

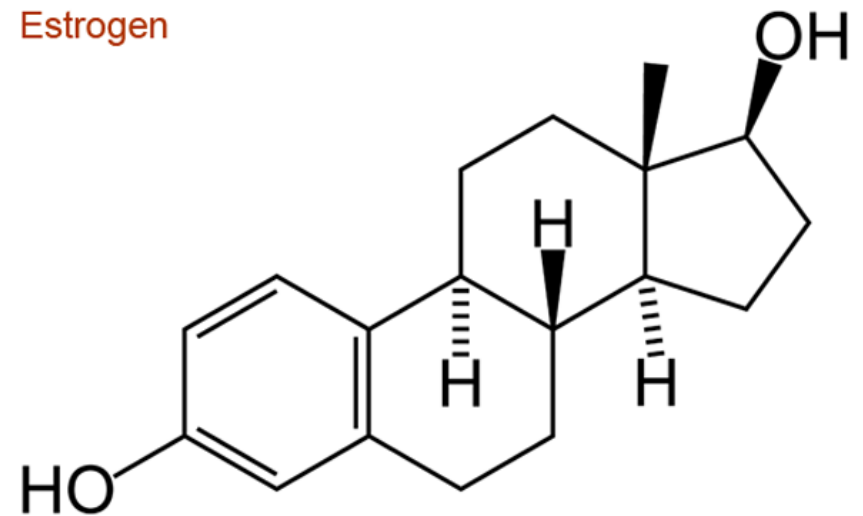
Estrogen Dominance



Healthy
Hormones

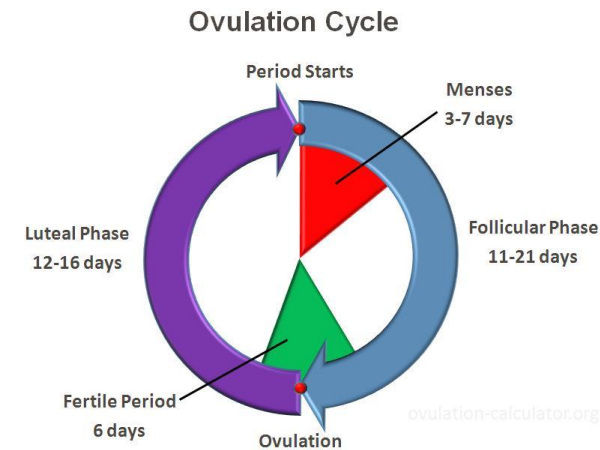
What Is Estrogen Dominance?

- A catch-all phrase that refers to conditions that can be affected by estrogen
- It does not necessarily always mean excess estrogen
- It refers to conditions affected by an imbalance in the ratio of estrogen to progesterone
- Normal estrogen – low progesterone
- High estrogen – normal progesterone
- Lower estrogen and even lower progesterone
- Excess estrogen and low progesterone



The Cycle

- During a normal cycle – estrogen and progesterone are released
- Both help to mature an egg and prepare the uterus for the pregnancy
- Estrogen rises during the first half of the cycle, peaking at ovulation
- Estrogen should decrease somewhat during the second half of the cycle
- During ovulation, progesterone is released by rupturing the egg follicle
- Testosterone is also released



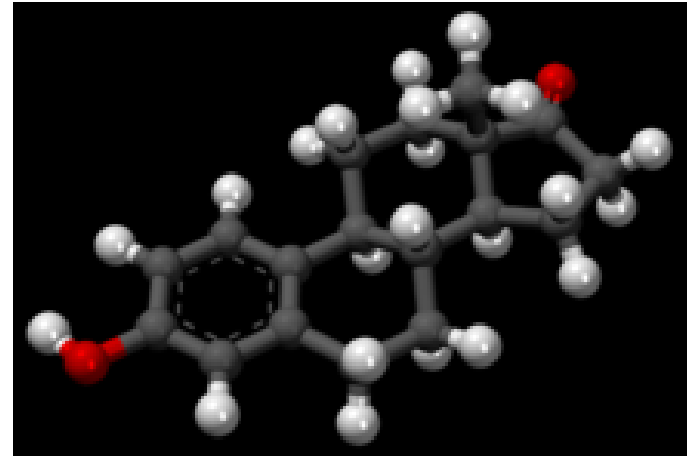
The Cycle

- No pregnancy, then the period occurs and cycle begins again
- The levels of estrogen, testosterone and progesterone are determined by a complicated feedback process involving the hypothalamus, pituitary (which releases luteinizing hormone (LH) and follicle stimulating hormone (FSH), the ovaries and the adrenals
- Most people look for high levels of produced estrogen to indicate the cause of estrogen dominance or xenoestrogens contributing to the normal estrogen but this is often not the case



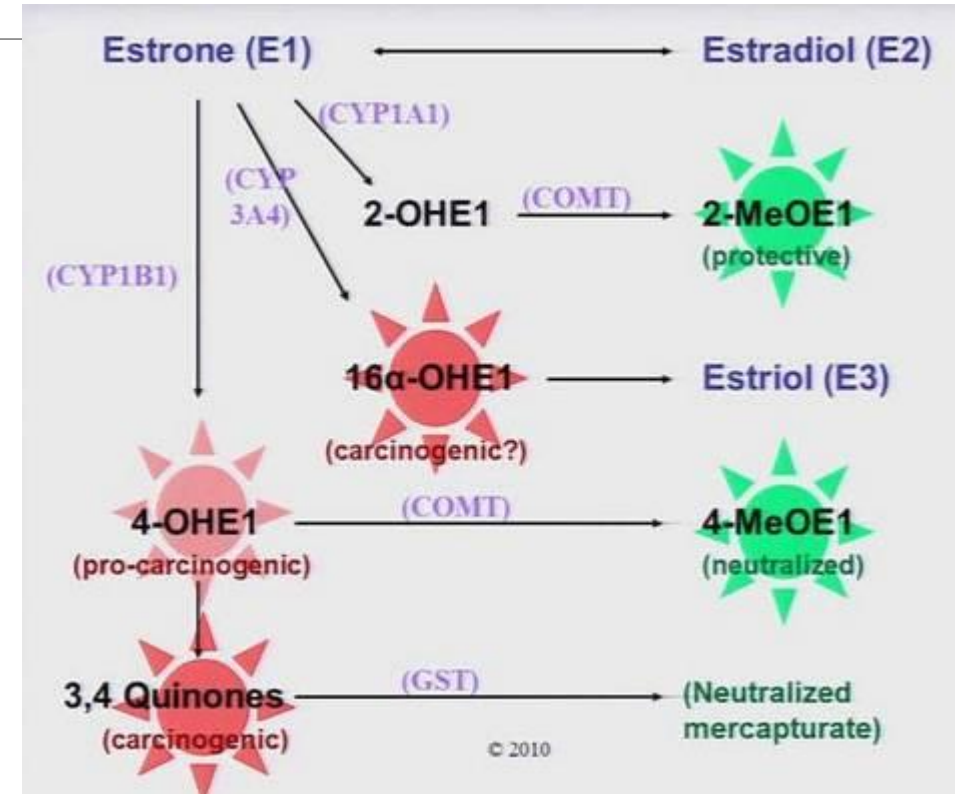
Three Types of Estrogen

- Two are produced by androgens, which produce estrone and estradiol or testosterone (which can also convert to estradiol)
- Estradiol - strongest, main estrogen
- Estrone - weaker, primary during menopause “bad”, produced in fat cells
- Estriol – weakest, primarily produces during pregnancy and made by the placenta “good”
- Also, estradiol and estrone are converted to estriol by the liver as it prepares estrogen to be detoxed



Estrogen Metabolites

- Estradiol can convert to estrone and visa versa
- There are three forms of estrone metabolites
- 2-hydroxyestrone (with 2 carbon molecules) considered innocuous and anti-cancer
- 4-hydroxyestrone (with 4 carbon molecules) more dangerous form of estrogen
- 16-hydroxyestrone (with 16 carbon molecules) – considered a pro-cancer form of estrogen



Estrogen Metabolites

- The liver is responsible for converting estradiol to the estrone
- Both the 4 and 16 forms are considered factors in hormone-related cancers
- Promoting the 2-hydroxy over the 4 and 16 has been found lower symptoms of menopause such as hot flashes or PMS symptoms like breast tenderness
- CYP1A1 (phase I) is responsible for converting estradiol to 2-hydroxyestrone
- Omega 3, I3C, lignans in flax all help promote CYP1A1 and the conversion to 2 hydroxyestrone
- Xenoestrogens promote the 16-hydroxyestrone



Conditions

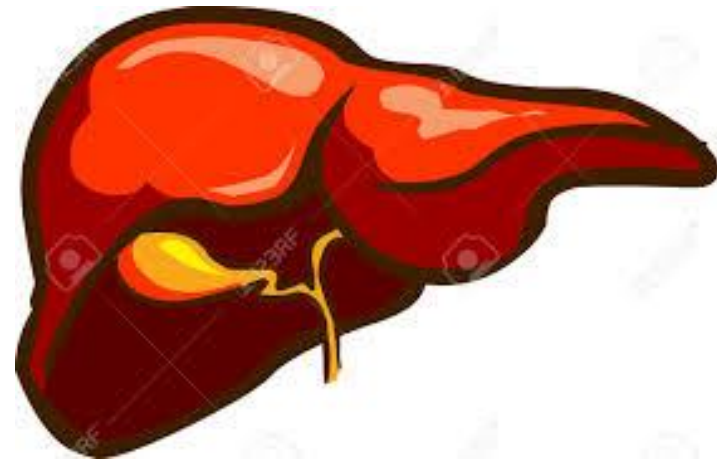
- Endometriosis
- Fibroids
- Ovarian Cysts
- Amenorrhea
- Polycystic Ovarian Syndrome (PCOS)
- PMS
- Fibrocystic Breast Disease
- Prostate problems and male andropause

Symptoms

- Decreased sex drive
- Irregular or otherwise abnormal menstrual periods
- Bloating (water retention)
- Breast swelling and tenderness
- Headaches (especially premenstrual)
- Mood swings (most often irritability and depression)
- Anemia
- Cold hands and feet (a symptom of thyroid dysfunction)
- Hair loss
- Thyroid dysfunction
- Sluggish metabolism
- Foggy thinking, memory loss
- Fatigue Trouble sleeping/insomnia
- Weight and/or fat gain (particularly around the abdomen and hips)
- PMS

Estrogen Dominance

- Estrogen dominance is not about getting too much estrogen
- It is about not getting rid of too much estrogen
- If too much estrogen exists, the liver must prepare it for removal
- It does this using phase I and phase II liver detoxification in a process called conjugation and creates estrogen conjugates
- During phase I estrogen is converted into an intermediate form (by cytochrome P450 enzymes), then it is further metabolized in Phase II.



Liver Detoxification



- Glucuronidation - A phase two process that can conjugate estrogen and it can be affected by intestinal health. Forms E-glucuronides which can be de-activated by an enzyme (beta-glucuronidase) produced by bad bacteria in the gut
- The estrogen is re-absorbed instead of being excreted and may be a key factor for estrogen dominance (and this will not show up in a normal estrogen test as this is now estriol)
- Calcium d-glucuronate is a supplement that aids estrogen excretion through glucuronidation, so does indole-3-carbinol (found in cruciferous vegetables) D-glucuronate is found in apples, pears, grapefruit, citrus fruit, broccoli

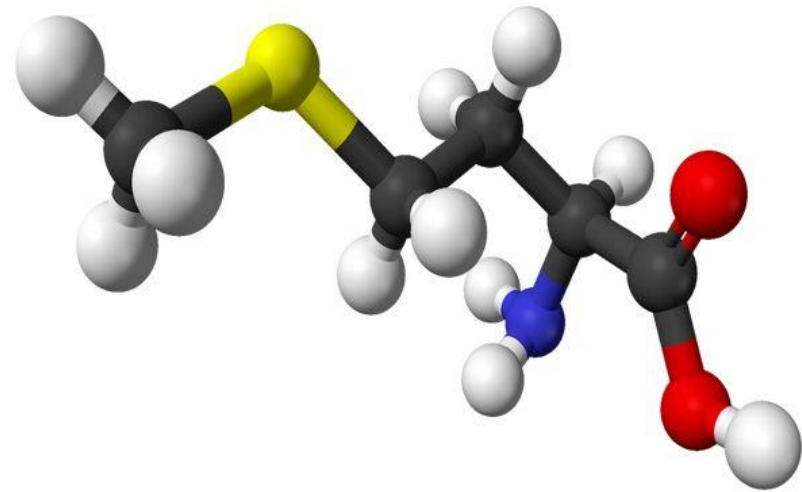
Liver Detoxification

- Sulfation: Sulfur groups are added to the estrogen intermediate, formed in Phase II. Adequate amount of sulfur are needed in the diet. Foods include egg yolks, garlic, onions and Brussel sprouts. MSM is also sulfur
- Glutathione conjugation is another process, adding glutathione to estrogen for easy excretion. Avocados, walnuts and asparagus are all good food sources and vitamin C stimulates the body to produce glutathione
- Methylation can also help excrete estrogen by donation a methyl group in Phase II – B3, B6, B12 and Folic acid are needed



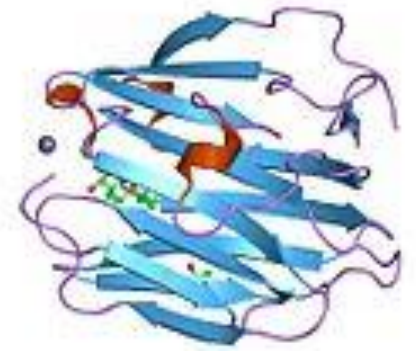
Bile

- Once the conjugates is formed, it attaches to bile which carries it into the small intestines and then to the urinary system (bile detaches) or to the colon (bile stays attached)
- Women who are on birth control pills, may have issues eliminating estrogen due to inhibited bile flow.
- Methionine can improve bile flow
- SAMe, has been shown to improve bile flow



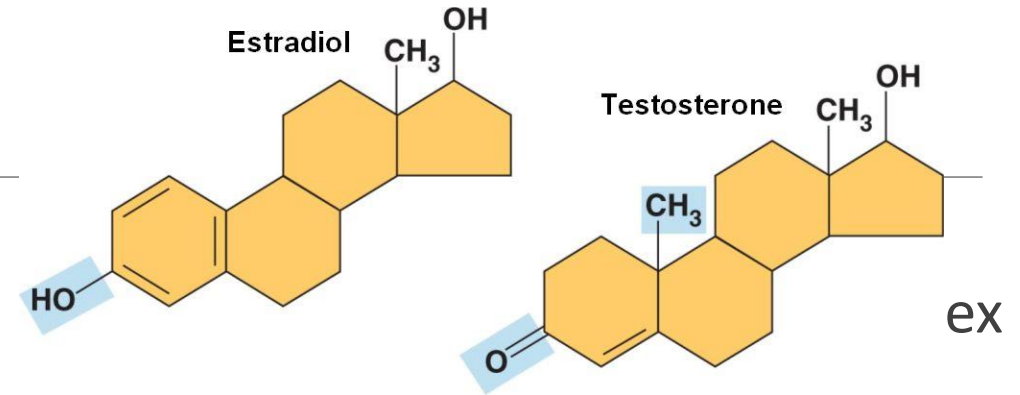
Sex Hormone-Binding Globulin

- SHBG is also made by the liver
- It follows the estrogen around the body – if hormone production is too high, it can de-activate the body's hormone production ability
- The production of SHBG is stimulated by estrogen in the blood
- It likes testosterone more
- In circumstances where there is an excess of estrogen (birth control pills and HRT) SHBG can actually shut down testosterone causing low sex drive, mental foggiess and an inability to maintain muscle



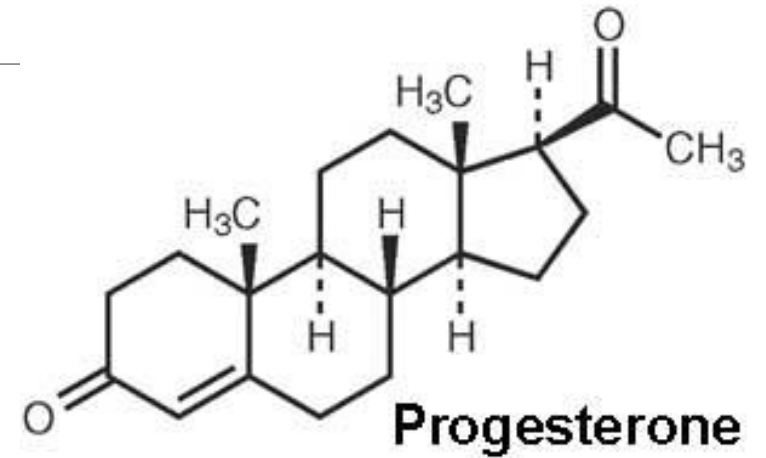
Adrenals and Estrogen

- Cortisol has an effect on several of hormones
- Excess cortisol elevates estrogen levels encouraging the conversion of testosterone to estrogen
- Aromatase is an enzyme that does the converting and the highest concentration of aromatase enzymes in the body is in the adrenals
- The adrenals also convert progesterone to cortisol when the adrenals need more of it
- There is a major connection between stress and estrogen dominance.



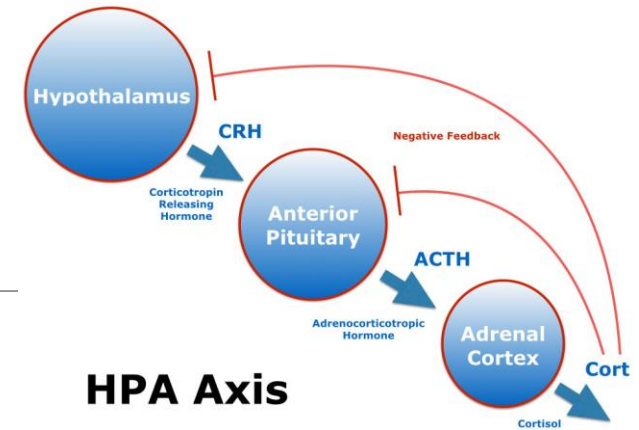
Hormones and The Gut

- Healthy hormone function is needed for intestinal linings and function
- Estrogen modulates permeability and the tight junctions
- Lack of testosterone delays intestinal healing
- Progesterone helps protect the lining
- One study also found that women with more diverse microbes had a better ratio of estrogen and estrogen metabolites - with gut bacteria deciding if the estrogen metabolites are left behind or excreted in the urine or colon



Hormones and the Gut

- There is new research that suggests that sex hormones do have an effect on the gut
- It is not known whether this is due to a direct relationship with the gut or an indirect relationship because sex hormones influence the brain-gut connection and play a role with the HPA axis
- Studies have noted a difference in men and women with symptoms of IBS, even IBS symptom differences during a women's cycle or when pregnant or menopausal
- May be due to estrogen's relationship with serotonin and the stress response which both play a role in IBS



Working with Estrogen Dominance

- Intestinal health, healthy adrenals and good liver function are the key
- Liver Health:
- Milk thistle (Estrosense is also a good product)
- D-glucurate foods
- Sulfur-rich foods (also beneficial for the gut)
- Lemons and limes (limonene)
- Indole-3-Carbinole foods
- Bitter food such as dandelion greens, kale, collard greens
- Antioxidants (phytonutrients)



Working with Estrogen Dominance

- Phytoestrogens are helpful for promoting a good 2—16 hydroxyestrone and consuming with seaweed help improve the ratio more
- Liver work should always be accompanied by gut health support (at least probiotics and or fermented foods, prebiotic foods)
- If gut health is really poor – work on it first with some gentle liver support
- Adrenal support and stress reduction is critical to the success of any estrogen dominant protocol



Phytoestrogens

- Plant compounds: Extremely beneficial for men and women with estrogen dominance
- Phytoestrogens:
 - Isoflavones – found in soy and other legumes
 - Coumestans – found in legumes, alfalfa and clover
 - Lignans – found in flax
 - Stilbenoids – such as resveratrol found in grapes and wine
 - Flavanoids – rutin, quercetin
 - Ellagitannins – raspberries, pomegranate and almonds



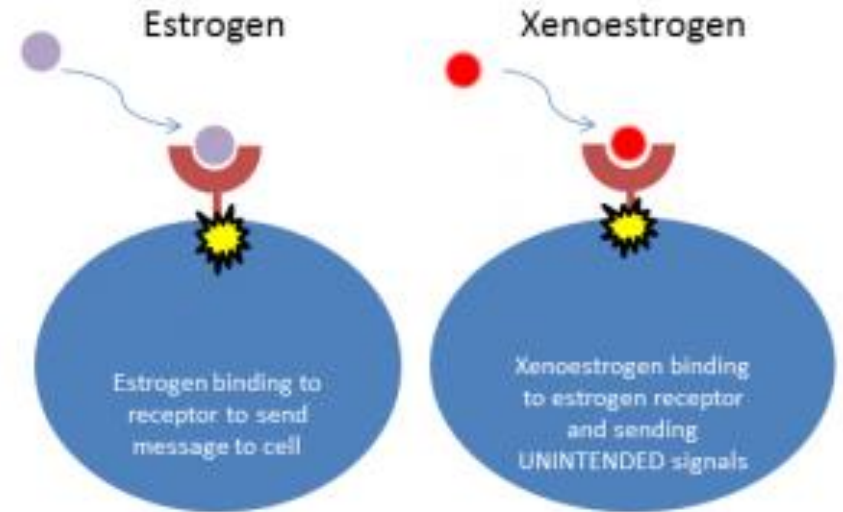
Phytoestrogens

- Called this because of their ability to lock onto estrogen receptor sites and trigger a beneficial response
- But they are not estrogen (1/100,000th as potent)
- By locking onto the receptors, they force the detoxification of real estrogen (estradiol)
- Phytoestrogens (isoflavones and lignans) are acted upon by gut bacteria to create beneficial metabolites (anti-cancer)
- Negative studies were in-vitro, isolated compounds, not in food and not with good bacteria present



Xenoestrogens

- BPA in plastic, pesticide residues, HRT and birth control
- Promote 16-hydroxyestrone
- Often blamed but are very small players
- Taking stress off the liver is helpful by avoiding them
- However, having a clear estrogen detoxification pathway is best



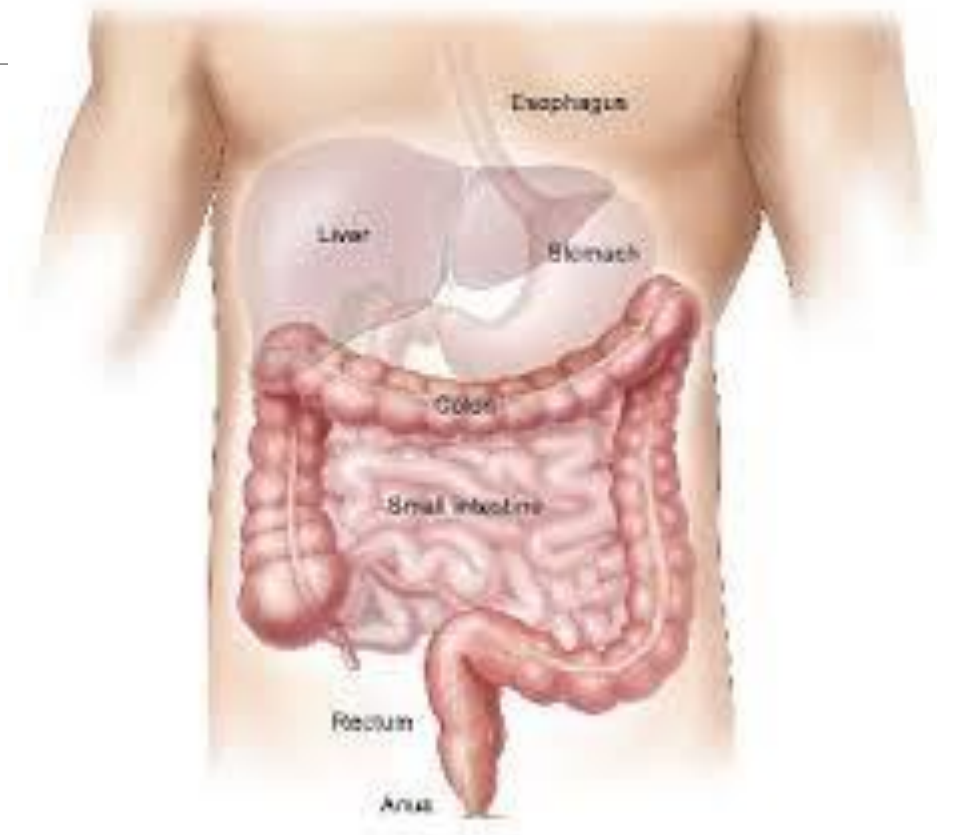
The Truth About Soy

- A study of 9514 women who had had breast cancer followed them for eight years and compared women who consumed at least 10 mg of soy a day in comparison to those who consumed less than 4 mg per day
- The 10 mg group had a 25 % less risk of recurrence
- 10 mg = 1/4 cup tofu, 2 tbsp soybeans, 1/2 cup soy milk
- Researchers also found that those who were on tamoxifen had no issues with soy interfering with the drug
- This is not surprising since soy contains aromatase-inhibitors



Systems Involved

- Digestive: Liver, Dysglycemia
- Intestinal: Dysbiosis, Candidiasis
- Glandular Endocrine: Adrenal, Thyroid
- Look for Liver/Dysbiosis first as the key
- Look for subsystems that are connected to these two



Working On Estrogen Dominance

- Probiotics and fermented foods
- Look for and consider a Candidiasis protocol (not always present) – may just be dysbiosis
- All estrogen dominant conditions involve inflammation which must also be controlled (Omega 3)
- Milk thistle or Estrosense
- Vitex – balances estrogen/progesterone



In Conclusion...

- An estrogen dominant protocol will take time - usually 2 years minimum
- So the goal is a protocol that the client can live with
- Even after conditions resolve – continued focus on stress levels, gut health and liver support will always be a part of the client's life
- Best to do this with food and to help the client find tasty ways to keep the key foods in the diet
- Supplements can be helpful for fixing the issues and occasional use to maintain well-being after

