. PCOS is a diagnosis of exclusion; women who have evidence of excess androgen and who do not ovulate regularly are diagnosed with PCOS when there is no other diagnosis to explain the symptoms.

Understanding the cysts

The name PCOS has led to much confusion because of its emphasis on the numerous tiny ovarian “cysts” that are usually present. Eggs within the ovary are surrounded by hormone producing cells. Together the egg and its surrounding cells are known as a follicle. As eggs mature, fluid accumulates within the follicles and the follicle can be visualized on ultrasound as a small “cyst” (fluid-filled sac). Cells within the ovary normally produce hormones, including androgens and estrogens. Polycystic appearing ovaries are slightly enlarged, contain numerous small follicles, and typically overproduce androgens. They were first described in 1935 by Drs. Stein and Leventhal, who discovered that wedge resection surgery - which involved removing a portion of each ovary, and is no longer the standard treatment for PCOS - could help reduce androgen levels and control the symptoms of PCOS, then known as Stein – Leventhal syndrome. But having polycystic appearing ovaries on ultrasound does not necessarily mean that a woman has PCOS. Other hormonal imbalances can also be associated with polycystic – appearing ovaries. And with the widespread use of transvaginal ultrasound we now also see women who have polycystic – appearing ovaries on ultrasound but who do not have any other signs or symptoms of polycystic ovary syndrome.

The Insulin Story

It has long been known that defects in insulin action (insulin resistance) can cause diabetes. It is now clear that PCOS is also associated with insulin resistance. Insulin has been shown to stimulate the ovaries to produce androgens. Medications that reduce insulin resistance (“insulin sensitizers”) such as metformin can help lower both insulin and androgen levels in women with PCOS and help increase the chance of ovulation and pregnancy. Women who do not begin ovulating with metformin may respond better to other fertility drugs when metformin is also given.

Insulin resistance may also be associated with diabetes or prediabetes, when the body cannot produce sufficient amounts of insulin to maintain normal blood sugar. The most accurate test for insulin resistance – the euglycemic clamp study – is too complex to perform routinely outside a research setting. Because women with PCOS are at increased risk for diabetes and prediabetes, current recommendations for evaluation of women with PCOS include a 2 hour glucose tolerance test (2 hour GTT), measuring blood glucose in the fasting state and again after ingestion of a drink containing 75 grams of glucose. Women with prediabetes should be counseled about measures to help reduce the risk of developing diabetes, which may include diet and exercise as well as insulin sensitizing medications in some cases.

Obesity also causes insulin resistance, so it is not surprising that women with PCOS who are also obese demonstrate the most insulin resistance. Even modest weight loss can help reduce insulin resistance, which can help reduce androgen levels and improve the likelihood of ovulation and pregnancy. Regular exercise – even without weight loss – can also improve metabolism and reduce the risk of developing diabetes.

When pregnancy is desired, even women without demonstrable insulin resistance – women who are of normal weight with a normal 2 hour GTT – may begin ovulating in response to metformin.

PCOS and Fertility

Though many women with PCOS experience difficulty conceiving it is not unusual for women with PCOS to become pregnant naturally, since many do ovulate at least sporadically. Oral contraceptive (birth control) pills suppress androgens, and some women with PCOS conceive when they experience a “rebound ovulation” immediately after they discontinue the pill.

Although weight loss and insulin sensitizing medications alone can improve fertility many women with PCOS do require additional medications to ovulate and become pregnant. Many women with PCOS are extremely sensitive to fertility drugs and are at high risk for potentially serious complications such as multiple pregnancy and ovarian hyperstimulation syndrome. With careful monitoring under the guidance of a specialist in Reproductive Endocrinology/Infertility most women with PCOS can ovulate safely. However, some women are best advised to undergo IVF to avoid serious complications.

With IVF, “too many eggs” is no longer a problem since the best 1 or 2 embryos can be transferred to the uterus while additional embryos can be frozen for later use.

Women with PCOS need not delay in consulting with a fertility specialist when they are getting ready to try to conceive. Depending on the woman’s age and possible coexisting problems such as male factor infertility, a plan for safe and effective fertility treatment can be made.

PCOS and Androgen Excess

Many women first discover they have PCOS because of problems related to excess androgen, including hirsutism (excess facial and body hair), acne, or thinning hair. Various medications can help lower androgen levels and alleviate these symptoms. Hair removal methods such as laser or electrolysis are most effective in conjunction with medication to lower androgens and thus reduce additional growth of unwanted hair. Oral contraceptive pills are widely used for PCOS because they not only help reduce androgen production but also reduce the effects of circulating androgens by increasing the production of SHBG (sex hormone binding globulin). Androgen effects are related to the amount of free, non-SHBG bound testosterone. By increasing SHBG production, oral contraceptive pills help “soak up” androgens, lessening their effects.

Spironolactone, or Aldactone, is medication that helps to block androgen action and is thus also widely used for PCOS. Spironolactone is a diuretic which is approved to treat high blood pressure, but commonly prescribed “off-label” for its androgen blocking effects. Because spironolactone could interfere with male fetal genital development it is usually prescribed to women along with oral contraceptive pills to ensure that unplanned pregnancies do not occur.

Vaniqa is a topical cream that slows the growth of facial hair in women, and can help women reduce the frequency of waxing, shaving or other hair removal.

PCOS and Your Lifelong Health

Young women with PCOS are often most concerned with fertility as well as cosmetic symptoms such as acne or hirsutism. But PCOS is also associated with conditions that can affect a woman’s health well beyond the reproductive years. Many obese women with PCOS have features of metabolic syndrome (MBS) which increases the risk for coronary heart disease. The elements of MBS are high blood pressure, elevated fasting glucose, abdominal obesity, low HDL (“good cholesterol”) and elevated triglycerides. Individuals with at least 3 of these components are said to have MBS. Weight loss and exercise can help reduce MBS and maintain cardiovascular health.

Women with PCOS are at increased risk for endometrial cancer and pre-cancer (hyperplasia). Progesterone can help reduce the risk of endometrial cancer, which helps explain the effect of pregnancy on reducing endometrial cancer risk. Women not trying to

conceive can be treated either with birth control pills or another form of progestin such as Prometrium, Provera, Crinone, or the progestin impregnated IUD Mirena. Progestational treatment not only helps prevent endometrial cancer and pre-cancer, but also helps prevent dysfunctional bleeding, the erratic, often heavy bleeding often associated with anovulation and PCOS. Sleep apnea is another potentially serious condition that appears to be more common in women with PCOS. And studies now suggest that depression is also more common in women diagnosed with PCOS.

Many women with PCOS notice that as they enter their late 30s and early 40s their menstruation becomes more regular, in association with reduced ovarian volume and androgen production. Though symptoms of excess androgen may be less bothersome, this is a good time for women with a history of PCOS to focus on their metabolic health, addressing risk factors for MBS through diet, exercise and preventative medical care. The educational and psychological support resources provided by organizations such as American Fertility Association can help empower women with PCOS to take control of their long term health.