

Naturopathic Approach for fertility support in women who has been diagnosed with PCOS



- Review whole health history to find imbalances (lifestyle, stressors, nutrition, prescription and OTC medications, lab results, endocrine disruptors, etc.) so that we can re-balance your endocrine system.
- We help the person, not the disease. Therefore, focusing on an individualized protocol will be the best.
- It's crucial to eat a balanced and anti-inflammatory diet, maintaining an appropriate body weight and eliminating as much physical and psychological stress as possible.
- Current medical treatment is to prescribe metformin. But metformin doesn't enhance ovulation in many patients.

Nutritional support:



- The Standard American Diet (SAD) have little nutrition and is inflammatory to our body especially in women who need fertility support.
- A whole food diet with adequate protein, vegetables and healthy fats is great to balance blood sugar, lower cholesterol and modulate weight.
 - Adopting an anti-inflammatory diet as part of your whole foods nutrition will provide even better results to improve metabolic symptoms. In addition to above, this also includes:



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- Eliminating foods that you react to thus causing inflammation in your body.
- If you eat meat, purchasing meat that are grass-fed/pasture-raised meats, wild-caught fish like salmon. We prefer that you avoid conventionally raised beef and dairy products since they may contain estrogenic hormones.
 - Even organic dairy products are a source of estrogen. Dairy cows are often pregnant when they are milked thus leading to higher levels of estrogen in the milk and other dairy products.
- Nuts/seeds like chia, flax, hemp, almonds and walnuts
- Unrefined oils/fats including coconut oil, olive oil and avocado.
- Increasing whole soy foods like tofu, tempeh, soymilk and edamame may be beneficial since they contain isoflavones which help with hormone imbalances.
- Reducing carb intake has been shown to improve insulin sensitivity in women with PCOS.
 - There was a pilot study that lasted 24 weeks in women who were obese and diagnosed with PCOS showing that a low carb ketogenic diet led to significant improvement in weight, percent free testosterone, LH/FSH ratio, and fasting insulin.
- Increase cruciferous vegetables for hormone balancing
 - Broccoli, kale, cabbage, bok choy, collard greens
 - They have a compound called indole-3-carbinol which helps to promote the production of the less potent form of estrogen (E3).
- Avoid sugar-sweetened drinks, diet sodas and high fructose corn syrup.

Support healthy bowels and digestion

- Good digestion with regular elimination of bowels are important in removing excess estrogen from your body. Increase fiber and start a probiotic.

Exercise

- Exercising can improve cholesterol levels, insulin sensitivity, body composition and improve ovulation. Hormones are stored in our fat. When we exercise, we are mobilizing our fat cells and excreting the hormones to be circulated and metabolized. Some will get reabsorbed back, but some will be eliminated via our stools and urine.
- It's important to have regular bowels and to drink lots of water to urinate regularly when you're trying to maximize elimination pathways.





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- Muscle and weight training workouts are particularly helpful as they build lean muscle mass and help your body become more sensitive to insulin. Again, when insulin resistance is when your insulin receptors fail to respond normally when insulin is present. Therefore, more insulin is floating around. When insulin levels are high, they can cause the ovaries to make more androgen hormones (male hormones) which can be an issue for fertility.
- You can choose low impact workouts if high intensity workouts are a stressor for you. Try Zumba, Pilates, Barre Yoga or Aqua Aerobics.
- Walk briskly for 35-40 minutes outdoors every day.
- Jog ride a bike, swim.... all are great cardio workouts.
- Enjoy your workout so that you look forward to it. Get moving and stay motivated. Be consistent.

Sleeping:

- Sleep is crucial for cell regeneration, hormone production, stress control and even weight management. Did you know that sleep deprivation can have the same negative effects on health and hormones as a lack of activity and a poor diet?
 - A large cross-sectional study showed that those who have PCOS and less sleep are



at more risk for mental issues and insulin resistance.

- Consistently having a lack of sleep will increase your stress hormones, including cortisol. It will also change levels of hormones that control your weight and appetite.
- no matter the type of exercise you choose, exercising with PCOS might improve fertility markers, insulin resistance, inflammation and weight.

Endocrine disruptors (xenoestrogens):

- These are compounds in the environment or diet that interfere with the production, release, transport, metabolism or elimination of the body's natural hormones.
- Women with hormonal disorders should avoid endocrine disruptors. High levels of bisphenol A may have an impact on androgens in your bloodstream.
- They compete with your estrogens to bind to the estrogen receptors and strongly stimulate it.



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- They mimic the functions of our natural estrogens.
- This can lead to symptoms that are not favorable to you such as PMS, heavy periods, mood swings, PCOS, fibroids, headaches, insomnia, ovarian cysts, irregular menstrual bleeding, breast tenderness, painful periods, etc.
- They produce an estrogen dominance in our body.
- They are in our food, shampoos, water, air, etc.
- Some of the top sources of xenoestrogens are:

NO

- Commercially-raised meat and dairy products
- Anything that contains insecticide or pesticide residues
- Tap water
- Paraben (shampoos, lotions, soaps, toothpastes, cosmetics, and other personal care products. Phenoxyethanol chemical compounds are widely used by cosmetic and pharmaceutical industries as

preservatives

- Those that go directly through our skin and does not get ingested then metabolized by the liver are more potent
- Phthalates
- Soft plastics used as packaging materials – treated with chemical compounds called phthalates – to increase its flexibility.
 - Plastic wrapped foods, heated in microwave, contain some of the highest levels of xenoestrogens.
 - Avoid drinking hot liquids in Styrofoam cups.
- Artificial food additives
 - According to the study published in the journal, Chemical Research in Toxicology, 31 substances added to food for preservation, coloring, texture and flavor have potential estrogenic effects.
 - Especially watch out for propyl gallate and 4-hexylresorcinol.
 - Avoid canned foods – usually lined with a plastic coating containing bisphenol-A (BPA).
- Soy protein
 - It's okay to eat whole foods soy such as soybeans, edamame tofu or tempeh.
 - Avoid soy isoflavone or the soy protein isolate – they are foods packed with condensed and unnaturally high amounts of plant estrogen.
- Dryer sheets
 - The xenoestrogens here make your clothes feel soft and smell fresh. Once you put on your clothes, sleep on your sheets, or use your towels, they can permeate your skin and again bypass the liver for metabolism.



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- Birth control pills and conventional HRT
 - These contain synthetic hormones that interrupt your natural hormone balance
- Disposable menstrual products
 - FDA have detected dioxins in conventional tampons.
 - Avoid tampons and sanitary napkins containing chlorine, fragrance, wax, surfactants, rayon, etc.
 - Best to use organic cotton or other natural materials

Herbal Support:

- Herbs used will depend on your individual goals, your allergies and any medications you are taking.
- Herbs can be used to support your liver in the process of metabolizing and regulating hormone balance.
 - The liver is the body's master detoxifier and it is responsible for a large part of not only our overall health but also our fertility health. Of all the functions that the liver has, one of the functions is to break down and expel toxins and excess hormones.
 - Herbs used to support the liver, metabolize and balance hormones include Burdock root (*Arctium lappa*), dandelion leaf and root (*Taraxacum officinale*), milk thistle seed (*Silybum marianum*), yellow dock root (*Rumex crispus*).
 - Other herbs to consider: Flax seed (*Linum usitatissimum*), oatstraw stems and milky oats tops (*Avena sativa*), red clover aerial parts, blossom (*Trifolium pretense*), seaweed (leafy parts, variety of species), sesame seeds (*Sesamum indicum*), nettles leaf, root and seed (*Urtica dioica*).
- Hormone modulators like chaste tree berry (*Vitex agnus-castus*) or saw palmetto (*Serenoa repens*) may be used to decrease testosterone and balance female hormones.
- Adaptogens are herbs used to support your adrenal glands (the stress managing gland) and regulate cortisol output.
 - They can calm you down and boost your energy without over stimulating you. They can also normalize your body imbalances. When they support your adrenals, they counteract adverse effects of stress. They also improve your blood sugar. You may not notice the effects immediately, but they are doing their due diligence in your body. Some examples of these herbs are Siberian ginseng





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(*Eleuthroccocus senticosus*), licorice (*Glycyrrhiza glabra*), holy basil (*Ocimum tenuiflorum*), ashwagandha (*Withania somnifera*), rhodiola (*Rhodiola rosea*).

- Green tea (*Camellia sinensis*)
 - A [double-blind, randomized clinical trial](#) with 60 women who were either overweight or obese and was diagnosed with PCOS showed improvement in weight loss, fasting insulin and the levels of free testosterone.
 - Increases SHBG (sex hormone binding globulin) thus decreasing levels of free testosterone. When SHBG binds to testosterone, it doesn't allow for testosterone to be free.
 - Catechins and theaflavines, major constituents of tea, inhibit aromatase, an enzyme which catalyses conversion of androgens to oestrogens. Women with high consumption of tea had lower levels of E2 concentration throughout the entire menstrual cycle.

Vitamin & Mineral Support:

- B vitamins
 - They are utilized in all biochemical reactions of the body especially in hormonal metabolism and the adrenal glands.
 - According to [Nutrition, Food and Exercise Sciences](#), Vitamin B12 can be deficient among metformin users. Baseline serum Vit B12 test and routine yearly testing should be considered for those who are taking metformin at a dose of >1000mg/day and for those who take it >4 years. Also consider this in those who are taking proton pump inhibitors.
 - Methylated vitamins such as folate and vitamin B12 are best. A certain percentage of people are unable to metabolize unmethylated forms of those two B vitamins.
- Mineral support including magnesium, zinc, chromium and other trace minerals
 - These minerals play several roles in the body, from blood sugar and hormone balance, to proper heart and brain function.





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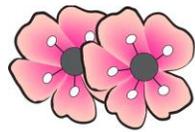
- Omega 3 Essential Fatty Acids
 - They are anti-inflammatory and play an important role in hormone production and modulation of cholesterol.
- D-chiro-inositol
 - A sugar alcohol compound in fruits, beans, grains and nuts. However, they aren't bioavailable in high enough amounts. Therefore, it's best to supplement.
 - It's probably the best studied nutrient for women with PCOS.
 - Multiple studies have shown that D-chiro-inositol may improve insulin resistance, reduce testosterone activity, and lower blood pressure and high triglycerides. They also promote ovulation which supports fertility.
 - Also improves insulin resistance
- Chromium picolinate
 - Essential for glucose and insulin balance.
 - Dietary chromium absorption is low.
 - Decreases BMI, fasting insulin and free testosterone
 - A [double blinded randomized controlled trial](#) with a dosing regimen of 1000 micrograms of chromium picolinate per day (in addition to diet and exercise recommendations) showed:
 - Significant reduction of BMI and FSI (fasting serum insulin)
 - Significant rise in FGIR (fasting glucose insulin ratio)
 - Significantly increased the chances of ovulation and regular menstruation by almost twofold after the fifth month of treatment and another threefold after 6 months.
 - Significantly increased the rate of developing regular menstruation by almost twofold after 5 months and almost 1. Fold after 6 months.
 - The diet control was restricting simple sugars and saturated fats, limiting total caloric intake to a maximum of 35kcal/kg/day.
 - The physical activity was light walking for 30 minutes twice weekly.
- Vitamin D
 - Vitamin D is not really a vitamin but rather a steroid hormone.
 - [67%-85% of women with PCOS](#) are thought to be deficient in Vitamin D. It's not a direct cause of the syndrome but can contribute to insulin resistance, ovulatory, menstrual irregularities, hyperandrogenism, obesity, low LH levels, high triglycerides and infertility.
 - [In a systematic review](#), "Vitamin D alters antimüllerian hormone (AMH) signaling, FSH sensitivity, and progesterone production and release, indicating a possible physiologic role for Vitamin D in ovarian follicular development and luteinization." It was found that serum, 25-hydroxyvitamin (the Vit D test your doctor runs when he/she checks your Vit D levels) is positively correlated with AMH. It is suggested that appropriate Vit D supplementation in those depleted can suppress seasonal changes occurring in serum AMH. In women who have PCOS and are Vit D deficient, supplementation do lower the abnormally elevated serum AMH levels.
 - AMH lab guideline, keep in mind the age of the person tested



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Interpretation	AMH blood level ng/ml
High (often an indicator of PCOS)	Over 3.0 ng/ml
Normal	Over 1.0 ng/ml
Low normal range	0.7-0.9 ng/ml
Low (low ovarian reserve)	0.3-0.6 ng/ml
Very low (low ovarian reserve)	Less than 0.3ng/ml

- AMH is a substance which developing egg sacs (ovarian follicles) secrete. The higher the number of eggs that remain in the ovaries, the higher the level of AMH in the blood. Someone who have PCOS will have many small ovarian follicles and so you would expect to see high levels of AMH. When there's too much AMH, it may be the culprit in stopping ovulation from happening. AMH works to make sure the follicles mature before they are released. In the case of high AMH, the production of a healthy egg every cycle is halted because the follicles begin to develop and then stall before they are ovulated.
- It is unknown as to what causes AMH to be high in women with PCOS however it's thought that it may be related to increased LH. When LH is too high for too long it can inhibit ovulation and cause overproduction of testosterone.
- An AMH test can be done on any cycle day via a blood test.
- Quercetin
 - There was a [12-week randomized placebo-controlled double-blind clinical trial](#) in women with PCOS supplementing with quercetin.
 - Dosing: 500 mg capsule taken orally after breakfast and lunch.
 - 84 women aged 20-40 yo with BMI between 25-40 kg/m².
 - Exclusions: Those who had other endocrine or metabolic diseases and those who took interfering medications.
 - Improvements seen in insulin sensitivity, testosterone, and LH.
- Resveratrol
 - A [double-blind, controlled study](#) of 30 women with PCOS
 - The treatment group took 1500 mg per day of micronized trans resveratrol orally
 - Blood tests at baseline and 3 months
 - Total cholesterol, triglycerides, insulin sensitivity and monitoring, total testosterone, LH, FSH, prolactin, sex hormone-binding globulin, 17-hydroxyprogesterone, DHEA-sulfate (a hormone that can convert to testosterone), and CRP.
 - At 3 months, the treatment group had a significant decrease in total testosterone levels by 23%, significant decrease in DHEA-sulfate levels by 22.2%, increased Insulin Sensitivity Index of over 66%.



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Labs:

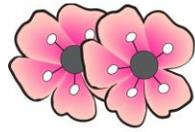
- I will be ordering the following labs, if they have not been completed already:
- Initial Evaluation:

Basic Lab Evaluation	
Complete Blood Count	Basic evaluation of immune system function and nutritional status
Thyroid Panel (TSH, T3, T4, and antibodies)	A complete evaluation of your thyroid function, which needs to be optimal to achieve pregnancy
Comprehensive Metabolic Panel	Looks at function of your liver & kidneys as well as your fasting blood sugar
Prenatal Panel	This would be run at your first Midwife/OB appointment, but we will check it now to allow time to address any concerns. This screens for infections that can cross the placenta and affect a growing baby, including hepatitis, cytomegalovirus, toxoplasmosis, varicella (chicken pox), several sexually transmitted illnesses, and others.
C Reactive Protein, Sedimentation Rate, Homocysteine	These are markers for general inflammation. I like to check in on them to ensure your body isn't under an inflammatory state. While not yet classified as a specific 'disease', inflammation in the uterus and ovaries has been implicated in infertility and impaired function.
<p>Day 3 of menstrual cycle: Day 3 is considered a "baseline" measurement of hormones. It's a time in your cycle when levels should be at a lower point and is a good time to evaluate egg quality and ovarian function.</p>	
Estradiol	The most potent form of estrogen. Estrogen is the hormone that is made by the ovaries along with developing follicles.



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Follicle Stimulating Hormone (FSH)	Made by the brain, this hormone does what it sounds like: tells the ovary to make follicles (eggs)! We want to make sure there is just enough around, and not too much, which can indicate that the ovaries aren't "listening" to the brain's signal well.
Luteinizing Hormone (LH)	This hormone, also made by the brain, is released when your estrogen climbs high enough and the egg is ready to be ovulated. We measure at baseline because higher levels of this hormone (in proportion to FSH) can indicate a hormonal imbalance that we'd want to correct.
Testosterone	While commonly thought of as a "male" hormone, testosterone is also key to make good quality eggs, and too much of it can impede fertility.
DHEA	DHEA is a precursor hormone that can be turned into progesterone, testosterone, and other hormones. Deficiency of this hormone can lead to impaired fertility
Anti-Mulerian Hormone (AMH)	AMH is a hormone that is made by early follicles (pre-eggs). The blood measurement is rising as the most helpful way to evaluate egg quality, as it considers both the quantity and the quality of those early eggs. AMH can be run at any point in the cycle.
Cycle day 21 (or 7 days after ovulation)	
Progesterone	Progesterone ("Pro" = good, "gest" = pregnancy, like the term "gestation") is one of our most important fertility hormones!! Measuring this hormone 7 days after ovulation, when it peaks, can tell us whether you ovulated as well as tell us about the quality (subjectively) of the egg. Proper progesterone levels are required to get pregnant and sustain pregnancy.
Nutritional Testing	
Vitamin D	An essential vitamin and pro-hormone for immune balance and fertility.
Vitamin B12	
Homocysteine	This marker, when elevated, can indicate a deficiency of Vitamin B12 or Folic Acid. Elevated levels are associated with infertility
Other	
ANA Panel	This test looks at whether you have any signs of autoimmunity, which is when your immune system is attacking your own body's tissues. Even in the case where there is not a diagnosable disease, the presence of auto-antibodies indicates to me that we need to work to tone your immune system and ensure that your immune system leaves your reproductive system alone!
Food Allergy Panel	This test evaluates whether your immune system is reacting to any foods as though they were foreign invaders. This test screens 96



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	foods including the most common allergens like gluten, dairy, eggs, corn, soy, and more.
Salivary Adrenal Test	This test, conducted by you, at home, measures your output of stress hormones (like cortisol) throughout the course of a day. Both elevated and depleted cortisol levels can impair fertility for both men and women.

10/02/2018 Written by Dr Amy Lor. Dr Amy is a licensed Naturopathic Doctor in the state of WA and a licensed Acupuncturist in the state of NC. As a Naturopathic health consultant in the state of NC, Dr Amy does not diagnose or treat diseases but rather support the body's natural healing to improve bodily mechanisms. This is for information purposes only and is not intended to diagnose, cure or treat disease. If you have any questions, contact your health professional to discuss about your health and nutrition.