

## **Progesterone and PCOS**

PCOS may occur when a woman doesn't ovulate, which causes a disruption in the normal, cyclical interrelationship among her hormones, brain and ovaries.

Normally, the hypothalamus, a regulatory center in the brain, monitors the hormone output of the ovaries and synchronizes the normal menstrual cycle. When monthly bleeding ends, the hypothalamus secretes gonadotropin-releasing hormone (GnRH), which stimulates the pituitary gland in the brain to release follicle stimulating hormone (FSH) and luteinizing hormone (LH). These hormones direct an ovary to start making estrogen (mostly estradiol), and stimulate the maturation of eggs in about 120 follicles.

The first follicle that ovulates, releasing its egg into the fallopian tube for a journey to the uterus, quickly changes into the corpus luteum, which is a factory for making progesterone, and raises its concentrations to 200 to 300 times higher than that of estradiol. This huge surge of progesterone simultaneously puts the uterine lining in its secretory or ripening phase, and turns off further ovulation by either ovary.

If fertilization does not occur, the ovary stops its elevated production of both estrogen and progesterone. The sudden fall in the concentrations of these hormones causes shedding of the blood-rich uterine lining and bleeding (menstruation). Then, in response to low hormone levels, there is a rise in GnRH and the cycle starts all over again.

But what happens to this cycle if, for some reason, ovulation is unsuccessful? For example, if the follicle migrates to the outside of the ovary, but does not "pop" the egg and release it, the follicle becomes a cyst, and the normal progesterone surge does not occur.

The lack of progesterone is detected by the hypothalamus, which continues to try to stimulate the ovary by increasing its production of GnRH, which increases the pituitary production of FSH and LH. This stimulates the ovary to make more estrogen and androgens, which stimulates more follicles toward ovulation.

If these additional follicles are also unable to produce a matured ovum or make progesterone, the menstrual cycle is dominated by increased estrogen and androgen production without progesterone. This is the fundamental abnormality that creates PCOS.

*Top*

## **Treatment of PCOS with Progesterone**

Some physicians recommend supplementation of normal physiologic doses of progesterone to treat PCOS. If progesterone levels rise each month during the luteal

phase of the cycle, as they are supposed to do, the normal menstrual pattern is maintained each month, and PCOS is less likely to occur. Natural progesterone is a logical component of polycystic ovarian syndrome treatment, along with stress reduction, exercise, nutrition, and supplementation