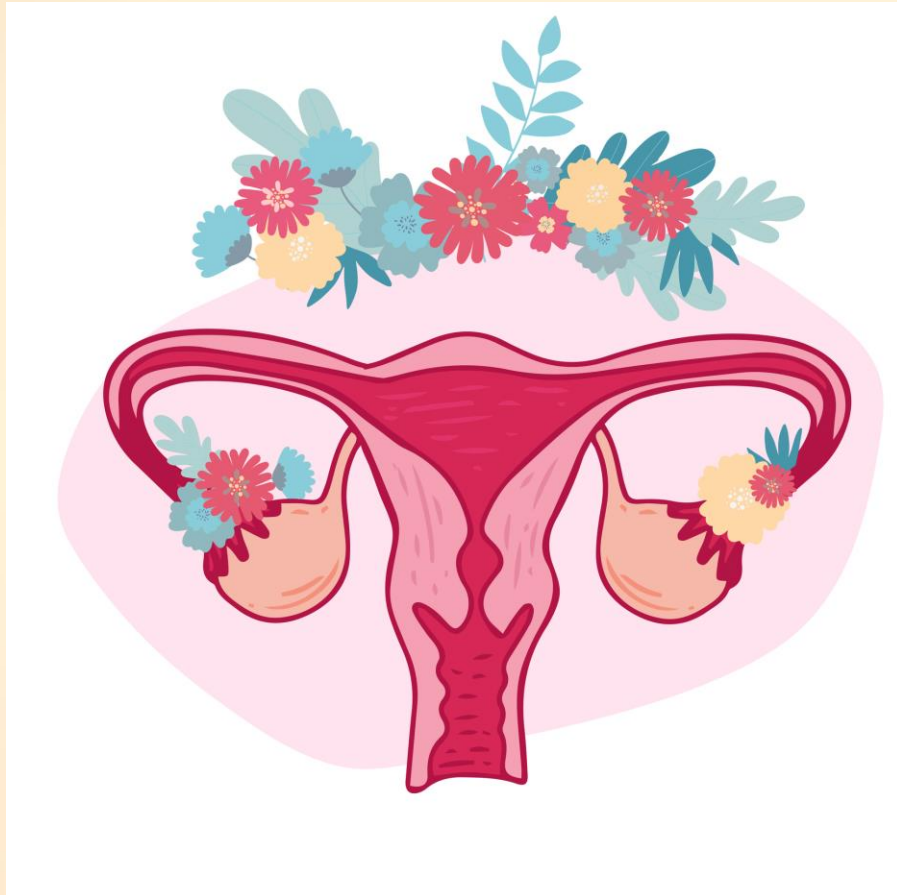




PCOS: An Effective Approach

Rebecca Roentsch Montrone, BS – Wondrous Roots

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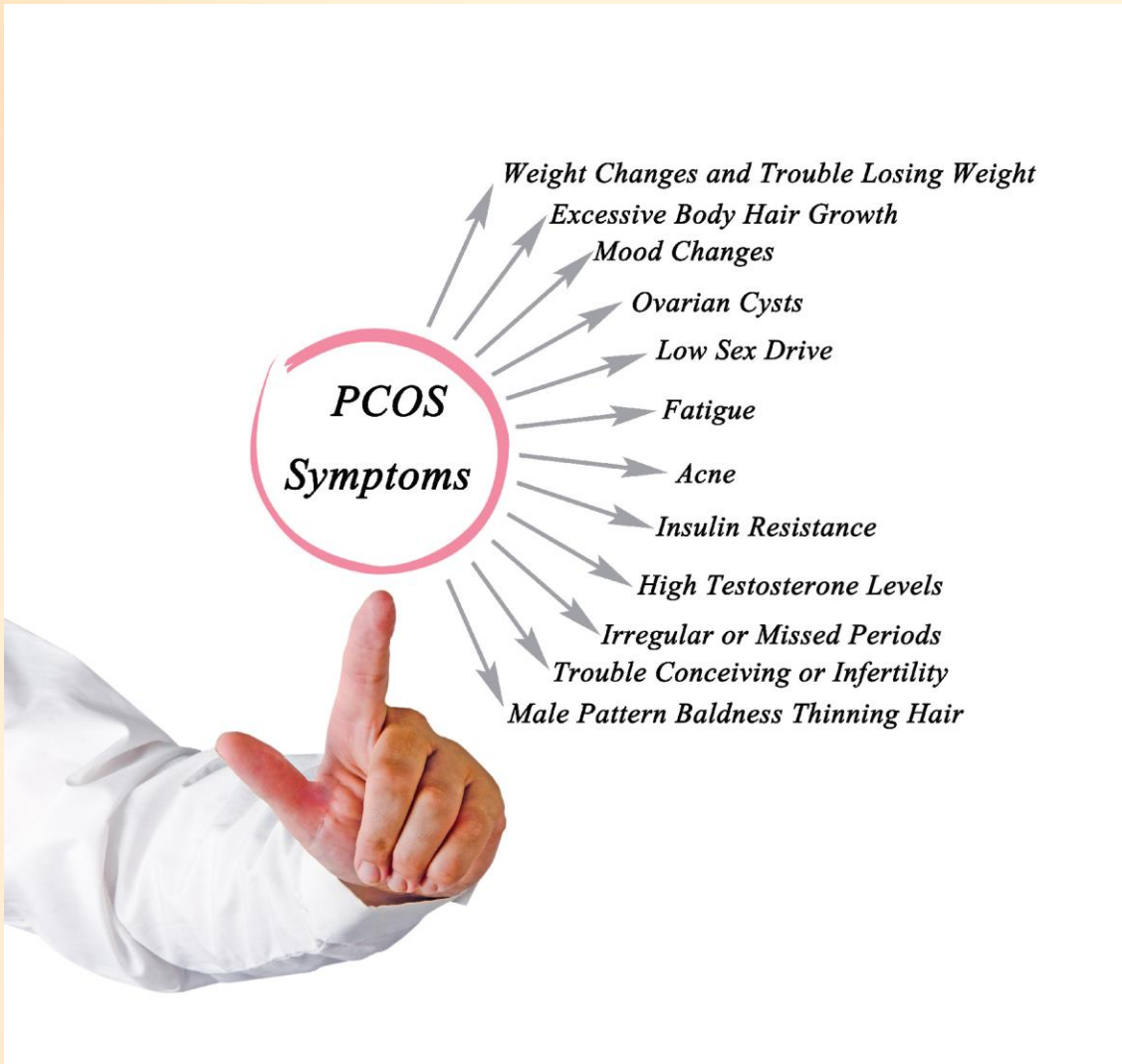


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What is PCOS?

PCOS refers to multiple cysts on the ovaries and a host of other problems that go along with them, including anovulation (lack of ovulation) and menstrual abnormalities, hirsutism (facial/belly/upper thigh/upper arms hair), male pattern baldness, acne, and often obesity. Such women may also have varying degrees of insulin resistance and an increased incidence of Type II diabetes, unfavorable lipid patterns (usually high triglycerides), and a low bone density. Laboratory tests often show higher than normal circulating androgens, especially testosterone.



Ovarian Cysts



Irregular Periods



Acne



Obesity/ Trouble Losing Weight



Pelvic Pain



Fatigue



Male Pattern Baldness & Thin Hair



Hair Growth



Low Libido



Insulin Resistance



High Testosteron Level



Infertility

What Your Dr. May Not Tell You about PCOS

A New Epidemic that Causes Infertility, Excess Hair, Acne and More

John R. Lee, M.D. and Virginia Hopkins

“In the 30 years that I practiced medicine, I rarely saw a woman with polycystic ovary syndrome (PCOS). Today, estimates are that 10 to 20 percent of women have PCOS, and I would guess that among young women the number is even higher, qualifying this as an epidemic. I have had many emails and letters from women in their late teens and twenties with PCOS. Their doctors tend to prescribe two treatments, both of which affect symptoms only, and neither of which is particularly successful. One treatment, is temporary chemical castration, using either birth control pills, androgens (male hormones), androgen blockers, synthetic estrogens, Lupron or similar drugs that block hormone production. The other is prescribing the new oral drugs for Type II diabetes, which reduce insulin resistance. *I have a much safer, simpler, more effective and less expensive approach that treats the cause and not just the symptoms of PCOS.*” [Source](#)

Failure to ovulate

PCOS occurs 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. [Source](#)

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 progesterone's 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.

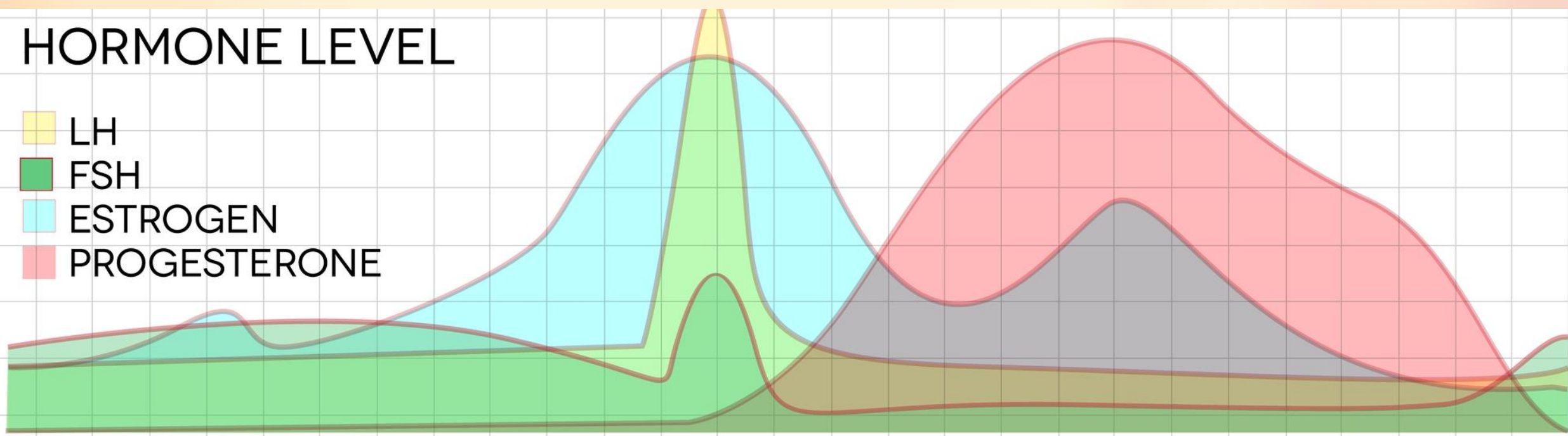
If fertilization does not occur, the ovary stops its elevated production of both estrogen and progesterone. The sudden fall in the concentrations of these hormones causes shedding of the blood-rich uterine lining and bleeding (menstruation). Then, in response to low hormone levels, there is a rise in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

PCOS Begins in the Brain

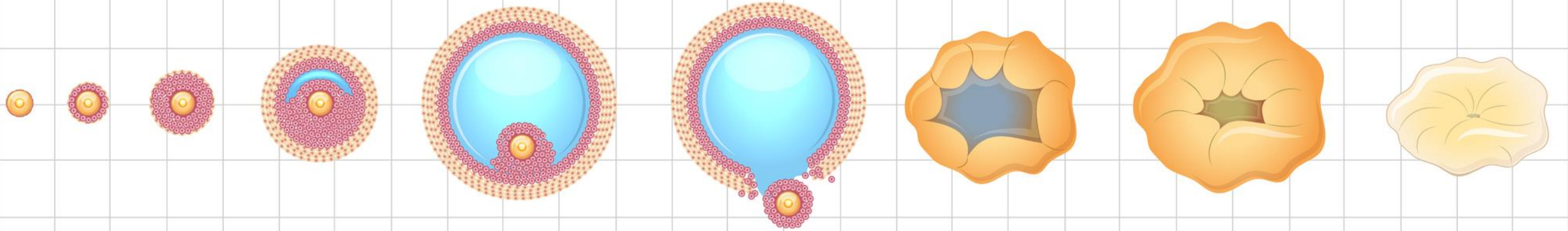
- Most evidence points to a “neuroendocrine” basis for PCOS, meaning that dysfunction in the brain, specifically in the hypothalamus, is the main cause of ovarian androgen excess. It works like this:
- In a normal, healthy menstrual cycle, the hypothalamus releases pulses of GnRH (gonadotrophin-releasing hormone), first slowly, then more rapidly, and then slowly again after ovulation. In turn, those pulses stimulate pituitary hormones (FSH and LH) that coordinate ovulation and promote the healthy production of estrogen and progesterone.
- A key feature of a healthy neuroendocrine system is progesterone’s beneficial slowing effect on GnRH pulsatility. In other words, progesterone (made by ovulation) exerts beneficial negative feedback on the hypothalamus, lowering androgens and promoting future ovulation.

HORMONE LEVEL

- LH
- FSH
- ESTROGEN
- PROGESTERONE



FOLLICULAR DEVELOPMENT



DAY OF CYCLE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

Why Eggs Won't Pop and Progesterone Isn't Made

“But what causes dysfunctional follicles that won't release eggs? I am convinced, from wildlife studies and from what I have observed in my practice [[John Lee, MD](#)], this is due to the exposure of female embryos to xenobiotics, environmental pollutants which chemically act like estrogen on the developing baby's tissues. When a female embryo develops in the womb, 500 to 800 thousand follicles are created, each enclosing an immature ovum. Studies show that the creation of ovarian follicles during this embryo stage is exquisitely sensitive to the toxicity of xenobiotics. When the mother is exposed to these chemicals, she experiences no apparent damage. But the baby she is carrying is far more susceptible, and these chemicals may damage a female embryo's ovarian follicles and make them dysfunctional; unable to complete ovulation or manufacture sufficient progesterone. This damage is not apparent until after puberty.” [Source](#)

What Are Xenobiotics?

Xenobiotics are chemical substances which are alien or unnatural to the animal and human life. Xenobiotics include plant components, pharmaceutical drugs, pesticides, cosmetic products, added food flavors, fragrances, etc. At higher concentrations in environmental matrices, naturally occurring substances (endobiotics) may also be considered as xenobiotics. Xenobiotics are categorized as pesticides, pharmaceutical chemicals, personal care products, illicit narcotic drugs/substances, industrial/commercial goods, and nuclear waste and can be present in various environmental matrices.

[Source](#)

Xenobiotic Sources

XENOBIOTICS (AROMATIC COMPOUNDS)	INDUSTRIAL SOURCES
Alkanes & alkenes	fossil fuels, plastics, industrial feedstock
Alkyl methyl ethers	gasoline oxygenates
Alkyl ketones	paint
Halogenated methanes	solvent, degreaser, coolant fluid, fumigant
Styrene	Plastics
Nitro heterocyclics	explosives
BTEX	fossil fuels, solvents, industrial feedstock
Aromatic amines	pesticides, dyes, pigments, pharmaceuticals
Nitro aromatics	explosives, pharmaceuticals, pesticides, dyes
Chlorophenols and dioxins	wood preservation, pesticides, pulp bleaching



What to Do?

A Slap-it-Silly Approach!

Addressing all factors involved as we understand them at the same time.



The Diet Connection to PCOS

“By far the biggest lifestyle contributor to PCOS is poor diet. Young women with PCOS tend to eat far too much sugar and highly refined carbohydrates. These foods cause an unhealthy rise in insulin levels. According to Jerilyn Prior, M.D., insulin stimulates androgen receptors on the outside of the ovary, causing the typical PCOS symptoms of excess hair (on the face, arms, legs), thin hair (on the head), and acne. Eventually this type of diet will cause obesity, which will cause insulin resistance (the inability of the cells to take in insulin) which will aggravate the PCOS even more. The androgens also play a role in blocking the release of the egg from the follicle.

Women who have a high number of dysfunctional follicles to begin with, due to xenobiotic exposure in the womb, will have worse problems if their diets are high in sugary foods and low in nutrition. Since this is exactly the type of diet favored by teens and young women, it's easy to understand why there is so much PCOS in that age group. Fifty years ago, the average person ate one pound of sugar a year. Today the average teenager today eats one pound a week! Potato chips, corn chips, pasta and white rice are all highly refined carbohydrates that act on the body much the same as sugars do.” [John Lee, MD](#)

The PCOS Diet: Why Food Matters and How to Use it to Your Advantage

“While there’s a clear relationship between diet, nutrition, and PCOS, most doctors aren’t talking about it enough, or at all with patients, beyond women with PCOS being told all too often, and sometimes in a shaming, blaming way, to just “lose the weight” – as if that were the only answer – and as if it were just that simple to do! Most women with PCOS who do struggle with their weight have tried any number of diets – often overly restrictive ones that backfire despite their best efforts and feel that ‘failure’ to lose weight is a result of a problem with their willpower, when in fact this and other food-related challenges are now known to be a symptom of PCOS – not a cause.”

[The PCOS Diet: Why Food Matters and How to Use it to Your Advantage - Aviva Romm, MD](#)



Supplements for PCOS

Forget the birth control pills, spironolactone, metformin, etc.



Vitamin D & PCOS

Vitamin D deficiency appears to occur frequently in women with PCOS and may be a contributing factor to some of the biochemical abnormalities seen in this condition.

The role of vitamin D in polycystic ovary syndrome

Vitamin D plays a physiologic role in reproduction including ovarian follicular development and luteinization via altering anti-müllerian hormone (AMH) signaling, follicle-stimulating hormone sensitivity and progesterone production in human granulosa cells . It also affects glucose homeostasis through manifold roles. The potential influences of vitamin D on glucose homeostasis include the presence of specific vitamin D receptor (VDR) in pancreatic β -cells and skeletal muscle, the expression of 1- α -hydroxylase enzyme which can catalyze the conversion of 25-hydroxy vitamin D [25(OH)D] to 1,25-dihydroxyvitamin D, and the presence of a vitamin D response element in the human insulin gene promoter.

[Indian J Med Res. 2015 Sep; 142\(3\): 238–240. doi: 10.4103/0971-5916.166527](#)

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Source



Fish Oil and Fertility: A Surprising Connection

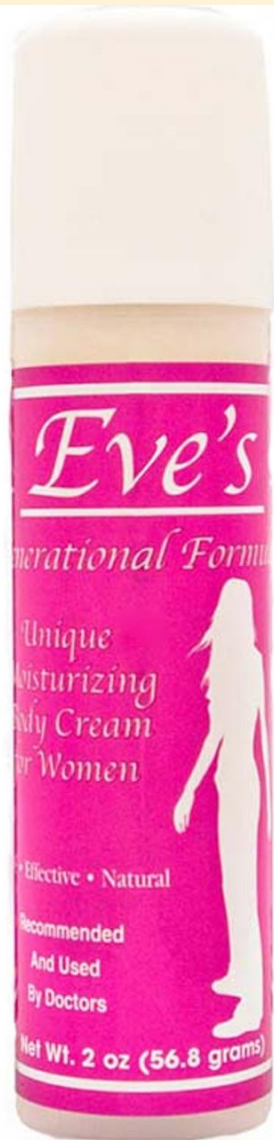
Omega 3 fats are effective at improving many aspects of PCOS including triglycerides and mood and help to support a healthy pregnancy. New research shows omega-3 fats can even boost fertility in those with PCOS.

Benefits of Omega-3 Fats for PCOS

Omega-3 fats are essential for people with PCOS, as they provide numerous health benefits. Omega-3 fats are linked to improving triglycerides and insulin levels, lowering inflammation and blood pressure, and even providing better hair and skin quality and improving your mood. DHA is particularly important during pregnancy, as it aids in the baby's brain development.

Exciting new research from the American Society of Reproductive Medicine's Scientific Congress showed omega-3s are beneficial for improving fertility and chances of conceiving in PCOS women. [Previous research](#) that looked at 18,000 nurses from the Nurses Health Study showed that omega-3 intake was associated with better fertility.

[Source](#)



Progesterone & PCOS

When ovulation does not occur, there is no corpus luteum, and progesterone is not produced. This confuses the brain, and excess androgens are secreted. We can use a progesterone challenge using bio-identical progesterone to “trick” the brain into thinking ovulation has occurred. For women not menstruating regularly, this will often bring on a normal cycle.

Another option...

BEZWECKEN



BEZWECKEN

PG Ovals™ Hydrating Suppositories

16 Ovals / Suppositories
Net Weight: 16 grams

Directions: Apply 1 oval daily to skin or insert vaginally as directed by a healthcare practitioner.

Ingredients: Cocoa Butter, USP Progesterone, Vitamin E, and Beeswax.

Store at room temperature. If preferred, refrigerate for easy removal.

Bezwecken • Wilsonville, OR 97070 • 800-743-2256

“Why Haven’t Doctors Figured This Out?”

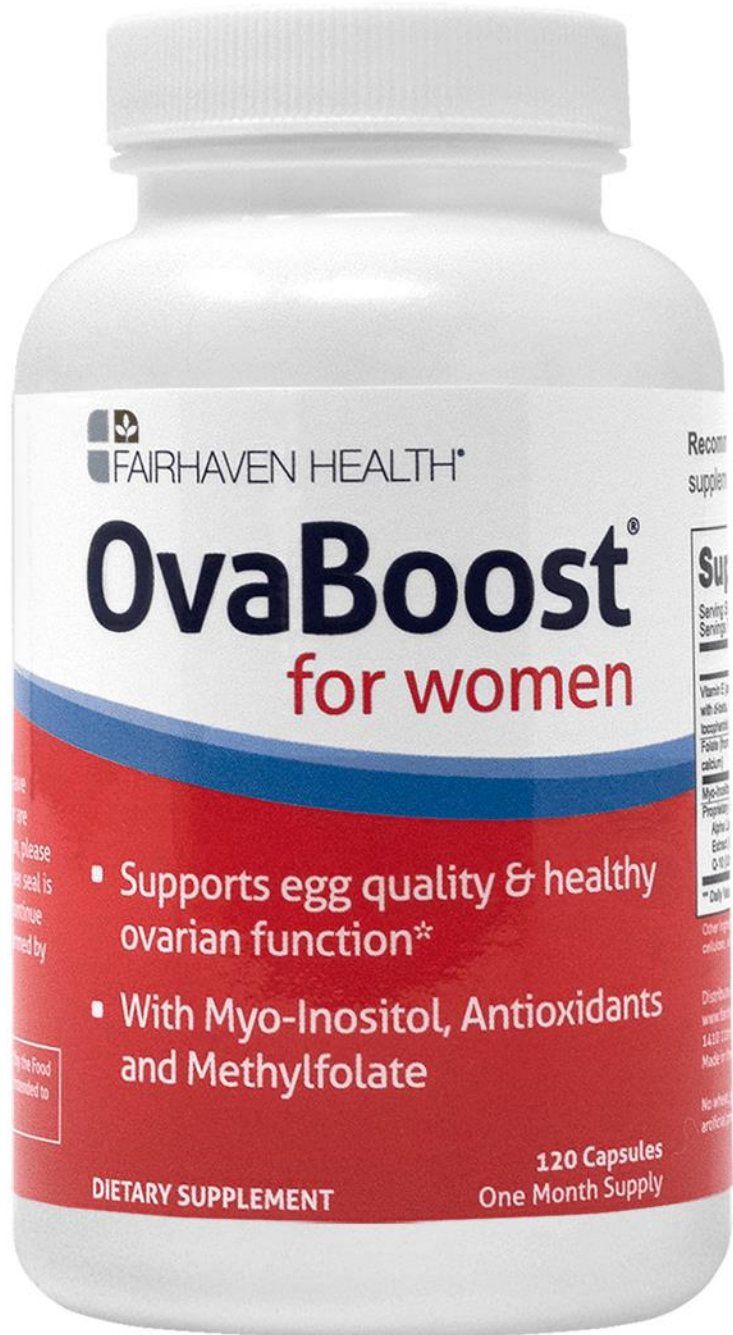
“There are several reasons why doctors don’t recognize the role of progesterone deficiency in PCOS. They may not be aware that the hypothalamus responds not only to the rise and fall of estrogen, but also to the rise and fall of progesterone. Since standard tests usually indicate that a woman with PCOS has plenty of estrogen, and she is still having periods, the doctor assumes she is still ovulating and producing plenty of progesterone.”

The odds of a woman having estrogen dominance and progesterone deficiency rise to 50 percent in the female population by age 35, yet doctors rarely measure progesterone concentrations. They may fear giving progesterone because of all the side effects caused by synthetic progestins, and may not be aware that natural progesterone, unlike synthetic progestins, is remarkably free of side effects when given in normal physiologic doses.” This article was originally published in the John R. Lee, M.D. Medical Letter.



Folate (Vitamin B9)

“A recent study showed that folate, the active form, has beneficial effects on metabolic profiles in women with PCOS. The study was a randomized controlled trial, considered the “gold standard” of research. In the study, 5 mg of folate supplementation, compared with 1 mg and a placebo, resulted in better glucose metabolism and better cholesterol lab values in women with PCOS.” [Source](#)



OvaBoost

I love this combination supplement for PCOS:

- Myo-Inositol
- Folate
- CoQ10
- Melatonin
- Alpha-lipoic acid
- Grape seed extract

(Click the link to the product to read the science behind this excellent formula.)

The role of melatonin in polycystic ovary syndrome: A review

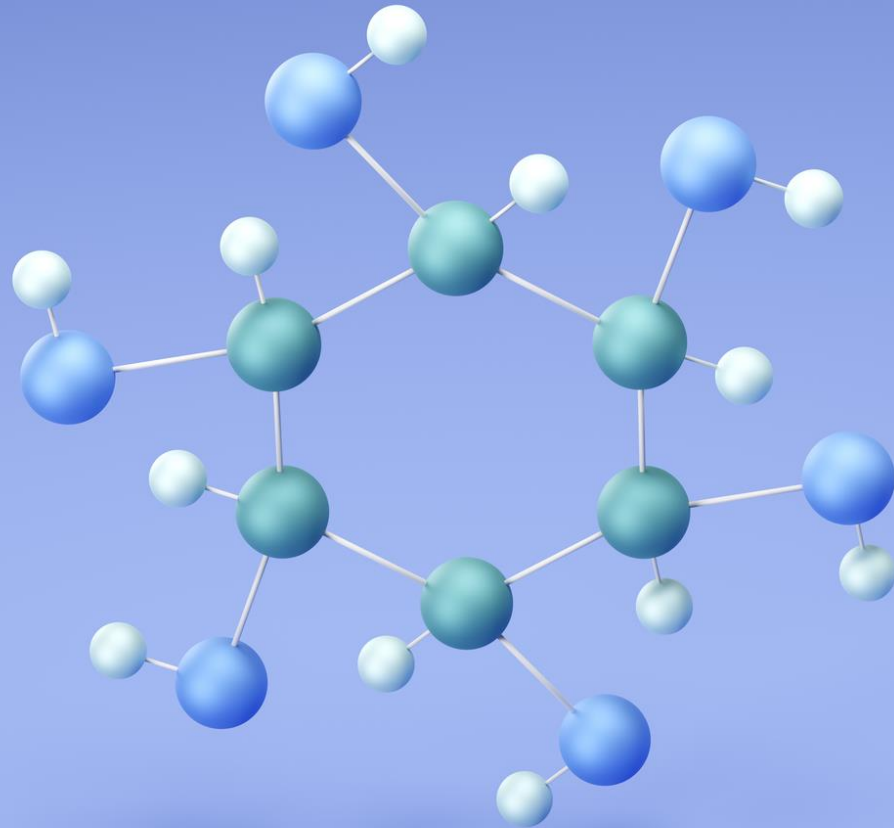
Polycystic ovary syndrome (PCOS) is a widespread endocrine disorder, affecting approximately 20% of women within reproductive age. It is associated with hyperandrogenism, obesity, menstrual irregularity, and anovulatory infertility. Melatonin is the main pineal gland hormone involved in the regulation of the circadian rhythm. In recent years, it has been observed that a reduction in melatonin levels of follicular fluid exists in PCOS patients. Melatonin receptors in the ovary and intra-follicular fluid adjust sex steroid secretion at different phases of ovarian follicular maturation. Moreover, melatonin is a strong antioxidant and an effective free radical scavenger, which protects ovarian follicles during follicular maturation.

Melatonin & PCOS

Melatonin lowers the androgen levels in women with PCOS.

Melatonin Reduces Androgen Production and Upregulates Heme Oxygenase-1 Expression in Granulosa Cells from PCOS Patients with Hypoestrogenia and Hyperandrogenia








Inositol

Vitamin B8



-  Carbon
-  Oxygen
-  Hydrogen

Myo-inositol in patients with polycystic ovary syndrome: a novel method for ovulation induction

[Clinical Trial . 2007 Dec;23\(12\):700-3. doi: 10.1080/09513590701672405. Epub 2007 Oct 10.](#)

Conclusion: Myo-inositol is a simple and safe treatment that is capable of restoring spontaneous ovarian activity and consequently fertility in most patients with PCOS. This therapy did not cause multiple pregnancy.

Inositol: An Important Nutrient For OCD, Anxiety and Depression

Supplementing with inositol has also been shown to increase inositol concentration within the central nervous system and treat depression in adults (17)

[View the full article here.](#)

Efficacy and Safety of Coenzyme Q10 Supplementation in the Treatment of Polycystic Ovary Syndrome: a Systematic Review and Meta-analysis

The aim of this study is to evaluate the efficacy and safety of coenzyme Q10 supplementation in the treatment of polycystic ovary syndrome (PCOS). We first searched PubMed, Wanfang Data, CNKI, Embase, ClinicalTrial.gov, and other databases. The retrieval time from the establishment of the database to January 2021.

Based on the current evidence, it could be considered that the addition of CoQ10 is a safe therapy to improve PCOS by improving insulin resistance (reduce HOMA-IR, FINS, FPG), increasing sex hormone levels (increase FSH, reduce testosterone), and improving blood lipids (reduce TG, TC, LDL-C, and increased HDL-C). [Source](#)



Glutathione

For women with PCOS, glutathione is also exceptionally important. A recent study challenged a group of 36 lean women with PCOS with a load of glucose. As would be expected, the women produced higher levels of insulin and testosterone in response to the dose of sugar. The study concluded that the glucose caused a significant increase in the oxidative stress markers, lowering the glutathione levels – and that this reduction in glutathione was associated with an increase in testosterone.

Glutathione – The Master Antioxidant for Fertility, and For PCOS

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Even for those women with PCOS who ovulate regularly, the time to conceive can be long – most often related to the quality of her follicles. Glutathione is protective for the egg quality of women with PCOS and increasing these levels can not only improve the chances of conceiving but also can increase the general rate of ovulation. [Source](#)

Glutathione, Fertility, and Pregnancy

Before pregnancy, glutathione plays a critical role in fertility, sperm count, and conception in the mommy and daddy to be. In the beginning of the pregnancy glutathione can protect essential functions of the growing and developing embryo by controlling cell differentiation, proliferation, and cell death. For the expectant mommy, glutathione provides her with a stable and natural source of energy, helps to balance moods and stabilize the emotional ups and downs of hormonal changes during and after pregnancy. Glutathione also helps to prevent inflammation during pregnancy, as well as protect from gestational diabetes and pre-eclampsia. For the baby in the womb, glutathione protects from birth defects, helps ensure healthy growth and development, as well as protect and support the placenta. In the placenta, glutathione detoxifies pollutants before they can reach the developing baby. Even during labor and delivery, glutathione prevents, or at the very least, dramatically decreases the oxidative stress created during the birthing process. The mother's lifestyle and environment around her affect the pregnancy dramatically and can further cause oxidative stress and lower glutathione levels.

Modulation of GABA by sodium butyrate ameliorates hypothalamic inflammation in experimental model of PCOS



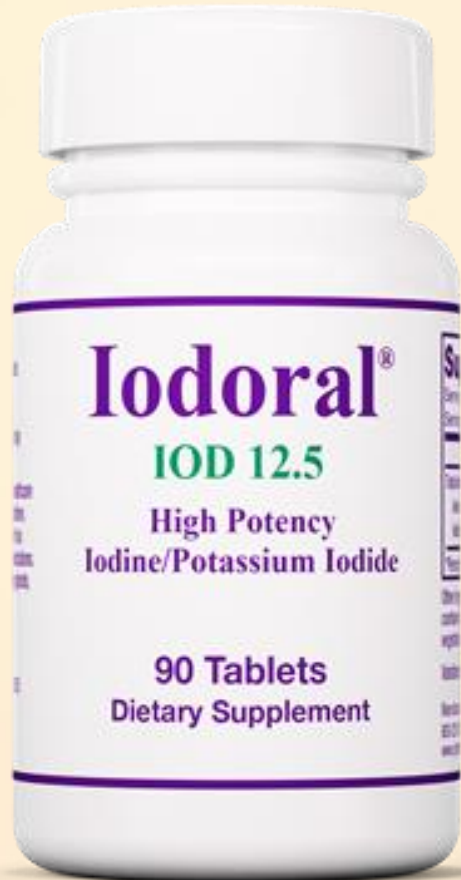
Rats with PCOS were characterized by elevated levels of plasma insulin and testosterone. Increases in plasma and hypothalamic triglyceride levels, inflammatory biomarker (SDF-1), apoptotic marker (caspase-6), and decreased plasma GnRH were observed. Additionally, a decrease in hypothalamic GABA was revealed. Nevertheless, the administration of butyrate attenuated these alterations. The present study suggests that butyrate ameliorates hypothalamic inflammation in an experimental model of PCOS, a beneficial effect that is accompanied by enhanced GABA production. [Learn More](#)

Butyrate alleviates renal inflammation and fibrosis in a rat model of polycystic ovarian syndrome by suppression of SDF-1

Conclusion The present investigation demonstrates that PCOS declines renal function, which is accompanied by renal inflammation, apoptosis and fibrosis. The study further suggests that butyrate, an HDAC2i restores renal function by suppressing renal SDF-1 with subsequent attenuation of renal inflammation, apoptosis and fibrosis.

[Bashir and Olaniyi BMC Pharmacology and Toxicology \(2023\) 24:48](https://doi.org/10.1186/s40360-023-00692-9)
<https://doi.org/10.1186/s40360-023-00692-9>

Iodine & PCOS



“Iodine plays an essential role in the production of the thyroid hormone. Because the body does not make iodine naturally, it is essential to get adequate supplies from your diet. While iodine plays an important role with thyroid health, it also plays an important role in reducing polycystic ovary syndrome (PCOS) risk and severity.”

Iodine and PCOS: What You Should Know

Additionally, iodine deficiency negatively effects folliculogenesis, the process in the maturation of the ovarian follicle into a fertilizable egg. This impact has been found to play a role in leading to PCOS onset. When low iodine levels are present in women, thyroid activity becomes unbalanced and irregular.

This lack of thyroid hormone production and release into the bloodstream is known as hypothyroidism. In short, if the thyroid has low iodine, hormones aren't produced in proper amounts and when it comes to fertility, the ovaries can struggle. Because of the exchanging role PCOS and hormones play on each other, it's common for women with PCOS to have higher incidences of thyroid disease or an enlarged thyroid or goiter

Magnesium & PCOS



Do women with polycystic ovarian syndrome have a problem with magnesium?

A study conducted at the State University of New York found significantly lower serum magnesium levels in PCOS women compared to non-PCOS women. This study suggests it would be wise for you to pay more attention to this vital mineral. [Learn More.](#)

What Women With PCOS Should Know About Magnesium

Magnesium is the fourth most abundant mineral in the body, and women with PCOS may not be getting enough of it. According to a study in the *Journal of Gynecology and Endocrinology*, women with a magnesium deficiency are 19 times more likely to have PCOS.

Magnesium plays a role as a co-factor in some major processes in the body. It's involved in insulin and glucose signaling and magnesium is needed to regulate heart contractions, just to name a few important functions. Having a deficiency of magnesium has been shown to increase your risk for developing type 2 diabetes and is associated with worse health outcomes. Here's what women with PCOS should know about magnesium and how to best maintain optimal levels. [Learn More.](#)

Trace Minerals & PCOS

Multivitamin/Mineral Formula



Indium for Enhanced Mineral Absorption and Endocrine Balance



The Impact of Mineral Supplementation on Polycystic Ovarian Syndrome

Abstract: Polycystic ovary syndrome (PCOS) is an endocrinopathy that is common among women of reproductive age. It is a heterogeneous disorder with an unknown etiology. Different strategies have been proposed for the treatment of PCOS. Recent studies recommend supplementation with specific minerals for treating various PCOS phenotypes. We searched PubMed, Google Scholar, and SCOPUS databases by using search terms combining PCOS with the supplementation of magnesium, zinc, selenium, or chromium. This review presents a narrative concerning the association between PCOS and magnesium, zinc, selenium, and chromium supplementation. We review findings from various randomized controlled trials and meta-analyses conducted in women of childbearing age with PCOS. Recent reports highlight the beneficial effect of minerals on the clinical and metabolic symptoms of PCOS. [Learn more.](#)



Low-Dose Lithium Orotate

In high doses, lithium acts as a drug, accompanied by potentially serious and debilitating side effects. In low doses, lithium acts as a nutrient required for B12 and folate transport and uptake, neuromodulation, and the function of many biochemical processes in both humans and animals. [Learn more.](#)

Wondrous Roots



BOTANICAL APOTHECARY
PCOS Support

Addressing Androgen Excess

1 oz



Herbs & PCOS

Chaste tree berry (*vitex agnus castus*),
Saw Palmetto berry (*Serenoa repens*),
Stinging Nettle root (*Urtica dioica*),
Spearmint leaf (*Mentha spicata*) extracted via
cold percolation into a menstruum of grain
alcohol 60%, spring water.

Saw Palmetto



Spearmint



Polycystic Ovary Syndrome is helped by Saw Palmetto

For PCOS, saw palmetto is a powerful adaptogenic herb which stabilizes women's testosterone levels and can thus ease polycystic ovarian symptoms. Adaptogenic herbs like saw palmetto have the unique ability to “adapt” their function according to the body's specific needs, either enhancing or calming physiological activity. Polycystic ovarian syndrome (PCOS) disrupts a woman's endocrine system and levels of the hormone testosterone may be increased. Saw palmetto helps to decrease symptoms of hyperandrogenism, or elevated testosterone levels, by inhibiting the enzyme 5-alpha-reductase, and thus helping to stabilize women's endocrine systems.

[Learn more.](#)

Effect of spearmint (*Mentha spicata Labiatae*) teas on androgen levels in women with hirsutism

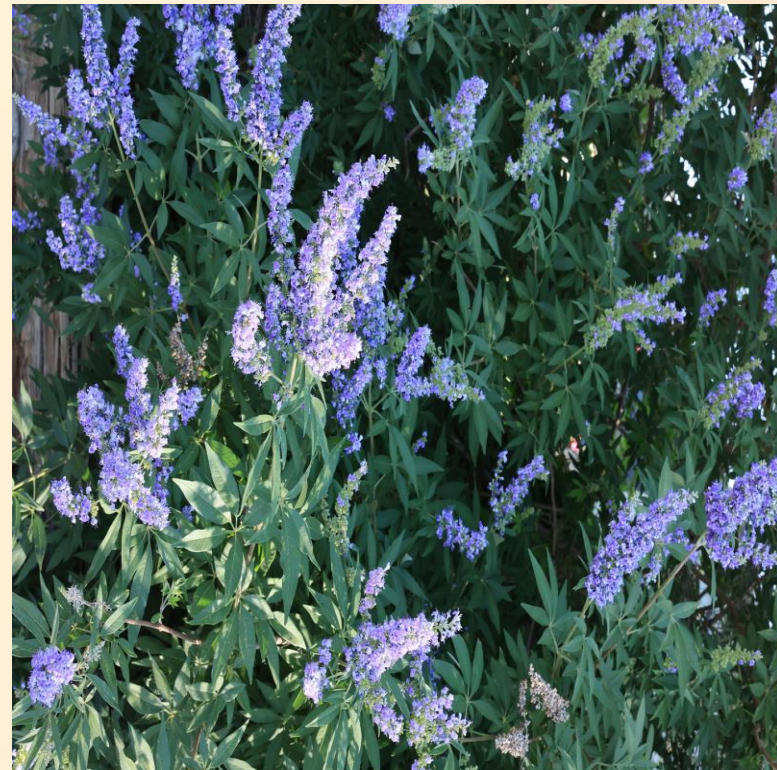
Because antiandrogenic effects of spearmint and peppermint were found previously in rats, it was decided to observe the effect of this herbal tea on the androgen levels in hirsute women. Twenty-one female hirsute patients, 12 with polycystic ovary syndrome and 9 with idiopathic hirsutism were included to the study. They were took a cup of herbal tea which was steeped with *M. spicata* for 5 days twice a day in the follicular phase of their menstrual cycles

After treatment with spearmint teas, there was a significant decrease in free testosterone and increase in luteinizing hormone, follicle-stimulating hormone and estradiol. There were no significant decreases in total testosterone or dehydroepiandrosterone sulphate levels. Spearmint can be an alternative to antiandrogenic treatment for mild hirsutism. Further studies are needed to test the reliability of these results and the availability of spearmint as a drug for hirsutism. [Learn more.](#)

Stinging Nettle Root



Vitex (Chastetree Berry)



Therapeutic effects of stinging nettle (*Urtica dioica*) in women with Hyperandrogenism

Significant decrease was found in total testosterone level of case group at after treatment due to before treatment. Significant decrease was found in free testosterone level of case group at after treatment due to before treatment. Significant decrease was found in DHEA level of case group at after treatment due to before treatment. The improvement rate of acne in patients of control group was significantly higher than the case group ($P < 0.001$).

[Learn more.](#)

Effect of Vitex agnus-castus ethanolic extract on hypothalamic KISS-1 gene expression in a rat model of polycystic ovary syndrome

Conclusion: In conclusion, our results indicated that Vitagnus extract inhibited downregulation of KISS-1 gene in the hypothalamus of PCOS rats. Because of the master role of kisspeptin in adjusting the HPG axis, Vitagnus is likely to show beneficial effects in the treatment of PCOS via regulation of kisspeptin expression. This finding indicates a new aspect of Vitagnus effect and may be considered in its clinical applications.

[Learn more.](#)

A Proposed PCOS Supplemental Protocol





Thank you. *“Go to Health!”*

Rebecca Roentsch Montrone, BS – [Wondrous Roots](#)