

Women's Health: Part One



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Reflection

- Where would you rate yourself on these categories?
 - Healthy nutrition
 - Weight management
 - Physical activity
 - Stress management
 - Social connections

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Food

Wholesome, Not too much



Environmental Working Group: www.ewg.org/foodnews

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Glycemic Load

Individual Food Portion

Whole Day

Low	0-10	Low	< 80
Moderate	11-19	Moderate	80-120
High	20+	High	>120

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Low GL Superior for Women

- Excess intake of carbohydrate foods with high-GL raises blood sugar level and increases insulin resistance.
- 7.9 year follow-up study of 47,749 EPICOR participants found that women with the highest carbohydrate consumption had double the risk of CHD compared to those with the lowest. This was not seen in men.
- Postulated that adverse effects of a high glycemic diet in women may be due to sex differences in lipoprotein and glucose metabolism.

Sieri, et al. Arch Intern Med 2010; 170(7):640-7

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Food	Serving Size	Glycemic Load
Asparagus	½ cup	2
Broccoli	1 cup	4
Green beans	1 cup	3
Tomato	1 medium	2
Subway sandwich Turkey breast	6 inch	17
Butter pecan ice cream	5.5 ounces (small)	22
Vanilla ice cream cone	4.5 ounces (small)	19
Potato chips, fat free	1 bag (8 ounces)	49
Tortilla chips, white corn	3.5 ounces	38
Eggo oat waffles	1 serving	13
Maple syrup	4 Tbsp	39
Egg, hard boiled	1	2
Apple juice	8 ounce	6

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Food	Serving Size	Glycemic Load
Spaghetti	1 cup	38
Brown rice	1 cup	23
White rice	1 cup	33
White bread	1 slice	10
Whole grain bread	1 slice	5
Bagel, cinnamon raisin	1 3.5 inch	24
Pumpernickel bread	1 slice	6
Macaroni and cheese	1 cup prepared	31
Chocolate doughnut	1 doughnut (80 g)	25
Glazed doughnut	1 doughnut (80 g)	12
Kellogg's Frosted Flakes	¾ cup	20
Kellogg's Special K	1 cup	14
Post Bran Flakes	¾ cup	12
Post Raisin Bran	1 cup	25

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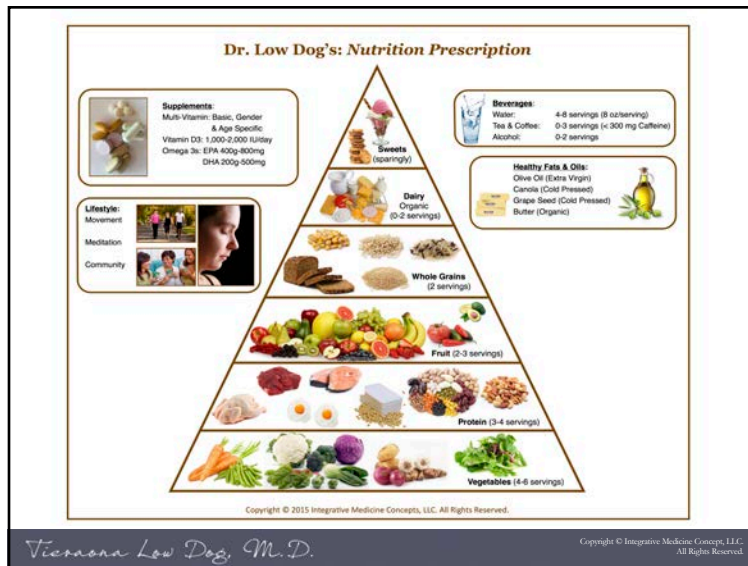
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Resources

- The New Glucose Revolution by Jennie Brand-Miller, PhD
- The Glycemic Load Diet by Rob Thompson MD
- The Glycemic Load Diet Cookbook by R. Thompson
- The Easy GL Diet Handbook by Fedon Lindberg MD
- The 150 Healthiest 15-Minutes Recipes on Earth by Jonny Bowden, PhD

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PAP Guidelines

- Women ages 21-29: PAP every 3 years (HPV test if PAP is abnormal)
- Women ages 30-65: PAP with HPV test every 5 years, or every 3 years PAP alone
- Evaluate risk for STD and test appropriately
- Clinical breast exam every 3 years (MRI + mammogram if under 40 and high risk)

<http://www.cdc.gov/std/hpv/pap/default.htm#table2>

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Additional Screening

- PAP plus HPV test every 3-5 years.
 - Women > 65 years: stop screening if 3 negative consecutive PAPs or at least two negative HPV tests in previous 10 yrs. If she smokes, has HPV or a more advanced precancerous diagnosis, screening should continue until age 80
- Mammograms every 1-2 years
- DEXA scan at age 65, earlier if high risk
- Check skin regularly, skin exam once per year

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HPV Vaccines

- An estimated 24,600 newly diagnosed cancers are attributable to the two high-risk HPV types targeted by all currently licensed HPV vaccines
- In 2015, the US, targets were not met for ≥ 3 HPV doses (target 80%) in males (27.1%) or females (37.1%)
- Canadian Findings. 691,994 HPV4 vaccine doses distributed in school-based program girls roughly 13 years of age.
 - Ten serious adverse events were reported (7.5% of reports) including 2 anaphylaxis, 2 seizures, 1 thrombocytopenia and 1 death.
 - Further review found that the reports of anaphylaxis did not meet the Brighton anaphylaxis definition and the death was due to a preexisting cardiac condition.

Harris T, et al. Vaccine 2014; Jan 15

<https://www.cdc.gov/mmwr/volumes/65/wr/mm6533a4.htm>

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The First Environment



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Royal College of Obstetrics and Gynecologists Scientific Impact Paper No. 37; May 2013

1. Use fresh food rather than processed food
2. Reduce use of foods/beverages in cans/plastic containers, including their use for food storage
3. Minimize use of personal care products such as moisturizers, cosmetics, shower gels and fragrances
4. Minimize the purchase of newly produced household furniture, fabrics, non-stick frying pans and cars whilst pregnant/nursing
5. Avoid the use of garden/household/pet pesticides or fungicides (such as fly sprays or strips, rose sprays, flea powders)
6. Avoid paint fumes
7. Only take OTC analgesics or painkillers when necessary
8. Do not assume safety of products based on the absence of 'harmful' chemicals in their ingredients list, or the tag 'natural' (herbal or otherwise)

<http://www.rcog.org.uk/files/rcog-©-corp/5.6.13ChemicalExposures.pdf>

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Nutrient Deficiencies Pregnancy



- High frequencies of vitamin E (52 %), magnesium (38 %), iron (57 %) and vitamin D (77 %) deficiency and suboptimal intakes of choline (95 %) and vitamin K (99 %) were observed in pregnant women attending Boston urban clinics.
- You need to have folic acid on board MONTHS before conception. Consider a prenatal with methylfolate.
- Make sure you are taking 1000-2000 IU vitamin D3 and getting adequate calcium and magnesium.

Brunst KJ, et al. *Public Health Nutr* 2014; 17(9):1960-70.

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Calcium



- Cochrane review found calcium supplementation roughly halves risk of pre-eclampsia; reduces risk of preterm birth and gestational HTN by roughly 35% compared to placebo.
- 1.0 – 1.5 grams/d calcium supplementation for those with low intake.
- Calcium also shown to be effective for PMS.

Hofmeyr GJ, et al. *Cochrane Database Syst Rev*. 2010 Aug 4;(8):CD001059.

Hofmeyr GJ, et al. *BJOG*. 2014 Mar 13. doi: 10.1111/1471-0528.

Whelan AM, et al. *Can J Clin Pharmacol* 2009; 16(3):e407-29.

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Calcium and PMS



Multiple clinical studies have shown that 600 mg of calcium two times per day is effective for reducing many of the symptoms of premenstrual syndrome.

Whelan, et al. Can J Clin Pharmacol. 2009;16(3):e407-29.

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Choline

- Water soluble nutrient in the B-vitamin family that is particularly crucial during pregnancy and the first three years of a child's life.
- Deficiency may be associated with permanent changes in brain function that negatively impact intelligence, memory, mood regulation, and stress response.
- Preclinical studies show choline partially ameliorates memory and learning deficits from prenatal alcohol exposure.
- Plays critical role in the prevention of fatty liver.
- RDA: 450 mg/d pregnancy and 550 mg/d lactation. Crucial during first three years of child's life.

Jiang X, et al. Trends Endocrinol Metab 2014; 25(5):263-73.

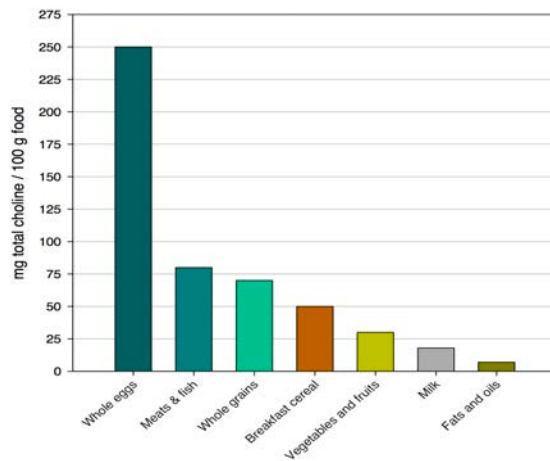
Wozniak JR, et al. Nutr Res 2013; 33(11):897-904

Masih SP, et al. Nutr 2015; Aug;145(8):1824-34

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Choline in Foods: <http://nalcd.nal.usda.gov/download/47335/PDF>



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Iodine in Pregnancy



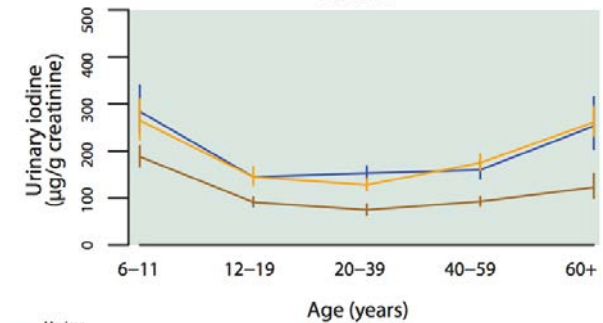
- Many reproductive aged women in US are marginally iodine deficient; salt in processed foods is not iodized.
- Deficiency associated with pregnancy loss and prematurity, cretinism, and lower IQ and ADHD in the baby.
- American Thyroid Association recommends pregnant/lactating women supplement: 150 mcg/d potassium iodide.
- Many prenatal vitamins do not contain iodine.

Council on Environmental Health, et al. *Pediatrics* 2014; 133(6):1163-6.

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Females



CDC 2nd National Report on Biochemical Indicators of Diet And Nutrition. *The WHO recommends that the median UI in pregnancy be 150-249 mcg/L.*

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Omega 3 and Pregnancy

- Critical for neurological and early visual development, particularly in 3rd trimester.
- Reduces risk of allergies
- Reduces risk of preterm labor and birth
- Increases birth weight
- FDA recommends 2-3 servings of low mercury fatty fish per week during pregnancy.
- You need 200-500 mg per DAY, particularly during the third trimester.



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Omega 3 and Asthma

- Reduced intake of omega-3 fatty acids may be a contributing factor to the increasing prevalence of wheezing disorders.
- Reviewers found that supplementation with omega-3 fatty acids in the third trimester of pregnancy reduced the absolute risk of persistent wheeze or asthma and infections of the lower respiratory tract in offspring by approximately 33%.



Bagard H, et al. *N Engl J Med* 2016; Dec 29 ;375(26):2530-9

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Chaste Tree Berry (*Vitex agnus castus*)



- German health authorities approve for irregular menses PMS, and breast tenderness.
- Chaste tree binds opiate receptors. PMS symptoms such as anxiety, food cravings and physical discomfort are directly proportional to decline in β -endorphin levels.
- Dose: 400-800 mg once per day crude herb

Webster DE, et al. *J Ethnopharmacol* 2006; 106(2): 216-21.
 Wurtke W, et al. *Phytotherapy* 2003; 10(4):348-57
 He Z, et al. *Maturitas* 2009; 63(1):99-103.
 Schellenberg R, et al. *Phytotherapy* 2012; 19(14):1325-31.

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Cystitis

- Acute bacterial cystitis is characterized by urinary frequency, dysuria and urgency.
- Some may experience suprapubic pain and gross hematuria.
- More than 50% women will develop UTI in their lifetime, 25% will have recurrence
- 80-90% of UTIs caused by *E. coli*

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Cranberry

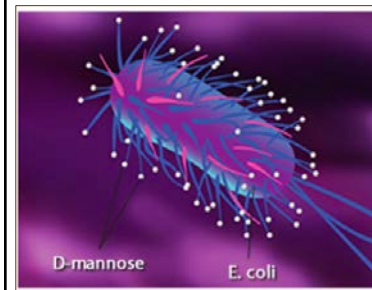
- Analysis of clinical studies and evaluation of efficacy/safety ratio in prevention of UTIs strongly support the use of cranberry in the prophylaxis of recurrent UTIs in young and middle-aged women.
- Clinical use in other patients controversial.
- Use sufficient dose: take 400-500 mg of powdered extract two times per day with D-mannose.

Micali S, et al. *Crit Rev Food Sci Nutr* 2014;54(8):1063-75.

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D-mannose



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D-mannose

- After antibiotic tx for acute cystitis, 308 women with history of recurrent UTI randomized to one of three groups:
 - 2 g/d mannose powder in 200 ml water
 - 50 mg/d nitrofurantoin
 - No prophylaxis
- ~15% recurrent in D-mannose, 20% in nitrofurantoin and 61% no treatment group.

Kranjcec B, et al. *World J Urol* 2014; 32(1):79-84

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Probiotics and UTI

- Canadian review concluded, “Probiotic strains of *Lactobacillus* are safe and effective in preventing recurrent UTI in adult women.”
- *L. rhamnosus* GR-1; *L. reuteri* B-54 and RC-14 (orally); and *L. crispatus* (intravaginally) have been found effective for prevention of recurrent UTI.
- Fem-Dophilus by Jarrow is available in the U.S, and contains 5 billion CFU *L. rhamnosus* GR-1 and *L. reuteri* RC-14 per capsule.

Grin PM, et al. *Can J Urol* 2013 Feb;20(1):6607-14.

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Probiotics IBS

- Meta-analysis 43 RCTs found that the RR of IBS symptoms persisting with probiotics vs. placebo was 0.79 (95% CI 0.70-0.89).
- Probiotics had beneficial effects on global IBS, abdominal pain, bloating, flatulence scores.
- Go to usprobioticguide.com for products

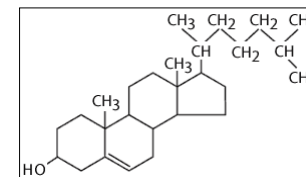
Ford AC, et al. *Am J Gastroenterol* 2014; 109(10):1547-1561

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Hormones: The Basics

- Steroid hormones are all derived from cholesterol
- Estrogen and progesterone are two of the many steroids found in the human body



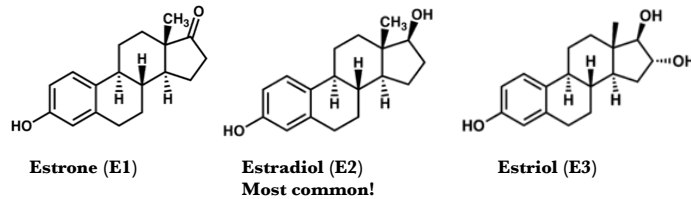
Cholesterol

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Estrogens

- Estrus = fertile, gen = to generate
- Three major types of natural estrogens



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Estrogen



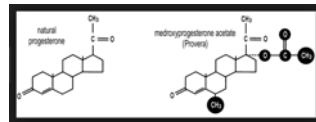
- Sexual maturation
- Ovulation
- Development and maintenance of female accessory organs
- Cell division in breasts and endometrium
- Maintaining skin and blood vessels
- Increases bone formation
- Increased HDL-C levels, decreased LDL-C
- Moving fluid into tissues

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Progesterone

- Prepares uterus for pregnancy
- Maintains pregnancy
- Breast and endometrium development
- Maturation of endometrium cells
- Increased body temperature
- Smooth muscle relaxation



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Progestogen

- Progestogen is the term applied to any substance possessing progesterone qualities. It can refer to progesterone or progestin.
- Progestins used in conventional HT and OCPs often account for the side effects women experience such as irritability, depression, bloating, and mood swings.
 - Progestins cause water retention, can interact with brain chemistry, and alter other steroid pathways.

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Hormonal Contraception

- Combined oral contraceptives (COCs)
 - Birth control pills with both estrogen & progestin
 - Most taken daily for 21 days, with 7 days of placebo or no pill (exceptions: Seasonale, Seasonique, Yaz)
 - Side effects differ somewhat based on formulation
 - Very effective if used correctly
 - No protection against sexually transmitted disease

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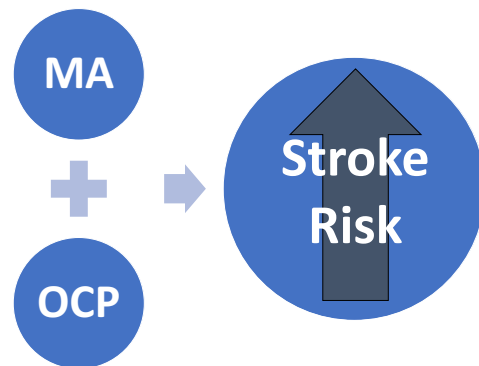
Contraindications of COC

- Pregnancy
- History of thrombophlebitis/thromboembolism
- Acute or chronic liver or gallbladder disease
- Estrogen-dependent cancer
- Undiagnosed heavy bleeding
- Smoking, esp. if over age 35
- Diabetes
- Hypertension
- Hyperlipidemia
- Migraine with aura

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Migraine, OCPs, and Stroke



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Migraine, OCPs, and Stroke

- Stroke risk is 2-3 fold in migraineurs with aura (MA)
- Stroke risk is 8-fold in MA plus high estrogen OCP
- What about OCPs in women with MA?
 - IHS: low-dose estrogen in women with simple visual aura
 - ACOG: progestin only, intrauterine or barrier contraception
 - WHO: absolute contraindication in all women with aura

ACOG, American College of Obstetricians and Gynecologists;
IHS, International Headache Society; WHO, World Health Organization

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Non-Contraceptive Benefits: COC

- Decreased risk of ovarian and endometrial cancer
- Relief of menstrual symptoms (e.g. fewer/less painful cramps, lighter flow)
- Regulation of irregular menses
- Reduced risk of ovarian cysts
- Decreased incidence of benign breast disease & iron deficiency anemia
- Some pills decrease PMS/PMDD symptoms (Yasmin & Yaz)
- Reduced symptoms of endometriosis, acne, excessive hair growth

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Hormonal contraception

- Other combined methods
- NuvaRing vaginal ring
 - Ring uses progestin formulation that may increase risk of blood clots, as well
 - Ring left in for three weeks, then one week without
- Xulane patch
 - Patch dispenses higher dose of hormones than COCs, with possible higher risk of blood clots
 - Patch replaced weekly for three weeks, then one week without

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Progestin Only Pills

- Mini-pill
 - Does not suppress ovulation, they alter cervical mucus and make implantation more difficult
 - Does not affect breast milk supply (good for nursing moms)
 - Must be taken same time everyday to be effective
 - Often causes irregular bleeding
 - Not as effective as combined methods
 - No risk of venous thromboembolic events

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Progestin Injectable

- Injectable contraception
 - Depo-Provera most commonly used
 - Given IM q 12 weeks
 - Depo-subQ Provera 104 new formulation
 - Given SC q 12 weeks
 - Safe for those who can't take estrogen (e.g. history of blood clots)
 - Highly effective
 - Very light to no menstrual periods (but can have irregular bleeding)

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Depo Disadvantages

- Most women have irregular bleeding/spotting
- Many women gain weight
- May increase risk of depression
- May decrease bone density
- May take up to one year to reverse effects/regain fertility
- Must return every 3 months for injections
- No protection from sexually transmitted infections

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Side Effects of Oral Contraceptives

Changes in:

- Weight
- Sexual desire
- Vaginal discharge
- Menstrual flow
- Breast size
- Blood pressure
- complexion

Other Common side effects:

- Breakthrough bleeding
- Nausea
- Headaches
- Urinary tract infection
- Depression
- Gum inflammation
- Decline in vitamin B6

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There are three benchmark stages of natural menopause:

- Perimenopause (or the menopause transition) is the span of time between the start of symptoms (such as erratic periods) and 1 year after the final menstrual period.
- Menopause is confirmed 1 year (12 months) after the final menstrual period.
- Postmenopause is all the years beyond menopause.

Symptoms can start up to 10 years prior

- Hot flashes
- Sleep disturbances
- Vaginal dryness
- Mood changes
- Difficulty concentrating
- Memory impairment
- Bladder irritability/urgency
- Changes in balance
- Decreased interest in sex, possibly decreased response to sexual stimulation



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Current Recommendations



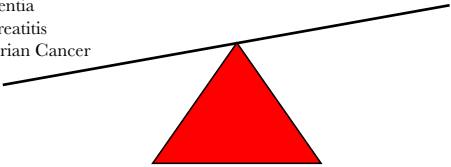
- For women with moderate to severe vasomotor symptoms, depending on individual risk, and patient's willingness to accept risk, use the lowest dose of estrogen (with progesterone, if uterus intact) effective for the shortest amount of time possible.

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Hormone Therapy Risk-Benefit

<p>Risks</p> <ul style="list-style-type: none"> DVT/PE Gallbladder Disease Breast Cancer Breast/Bleeding Side Effects CHD Stroke Dementia Pancreatitis ?Ovarian Cancer 	<p>Benefits</p> <ul style="list-style-type: none"> Vasomotor Symptoms Osteoporosis Vaginal Atrophy Colon Cancer Skin Preservation Depression
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Source: ACOG Task Force for Hormone Therapy 2004.

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Estrogen: Blood Clot and Breast Cancer

- In women within 5 years of menopause there was no statistically significant increase in stroke risk.
- Also, studies suggest that using estrogen delivered from the skin via a patch/cream might further lessen the risk of blood clots.
- Out of 10,000 women who use estrogen progestin therapy for more than 5 years, there will be **8 additional breast cancers diagnosed.**
- In contrast, the WHI study showed women who use estrogen alone had no increase in risk of breast cancer even after 11 years of use.

Olie V, et al. Thromb Res 2011; 127(S);3:S26-9
 Schenck-Gustafsson K, et al. Menopause 2010; 68(1):94-7

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Progestogens

- Progestogen is prescribed with estrogen if woman has a uterus to prevent uterine cancer.
- Synthetic progestin (e.g., Provera) and bio-identical oral micronized progesterone (OMP) are both available.
- Oral micronized progesterone is more favorable for cardiovascular system and the risk of invasive breast cancer appears lower than hormone therapies that contain other progestagens.

Fournier A, et al. Breast Cancer Res Treat 2008
 Schenck-Gustafsson K, et al. Menopause 2010; 68(1):94-7

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Progestogen and Breast

- Adding progestin to an estrogen leads to a slight increase risk of breast cancer after approximately four years of use.
- There are now three observational French studies and one U.S. study that demonstrate the potential mitigation of that slight risk by using progesterone rather than the progestin.

L. Hermite M., et al. Climacteric. 2013 Aug;16 Suppl 1:44-53.

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Bioidentical

- One of the greatest areas of confusion in menopause management today is the subject of bioidentical, or “natural” hormones.
- The bioidentical hormones most commonly used in menopause include estradiol, estrone, estriol, progesterone, and to a lesser extent, testosterone and dehydroepiandrosterone (DHEA).
- It is the *chemical structure* of a hormone, not its *source*, that determines if a hormone is bioidentical or not.

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Bioidentical Hormones

- Compounded bioidentical hormones are not FDA regulated (not tested for purity, potency, efficacy, safety)
 - No official labeling, exempt from including the contraindications and warnings required by the FDA
- Many prescription hormones approved by the FDA contain bioidentical hormones
 - Estrace (vaginal and oral)
 - Climara
 - Estraderm
 - Estragel
 - Estrasorb
 - Estring
 - Femring
 - Vagifem
 - Prometrium



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Bioidentical Progesterone vs. Non-Bioidentical Progestin

The Market understands the benefits of bioidentical HT

Side Effect ⁽¹⁾	Bioidentical Natural Progesterone	Non-Bioidentical Progestins (MPA, NETA, drospirenone)
Breast cancer	More favorable profile (E3N-EPIC study)	Increased risk
Cardiovascular	More favorable profile (PEPI trial)	Increased risk of MI, stroke, VTE
Lipid profile	More favorable profile (PEPI trial)	Less favorable effects on lipid profile (cholesterol, HDL, LDL, triglycerides)
Glucose / insulin	Improved carbohydrate metabolism (PEPI trial)	Deterioration of glucose tolerance or hyperinsulemia or both
Sleep / mood	Improved sleep efficiency ⁽²⁾	No benefit on sleep properties
Quality of life	Improvement in symptoms and overall satisfaction with bioidentical progesterone HT compared to MPA regimen ⁽³⁾	

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Ideal

- Estradiol has the least side effect on lipids and renin when delivered transdermally as it avoids the first pass effect on the liver. This also permits much lower doses to be used with equal efficacy.
- Micronized progesterone is available in both oral and vaginal forms. When symptoms are primarily uro-genital, vaginal forms of estrogen can be used with minimal systemic absorption

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Salivary Testing



- NAMS – does not recommend saliva testing to determine hormone levels
- Endocrine Society – “salivary hormone tests are inaccurate and should not be considered reliable measures of hormones in the body”
- ACOG
 - No biologically meaningful relationship between salivary sex steroidal hormone concentrations and free serum hormone levels
 - Salivary hormone levels vary with diet, time of day, and other variables

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Taper, Taper, Taper

- Abrupt withdrawal increases return of moderate to severe symptoms
- Tapering dose of hormones lowers risk of recurrent symptoms
- Weaning off
 - Decrease to lowest dose first
 - Decrease by one pill per week, or
 - Skip 1 day, then 2 days, etc
 - Slower tapering may benefit women with recurrence

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Genitourinary Syndrome of Menopause

- Symptoms such as vaginal dryness, soreness, dyspareunia, urinary frequency, nocturia and urgency are extremely common in postmenopausal women.
- Incontinence increases in prevalence with age.
- Systemic HT can correct estrogen deficiency changes in the urogenital tract and maintain vaginal health.
- All local estrogen preparations are effective and patient preference will usually determine the treatment used.

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Low doses don't raise serum estrogen levels.

FDA-approved treatment options for GSM/VVA

Vaginal estrogen creams

Estradiol cream (Estrace® Cream)
Conjugated equine estrogens cream (Premarin® Vaginal Cream)

Vaginal estradiol tablet

Vagifem® Estradiol Vaginal Tablets

Vaginal estradiol ring

Estring® Estradiol Vaginal Ring

Nonhormonal oral tablet

Ospemifene (Osphena®)

Intravaginal CO₂ laser therapy

MonaLisa Touch™

GSM, genitourinary syndrome of menopause;
VVA, vulvovaginal atrophy.

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Moisturizers and Lubricants

- Moisturizers (used regularly)
 - Replens – 2 studies in breast cancer survivors – highly effective
 - Moist Again
 - K-Y liquibeads and K-Y Silk-E
- Lubricants (used during intercourse)
 - Pre-Seed – best tolerated
 - Slippery Stuff Gel (formerly Femglide) – hypo-osmotic (water based)
 - K-Y Yours + Mine
 - YES (derived from flax extract, guar, locust bean, xantham gum)
 - Astroglide - hyperosmotic – may cause irritation

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Mindfulness



- Randomized study of 110 women experiencing an average of 5 or more moderate or severe hot flashes (including night sweats)/day.
- Women who received training in mindfulness based stress reduction experienced a clinically significant reduction in the degree of bother from hot flashes, improved quality of life, sleep quality, anxiety and perceived stress – which lasted 3 months after intervention stopped.

Carmody, et al. Menopause. 2011 Feb 26.

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Find a place inside where this is joy and it will burn away the pain.

Joseph Campbell



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Women's health is a state of well-being in which a woman feels creative, strong and wise. Her innate healing power is vital and intact. She feels valued and heard. She is free to choose and decide; she honors her own rhythms and journey.

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