

PCOS: Presenting Symptoms

- Hyperandrogenism: acne, hirsutism, hair loss
- Menstrual irregularity, oligomenorrhea
- Cystic ovaries seen on ultrasound (TVUS)
- Other:
 - Obesity
 - Insulin resistance
 - Mood (anxiety/depression)
 - NAFLD
 - Sleep apnea
 - Unhealthy cholesterol
- At risk for: diabetes, heart disease, endometrial CA
- Hidradenitis suppurativa

PCOS: What's happening?

- Strong correlation with insulin resistance
- Ovaries not resistant to the increased levels of insulin, respond and produce androgens
- High insulin decreases SHBG leaving more testosterone free and bioavailable

PCOS: Conventional Tx cont'd

- Infertility
 - Clomiphene Citrate (Clomid, Serophene)
 - Gonadotrophin for ovulation stimulation
 - Letrozole, may be more effective than clomid - first line therapy.
 - Other assisted fertility treatments and IVF
 - Metformin may be added to reduce the risk of ovarian hyperstimulation syndrome (OHSS)
 - Metformin safe in pregnancy but conflicting data about improvements in GDM and outcomes

PCOS: Conventional Tx cont'd

- Weight loss
 - Lifestyle changes are primary intervention
 - Bariatric surgery improves outcomes
- Hyperandrogenism
 - OCP suppresses ovarian production
 - Spironolactone, if OCP not helping symptoms add 50 to 100 mg twice daily (watch for hyperkalemia and increased menstrual frequency, orthostatic hypotension). Takes 6 months to see improvement
- Hirsutism
 - shaving, waxing, laser treatment, electrolysis, depilatories.
 - eflornithine hydrochloride cream (13.9%) - must be used indefinitely, results are improved with microneedling

PCOS: Naturopathic Tx

Goals:

- Improve glucose/insulin response, reduce insulin
- Promote weight loss
- Promote ovulation, reduce est dominance
- Reduce androgens
- Reduce inflammation
- Reduce enviro/detox factors
- Reduce stress to limit the adrenal DHEA influence on androgens
- Monitor long term risk for DM, CVD and endometrial cancer

PCOS: Diet/Exercise/Weight loss

- Low carb, Keto/Paleo – reduce insulin
 - pilot study, low carb ketogenic diet significant improvement in weight, percent free testosterone, LH/FSH ratio, and fasting insulin in women with obesity and PCOS over a 24 week period
- Weight loss through lifestyle as effective or more effective than with Metformin
- Raw ground flax
 - extends luteal phase, improves prog/estrogen ratio during luteal phase. May increase SHBG.
- Pumpkin seeds
 - 5-alpha reductase inhibitor, reduces DHT
- Spearmint tea
 - decrease in free testosterone and increase in luteinizing hormone, follicle-stimulating hormone and estradiol

Nutr Metab (Lond). 2005 Dec 16;2:35.
Ther Adv Endocrinol Metab. 2010 Jun; 1(3): 117–128.
J Clin Endocrinol Metab. 1993 Nov;77(5):1215-9.
Phytother Res. 2007 May;21(5):444-7.

PCOS: Weight loss

- Weight loss (for obese patients) even as little as 5%, including pharmacological and gastric bypass
 - Improved pregnancy rates
 - Decreased hirsutism
 - Improvement in lipid and glucose levels
 - Resumption of menses
 - Increase SHBG
 - Decrease in AMH

PCOS: Herbs/Supplements

- Vitex
- Saw palmetto, nettles root, pygeum (more evidence for BPH, to help reduce androgens)
- Inositol – 2,000mg BID myoinositol (D-chiroinositol also an option, 1g/day)
- Cinnamon
- Fish oil – anti-inflammatory, CVD protection
- Progesterone – esp if estrogen dominance, fertility
- Topical – natural acne care if needed
- Biotin/collagen – if hair loss

BMC Complement Altern Med. 2014; 14: 511.
Int J Endocrinol Metab. 2012 Spring; 10(2): 497–502.
Front Pharmacol. 2017; 8: 341.
Gynecol Endocrinol. 2014 Mar; 30(3):205-8.
Minerva Ginecol. 2015 Aug; 67(4):321-5.

PCOS: Herbs/Supplements


- Fertility support
 - NAC 600mg TID
 - Alpha lipoic acid
 - Inositol
 - Black Cohosh –was compared to Clomid- 20mg/d for 10d starting on Day 2 improved pregnancy rates
 - Progesterone

Obstet Gynecol Int. 2015; 2015: 817849.
Gynecol Endocrinol. 2014 Jul;30(7):505-10.
Eur J Obstet Gynecol Reprod Biol. 2013 May;168(1):60-3

PCOS: Case Study SH (tx plan)

- Very low sugar/carb diet (control insulin)
- Avoid dairy
- Include 2T raw ground flax, pumpkin seeds, spearmint tea
- Reduce intense exercise regimen and add more yoga, walking, stress management practices
- External skin treatments (facials, extractions) by aesthetician that specializes in acne care
- Supplements: Vitex, DIM, probiotics, Fish Oil/GLA, B complex, vit D, adrenal adaptogen blend

----> Lost weight, reduced stress, skin well managed!



OPTOMIZING THYROID FUNCTION

MAY IMPROVE PCOS

- Many women with PCOS have overlapping hypothyroidism
- Even in euthyroid women with PCOS, supporting thyroid function may improve symptoms of obesity, infertility, and menstrual cycles.

AGENTS THAT HELP REDUCE INSULIN

RESISTANCE

- | | |
|--|---------------------|
| • <i>Opuntia</i> species, the Prickly Pear Cactus Fruits | • Vitamin D |
| • Legume Foods and Herbs | • Chromium |
| • <i>Glycyrrhiza</i> , Licorice | • Magnesium |
| • <i>Mahonia</i> , Oregon Grape roots | • N-Acetyl-Cysteine |
| • <i>Stevia</i> leaves | • D-Chiro-Inositol |
| • <i>Hibiscus</i> flowers | • Pinitol |
| | • Thyroid Support |
| | • Metformin |

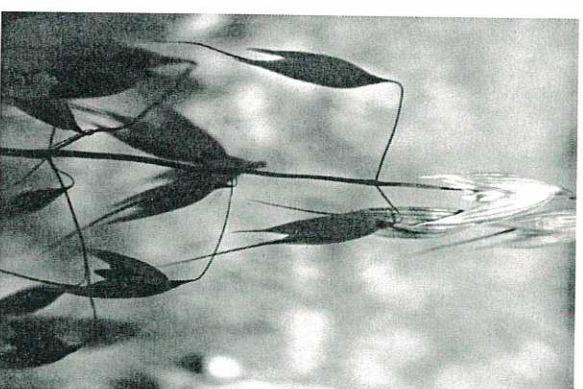
Inositol Compounds

- Myo-inositol, Pinitol and D-Chiro inositol can improve signal transduction at insulin receptors
- Myo-inositol levels in ovarian follicles may be abnormally low
- Supplementation with inositol compounds may improve insulin resistance and fertility.
- Myo and Chiro-inositol are found in:
 - Legumes – *Astragalus*, Beans, *Medicago*, Carob....
 - Buckwheat, *Polygonum*
 - Supplements are becoming available

DIETARY SOURCES OF D-Chiro Inositol

- AMOUNTS PER 100 GRAMS:

- Soy lecithin 1,200 mg
- Carob 1,000 mg
- Garbanzos 760 mg
- Brown Rice 700 mg
- Wheat Germ 690 mg
- Lentils 410 mg
- Barley 390 mg
- Oats 320 mg
- Beef 260 mg
- Lentils 240 mg
- Oranges 210 mg
- Peanuts 210 mg





ENHANCING FERTILITY FOR WOMEN WITH

PCOS

- **Clomiphene**
- **Inositol compounds**
- **N-Acetyl cysteine**

ENHANCING FERTILITY BY REDUCING ELEVATED

PROLACTIN

- **Bromocriptine/Parlodel**
- ***Vitex agnus castus***
- ***Melissa officinalis***

Vitex agnus castus



- ***Vitex* has dopaminergic actions.**
- **Increasing dopamine can in turn reduce elevated GnRH and Prolactin.**
- ***Vitex* is a folkloric herb for amenorrhea, irregular cycles, and menstrual cycle irregularities.**

Pink Prickly Spritzer

For all PCOS Patients to use regularly

- *Hibiscus* Tea, chilled
1 cup
- *Glycyrrhiza* or *Stevia* tea, chilled 1 cup
- Sparkling water
1 cup
- Prickly Pear juice (*Opuntia*)
1 Tbl
- Inositol powder
1 Tbl
- Liquid Lecithin
2 tsp
- Vit D liquid
1-5 drops