

Women's Health: For All Ages



Tieraona Low Dog, MD

Author of National Geographic:
"Fortify Your Life"
"Healthy At Home" and
"Life Is Your Best Medicine"

www.DrLowDog.com

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Self Reflection

- How would you feel you are doing when it comes to:
 - Managing your stress
 - Nourishing your relationships
 - Creating space for relaxation
 - Getting regular physical activity
 - Eating healthy food regularly
 - Positive self-talk
 - Feeling good about your body



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This life is
not a dress
rehearsal.

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"THE FOOD YOU EAT
CAN BE EITHER
THE SAFEST
&
MOST POWERFUL
FORM OF MEDICINE
OR
THE SLOWEST
FORM OF POISON."

Unknown Author

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Health Benefits of Low Glycemic Load Diet

- Numerous studies in adults and teens have found that eating a low glycemic load (ditch the pasta, white bread, candy, soda, etc.) diet can lead to:
 - Better **weight control**
 - Improvement in blood sugar**
 - Reduction in triglycerides**
 - Improved ovulation in **obese women with infertility**
 - Lower risk of heart disease**, particularly in women
 - Better mood and more energy**

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Glycemic Load and Mood

- 82 healthy weight and healthy overweight or obese, adults enrolled in randomized, crossover controlled feeding study.
- Compared to a low GL diet, consumption of **high GL diet** resulted in:
 - 38% higher score for **depressive symptoms** ($P = 0.002$)
 - 55% higher score for **total mood disorder** ($P = 0.05$)
 - 26% higher score for **fatigue/inertia** ($P = 0.04$), compared to low GL diet.



Bresneyer KL, et al. *Appetite* 2016; Dec 1;107:253-259.

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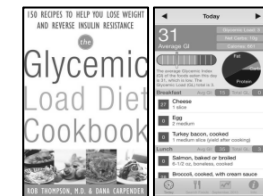
Food	Serving Size	Glycemic Load	Food	Serving Size	Glycemic Load
Grapefruit	½ large	3	Asparagus	½ cup	2
Apple	1 medium	6	Broccoli	1 cup	4
Banana	1 large	14	Green beans	1 cup	3
Raisins	1 small box	20	Tomato	1 medium	2
Watermelon	1 cup	8	Subway sandwich	6 inch	17
Carrots	1 large	5	Turkey breast		
Orange	1 medium	6	Butter pecan ice cream	5.5 ounces (small)	22
Sweet potato	1 cup	17	Vanilla ice cream cone	4.5 ounces (small)	19
Baked potato	1 medium	28	Potato chips, fat free	1 bag (8 ounces)	49
French fries	1 medium serving	26	Tortilla chips, white corn	3.5 ounces	38
Snickers	1 bar	35	Eggo oat waffles	1 serving	13
Reese's cup	1 miniature	2	Maple syrup	4 Tbsp	39
White table wine	5 ounces	1	Egg, hard boiled	1	2
Red table wine	5 ounces	1	Apple juice	8 ounce	6
Grape juice	6 ounces	12			

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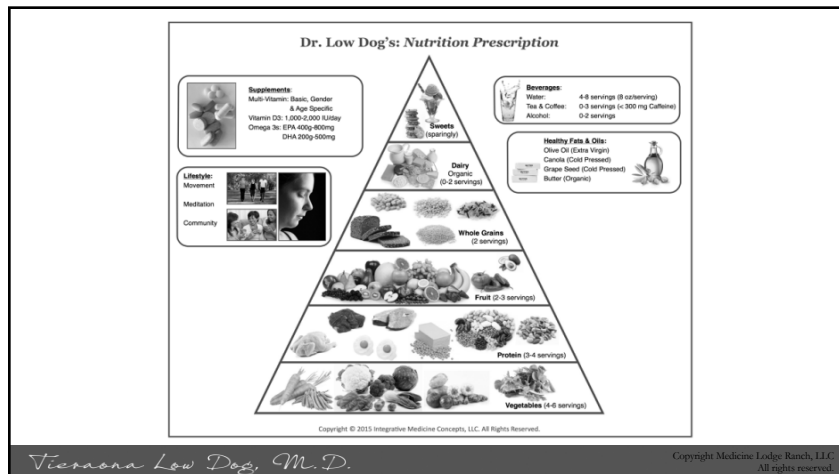
Food	Serving Size	Glycemic Load
Spaghetti	1 cup	38
Brown rice	1 cup	23
White rice	1 cup	33
White bread	1 slice	10
Whole grain bread	1 slice	5
Bagel, cinnamon raisin	1 3.5 inch	24
Pumpernickel bread	1 slice	6
Macaroni and cheese	1 cup prepared	31
Chocolate doughnut	1 doughnut (80 g)	25
Glazed doughnut	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

Resources:



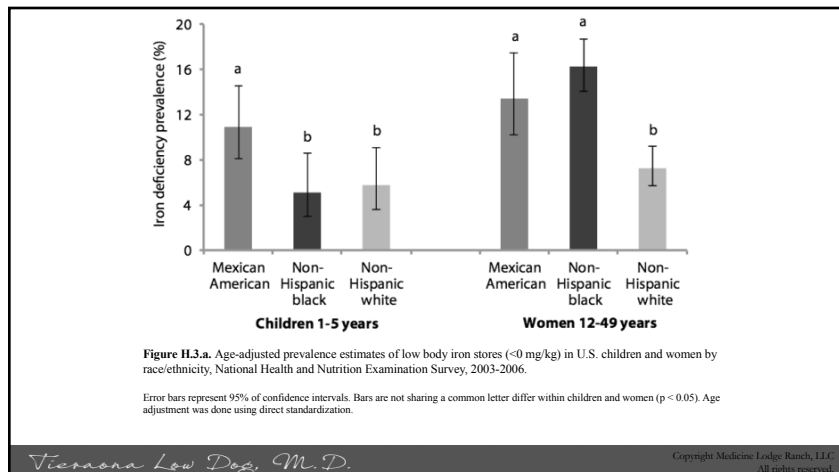
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- Iron deficiency most common nutrient deficiency in world, affecting ~2 billion people.
- Low iron levels *are most common cause of anemia* in adolescent girls and is very detrimental to *mood and cognition*, as well as *physical* well-being.
- Iron deficiency anemia accounts for 20% of all global maternal deaths. **If mother is anemic, increases risk baby born prematurely with lower birth weight and poor neurocognitive development.**

Iron



Journal of the American College of Nutrition

ISSN: 0731-5724 (Print) 1541-1087 (Online) journal homepage: <http://www.tandfonline.com/loi/jacn20>

Product Used was Mega Food Blood Builder

A Food-Derived Dietary Supplement Containing a Low Dose of Iron Improved Markers of Iron Status Among Nonanemic Iron-Deficient Women

Christopher R. D'Adamo, James S. Novick, Termeh M. Feinberg, Valerie J. Dawson & Larry E. Miller

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To link to this article: <https://doi.org/10.1080/07315724.2018.1427158>

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The First Environment

- Eat more **fresh**, less processed, food.
- Avoid foods/beverages in plastic and **stored in plastic**
- Minimize use of personal care products with **fragrances**.
- Avoid use of **pesticides, insecticides** in home or on pets.
- Avoid **paint** fumes.
- Take **prenatal** prior, during and after pregnancy

www.cwgc.org for more info



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Keep Folate on Board!

- Folic acid, alone or with vitamins and minerals, **prevents neural tube defects**.
- Mandatory folic acid fortification in US in 1998 has resulted in lower prevalence of spina bifida.
- Current recommendations are **400 mcg per day for 3-6 months prior to conception**.
- Up to 30% of people cannot fully convert synthetic folic acid to active form, so use supplement with active **methyfolate** form.



Atta CA, et al. *Am J Publ Health* 2016; 106(1):e24-34.
De-Regil LM, et al. *Cochrane Database Syst Rev* 2015; 12:CD007950

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Iodine in Pregnancy

- Many reproductive aged women in US have marginal iodine status; **salt in processed foods is not iodized**.
- Deficiency associated with **pregnancy loss and prematurity, and neurocognitive defects in baby**.
- Iodine deficiency now accepted as the most common cause of **preventable brain damage** in the world.
- Mild to moderate iodine deficiency associated with higher incidence of **ADHD** and **lower IQ** in the baby.
- American Thyroid Association recommends pregnant/lactating women supplement: **150 mcg/d potassium iodide**.



Council on Environmental Health, et al. *Pediatrics* 2014; 133(6):1163-6
Perrine CG, et al. NHANES data: Some subgroups of reproductive age women in the United States may be at risk for iodine deficiency. *J Nutr* 2010; 140:1489-1494, 2010. PMID: 20554903

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Iodine Intake Pregnancy and Breastfeeding

- Data from National Health and Nutrition Examination Survey 2011-2014 found that the **use of iodine containing dietary supplements among pregnant and lactating women remains low** in contrast with current recommendations.
 - Among **pregnant** women, 72.2% used any dietary supplement; however, **only 17.8% used a dietary supplement with iodine**.
 - Among **lactating** women, 75.0% used a dietary supplement; however, **only 19.0% used a dietary supplement with iodine**.

Gupta PM, et al. Use of Iodine-Containing Dietary Supplements Remains Low among Women of Reproductive Age in the United States: NHANES 2011-2014. *Nutrients* 2018 Mar 29;10(4). pii: E422

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Choline Matters in Pregnancy

the FASEB JOURNAL

HOME CURRENT ISSUE EARLY ONLINE ARCHIVE ABOUT

Research

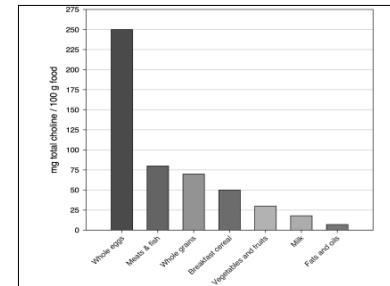
Maternal choline supplementation during the third trimester of pregnancy improves infant information processing speed: a randomized, double-blind, controlled feeding study

Marie A. Caudill, Barbara J. Strupp, Laura Muscalu, Julie E. H. Nevins, and Richard L. Canfield

Published Online: 29 Mar 2018 <https://doi.org/10.1096/fj.20170692RR>

Choline

- Choline critical during fetal development, influencing mood regulation, cognitive development, stress regulation and lifelong memory function.
- Only 8-10% of adults or pregnant women meet the adequate intake levels. Those eating eggs had highest levels.
- Look for prenatal with 200-300 mg.



Blusztajn JK, et al. Neuroprotective actions of dietary choline *Nutrients* 2017; Jul 28;9(8). pii: E815.

Wallace TC, et al. *Nutrients* 2017 Aug 5;9(8). pii: E839.

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

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Omega 3 and Asthma

- Omega 3 essential >20 weeks pregnancy.
- DHA (450 mg/d) lowered cortisol in response to stressors in low-income urban African American pregnant women.
- Reviewers found omega 3 supplementation in the third trimester of pregnancy reduced the absolute risk of persistent wheeze/asthma and infections of the lower respiratory tract in offspring by approximately 33%.



Barbadoro P, et al. (2013) Fish oil supplementation reduces cortisol basal levels and perceived stress: a randomized, placebo-controlled trial in abstinent alcoholics. *Mol Nutr Food Res* 2013; 57(6):1110-1114
Bisgaard H, et al. *N Engl J Med* 2016; Dec 29;375(26):2530-9

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Magnesium for Migraines

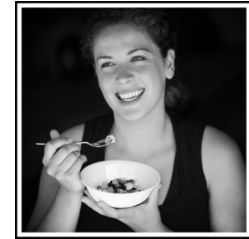
- Migraine disproportionately affects women. Impacts 1 in 4 households. Studies show migraineurs have low brain magnesium during migraine attacks.
- Canadian Headache Society gave magnesium a strong recommendation for prophylaxis of migraine (also for riboflavin).
- Dose generally 300-400 mg/d, though some need up to 600 mg per day.
- Diarrhea most common side effect (glycinate, malate and citrate less GI complaints than oxide). Caution with supplementation in those with poor kidney function.

Rajapakse T, et al. Nutraceuticals in Migraine: A Summary of Existing Guidelines for Use. *Headache* 2016; 56(4):808-16.

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Vitamin B6 (Pyroxidal-5-Phosphate)

- Involved in production of serotonin, dopamine, melatonin, hemoglobin, protein metabolism, energy production, and more.
- Deficiency: depression; impaired cognition, attention, memory, and sleep. Increased risk heart disease, stroke and colorectal cancer.
- OTC analgesics and OCPs lower B6 levels.
- 30 MILLION Americans are deficient in B6. Seldom ever tested. Research shows ~6 mg/d to maintain normal serum level.

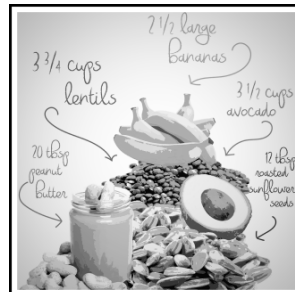


Larson SC, et al. *JAMA* 2010; 303(11):1077-83
Morris MS, et al. *Am J Clin Nutr* 2008; 87(5):1446-54
Ulvik A, et al. *Am J Clin Nutr* 2014; 100(1):250-5

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To Get 1.5 mg B6 in Food

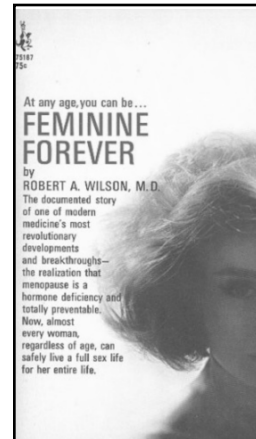
- 2.5 bananas
- 12 Tbsp. roasted sunflower seeds
- 8 ounces chicken breast
- 8 ounces sockeye salmon
- 3.5 cups raw diced avocado
- 3 cups sweet potatoes
- 15 cups of milk **OR**
- 20 Tbsp. peanut butter



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Menopause

- Medicalization of women's health is widespread.
- Menopause medicalized since 1930s as a "deficiency disease," often with recommendation of hormone replacement therapy.
- Keeping women "feminine forever" was the claim, along with the promise of preventing heart disease, osteoporosis, and memory loss.
- Estrogen became one of the most frequently prescribed drugs in the U.S.



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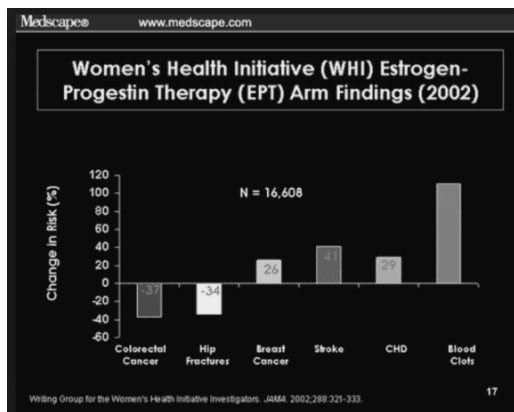
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Menopause: The Disease



- Even when no longer considered a disease, it was positioned as gateway to disaster - **thinning of skin, sagging of breasts, brittling of bones, loss of sexuality, fogging of mind, heart disease.**
- Hormones were answer until Women's Health Initiative in 2001 was suddenly discontinued due to **increased incidence of breast cancer and blood clots in women taking Premarin and Provera.**

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Perimenopause

- Time around last menstrual period, "the menopause transition."
- Generally begins with irregular menstruation and ends one year after last menstrual period.
- Changes may be acute or gradual and is often the most symptomatic years for women
- Not all midlife symptoms are attributable to menopause, **many changes are associated with aging.**

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Menopause Symptoms

- **Classic symptoms:**
 - Change in menstrual cycle pattern and decline in fertility
 - Hot flashes and night sweats
 - Vulvovaginal symptoms, lower libido, painful intercourse
 - Sleep disturbances
- **Other symptoms *sometimes* associated with menopause:**
 - Cognitive (memory, concentration)
 - Urinary frequency, incontinence
 - Psychological symptoms (depression, anxiety, moodiness)
 - Dry eye, joint/muscle pain, fatigue, weight gain, dental changes

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Hormone Route and Type

- **Transdermal estrogen** has least effect on lipids as it avoids first pass effect on the liver, **permitting lower doses to be used with equal efficacy.**
- **Estrogen alone does not increase risk of breast cancer.**
- **Natural progesterone** is associated with **less risk of breast cancer and blood clots** as compared to synthetic progestogens.
- If symptoms are primarily **urinary and/or vaginal, vaginal estrogen can be used with minimal systemic absorption.**

Bhupathiraju SN, et al. *Endocr Prac* 2014; 20:1201-13

L-Hermite M. *Climacteric*. 2013 Aug;16 Suppl 1:44-53.

Hale GE, et al. *Trends Cardiovasc Med* 2015; 25(6):540-9

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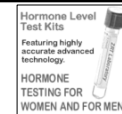
Bioidentical Hormones

- **Bioidentical hormones** most commonly used include estradiol, estrone, estriol, progesterone, testosterone and dehydroepiandrosterone (DHEA).
- **Compounded bioidentical hormones** are not FDA regulated
- Many **FDA approved prescriptions contain bioidentical hormones**
 - Estrace (vaginal and oral)
 - Climara
 - Estraderm
 - Estragel
 - Estrasorb
 - Estring
 - Femring
 - Vagifem
 - Prometrium



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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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Genitourinary Syndrome of Menopause

- **Dryness, burning, irritation; lack of lubrication, discomfort or pain, with intercourse; and urinary symptoms of urgency, dysuria and recurrent urinary tract infections.**
- **Vaginal estrogen** can be continued as long as needed to relieve symptoms and considered when systemic estrogen is contraindicated.
- **Vaginal lubricants and moisturizers** can be used alone or in conjunction with vaginal estrogen.

Neves-e-Castro M, et al. EMAS position statement: The ten point guide to the integral management of menopausal health. *Maturitas* 2015; 81(1): 88-92

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Moisturizers and Lubricants

- WHO recommends osmolality of a personal lubricant **not exceed 380 mOsm/kg** to minimize risk of epithelial damage. Higher osmolality associated with mucosal irritation and cell damage.
- Normal **vaginal pH is 3.8-4.5** and rectal pH is ~7.0.
- Look for products with low osmolality and for vaginal products, an acidic pH. (Yes water based lubricant or vaginal moisturizer)

Edwards D. et al. *Climacteric* 2016; 19(2):151-61

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Commonly used personal lubricants available world-wide. Certified organic ingredients are in bold.

Name	Ingredients	pH	Osmolality (mOsm/kg)
<i>Moisturizers</i>			
Canesintina Intimate Moisturiser	aqua, glycerin, glyceryl polymethacrylate, capryloyl glycolic acid, sorbitol, acrylates/C10-30 alkyl acrylate crosspolymer, 5.63	846 ^b	
Gynomunal Vaginal Moisturizing Gel	sodium hyaluronate, sodium benzoate, sodium hydroxide, galacturonic acid, butylene glycol/Canella japonica leaf/flower extract, tetrasodium EDTA, p-aminic acid, levulinic acid	8	>2000 ^b
Hyalofemme Vaginal Hydrating Gel	hyaluronic acid (hyaluronic acid derivative), propylene glycol, carbomer, methyl p-hydroxybenzoate, propyl p-hydroxybenzoate, sodium hydroxide, purified water	4.88	1729 ^b
Regelle Long-Lasting Vaginal Moisturizer	purified water, polyacrylate, glycerol, mineral oil, hydrogenated palm oil glycerides, carbocel 974F, sorbic acid	2.88	2012 ^b
Replens MD Long-Lasting Vaginal Moisturizer	purified water Ph. Eur. 78.64% w/w, glycerin, mineral oil, polyacrylate, carbomer homopolymer type B, 2.95	2011 ^b	
Silk Natural Intimate Moisturizer	water, extracts of kiwifruit plant and citrus seed, xanthan gum, vegetable glycerin, citric acid, potassium sorbate, 4.47	877 ^b	
Yes Vaginal Moisturiser ^f	aqua, <i>Aloe barbadensis</i> leaf juice, guar gum, locust bean gum, flax seed extract, xanthan gum, sodium chloride, 4.15	250	
<i>Lubricants</i>			
Autoglide Gel Lubricant	purified water, glycerin, hydroxyethylcellulose, chlorhexidine gluconate, methylparaben, glucose delta lactone, 4.38	6100 ^{b,c}	
Autoglide Ultra Gentle Sensitive Skin Lubricant	purified water, xylitol, hydroxyethylcellulose, <i>Aloe barbadensis</i> leaf juice, pectin, Chamomilla recutita (Matricaria) flower extract, phenoxyethanol	4.56	945 ^b
Balance Activ Menopause Vaginal Moisturizing Lubricant	phosphate-buffered saline, sodium hyaluronate (hyaluronic acid), phenoxyethanol, methylparaben	5.64	309

Table From: Edwards D. et al. *Climacteric* 2016; 19(2):151-61

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Sass Intimate Dryness Gel	aqua, glycerin, butylene glycol, ammonium acryloyldimethyl taurate, VP copolymer, parthenol, xylitol/gluconide, 4.99	>2000 ^b
Simply Slick Personal Lubricating Lotion	anhydroxytol, PEG-40 hydrogenated castor oil, allantoin, sodium benzoate, xylitol, <i>Aloe barbadensis</i> leaf juice, potassium sorbate, parfum, disodium EDTA	6.68
System Jo Personal Lubricant	castor oil, purified water, jojoba oil, vegetable glycerin, pectin, <i>Stevia</i> , optiflo H370VF	>2000 ^b
Yes But Anal Lubricant	water (aqua), locust bean gum, <i>Aloe barbadensis</i> leaf juice, <i>Esterpe oleaceae</i> (Acai) pulp powder, xanthan gum, 5.86	61
Yes Baby Sperm-Friendly Lubricant	citrus extract , aqua, <i>Aloe barbadensis</i> leaf juice, guar gum, locust bean gum, xanthan gum, honeysuckle flower extract, sodium chloride, citric acid, sodium hydroxide	7.78
Yes Baby Vaginal-Friendly Lubricant	aqua, <i>Aloe barbadensis</i> leaf juice, guar gum, locust bean gum, xanthan gum, honeysuckle flower extract, sodium chloride, citric acid, sodium hydroxide	7.65
Yes Water-Based Intimate Lubricant	aqua, <i>Aloe barbadensis</i> leaf juice, guar gum, locust bean gum, flax seed extract, xanthan gum, sodium chloride, citric acid, potassium sorbate, phenoxyethanol	4.22
		249
		4.08
		154

^a Values are outside the normal vaginal pH range of 3.8-4.5³⁰;

^b values represent hypo-osmolar (<32 mOsm/kg) or hyperosmolar preparations that exceed the ideal osmolality threshold of 380 mOsm/kg recommended by the World Health Organization for a personal lubricant (most of which also exceed the real-world recommended threshold of 1200 mOsm/kg³¹), and which therefore have the potential to cause irritation and/or damage to vaginal or rectal mucosa;

^c osmolality value taken from Weir³² 2012(6);

^d matches rectal pH (~7.0) and osmolality;

^e matches semen pH and osmolality;

Table From: Edwards D. et al. *Climacteric* 2016; 19(2):151-61

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Soy and Hot Flashes

- Meta-analysis concluded **soy isoflavones** (median, 54 mg) significantly reduced **frequency of hot flashes by 20.6% and severity by 26.2%** ($P = 0.001$) compared with placebo.
- **Isoflavone supplements providing > 18.8 mg of genistein were twice as potent** than lower doses.
- **30 mg/d equol significantly reduced mood symptoms in one trial.**

Taku K, et al. *Menopause*. 2012 Jul;19(7):776-90.

Thomas AJ, et al. *Maturitas* 2014; 78(4):263-76.

Position Statement NAMS: *Menopause* 2015 Nov; 22(11):1155-72

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Jarrow Formulas

Iso Rich Soy 32SVNGS (892 Grams Powder) Supplement Facts

SUPPLEMENT FACTS

Serving Per Container: 31

Protein	25 Gm	N/A*
Calcium	20 Mg	4%
Iron	4 Mg	25%
Isoflavones	54 Mg	N/A*
GENISTEIN/GENISTIN	28 Mg	N/A*
DAIDZEIN/DAIDZIN	23 Mg	N/A*
GLYCITRIN/GLYCITIN	5 Mg	N/A*
Sapogenins	200 Mg	N/A*

the Vitamin Shoppe

Mega Strength Soy Isoflavones 200 MG (90 Capsules) Supplement Facts

SUPPLEMENT FACTS

Serving Size: 1 CAPSULE

Serving Per Container: 90

	Amount Per Serving	% Daily Value
SOYBEAN EXTRACT - (NOVASOY®)(SEED)	200 Mg	N/A*
CONTAINING 40% SOY ISOFLAVONES (80 MG)		

NOTE: NOVASOY HAS BEEN CLINICALLY STUDIED.

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Soy and Cancer

- **European Food Safety Authority** concluded **after a multi-year investigation** that in **postmenopausal women, soy isoflavones *do not* adversely affect the breast, thyroid or uterus.**
- **North American Menopause Society** concluded that **soy isoflavones *do not* increase risk of breast or endometrial cancer.**
- **American Cancer Society** and **American Institute for Cancer Research** confirm **soy foods** can be **safely** consumed by women with **breast cancer.**

Panel on Food Additives and Nutrient Sources added to Food Scientific opinion on the risk assessment for peri- and post-menopausal women taking food supplements containing isolated isoflavones. *EFSA J*. 2015;13:4246.

Messina M. *Nutrients* 2016; 8(12): 754

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RESEARCH* AND TRADITIONAL USE

- **Soy isoflavones** reduce severity and frequency of hot flashes
- **Black cohosh** never traditionally used for menopause, best studies negative
- **Kava** is effective for anxiety.
- **St John's wort** for hot flashes, moodiness, etc.*
- **Maca** for sexual dysfunction and low libido
- **Siberian rhubarb** for hot flashes
- **Ginseng** for quality of life
- Consider adaptogens (ashwagandha, bacopa, rhodiola)



*Note: watch for drug interactions

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Hypnosis and Cognitive Behavioral Therapy

- Significant improvement for hot flashes with **cognitive behavioral therapy and hypnosis**.
- Study 187 menopausal women with **minimum of 7 hot flashes/d** randomized to 5 weekly hypnosis sessions or structured control.
- **At 12 weeks:** mean reduction in physiologically monitored hot flashes was **5.92 (56.86%)** for clinical hypnosis and **0.88 (9.94%)** for controls.
- Also significant improvement in **sleep quality and treatment satisfaction** as compared to controls.

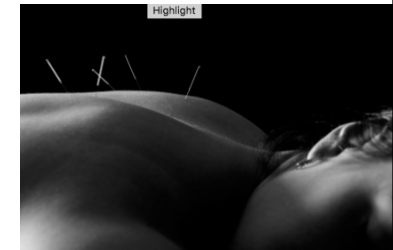


Elkins GR, et al. Menopause 2013; 20(3):291-8

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Acupuncture

- Numerous studies found **acupuncture beneficial for relieving hot flashes and improving quality of life**.
- Review and meta-analysis of 31 RCTs found **acupuncture significantly reduces sleep disturbances during menopause**.



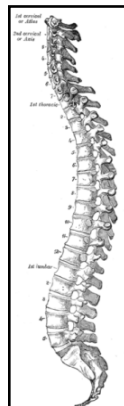
Chiu HY, et al. Obstet Gynecol 2016; 127(3): 507-15

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Osteoporosis

- Literally "**porous bones**," a skeletal disorder characterized by **low bone mass and structural deterioration of bone tissue**, with a consequent increase in susceptibility to **fragility fracture**.
- Multifactorial disease arising from **genetic, hormonal, metabolic, mechanical and immunological factors**.
- **75% hip, spine and distal forearm fractures** occur in those **65 years or older**
- Roughly **30% of people over age 65** fall annually, with **10-15% of these falls** resulting in **fracture**.

https://www.cdc.gov/nchs/data/hestat/osteoporosis/osteoporosis2005_2010.htm



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<http://www.shef.ac.uk/FRAX/>

Country: US (Caucasian) Name / ID: About the risk factors ⓘ

Questionnaire:

1. Age (between 40-90 years) or Date of birth
Age: 61 y 1947 M 9 D 22

2. Sex ☒ Male ☐ Female

3. Weight (kg) 70.31

4. Height (cm) 167.64

5. Previous fracture ☐ No ☐ Yes

6. Parent fractured hip ☐ No ☐ Yes

7. Current smoking ☐ No ☐ Yes

8. Glucocorticoids ☐ No ☐ Yes

9. Rheumatoid arthritis ☐ No ☐ Yes

10. Secondary osteoporosis ☐ No ☐ Yes

11. Alcohol 3 or more units per day ☐ No ☐ Yes

12. Femoral neck BMD (g/cm²)
Select DXA -1.8

BMI: 25.0
The ten year probability of fracture (%)

without BMD	
Major osteoporotic	10
Hip fracture	1.0

One of best predictive tools for evaluating fracture risk is FRAX

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Bisphosphonates for Fracture Prevention in **Post-Menopausal Women With Prior Fractures or With Very Low Bone Density** (NNT = 100)

In Summary, for those who took the bisphosphonates:

Benefits in NNT

- 1 in 20 were helped (vertebral fracture prevented)
- 1 in 100 were helped (hip fracture prevented)

Harms in NNT

- A small number were harmed

Benefits in Percentage

- 94% saw no benefit after 3 years of treatment
- 5% avoided a vertebral fracture
- 1% avoided a hip fracture

Harms in Percentage

- A small percentage were harmed

www.thennnt.com/nnt/bisphosphonates-for-fracture-prevention-in-post-menopausal-women-with-prior-fractures-or-very-low-bone-density/

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Bisphosphonates for Fracture Prevention in **Post-Menopausal Women Without Prior Fractures**

In Summary, for those who took the bisphosphonates:

Benefits in NNT

- None were helped (fracture prevented after 3 years of medicine)

Harms in NNT

- A small number were harmed

Benefits in Percentage

- 100% saw no benefit after 3 years of treatment

Harms in Percentage

- A small percentage were harmed

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Vitamin D

- Deficiency can cause **osteomalacia** leading to **musculoskeletal pain** in the pelvis, shoulders, low back, and proximal muscles.
- Deficiency is common worldwide but often **more severe in elders** due to environmental and biological factors.
- As aging advances, intestinal resistance to 1,25(OH)₂D **impairs the uptake of calcium** and a **decline in renal function reduces activation of vitamin D**.



Wintermeyer E, et al. Crucial Role of Vitamin D in the Musculoskeletal System. *Nutrients* 2016; Jun 1;8(6). pii: E319.

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Vitamin D: Bones and Balance

- Low vitamin D increases risk of **falls** and **gait instability**. Exercise, calcium and vitamin D supplementation all decrease falling in elders.
- Meta-analysis National Osteoporosis Foundation: **calcium plus vitamin D supplementation produced a significant 15 % reduced risk total fractures and 30% reduced risk hip fracture.**



Tricco AC, et al. Comparisons of Interventions for Preventing Falls in Older Adults: A Systematic Review and Meta-analysis. *JAMA* 2017; Nov 7;318(17):1687-1699.

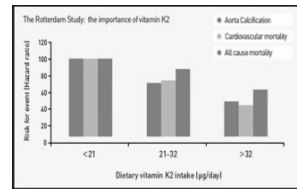
Weaver CM. Calcium plus vitamin D supplementation and risk of fractures: an updated meta-analysis from the National Osteoporosis Foundation. *Osteoporosis Int* 2016 Jan;27(1):367-76

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Vitamin K

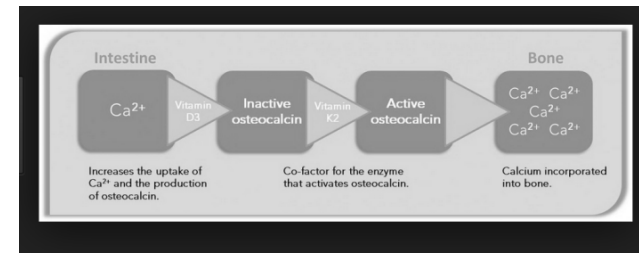
- **Calcium, magnesium, vitamins D and K** contribute independently and collectively to bone health.
- Beneficial role of vitamin K, particularly **vitamin K2 as MK-7**, in **bone and cardiovascular health** is **reasonably well supported scientifically**, with several preclinical, epidemiological, and clinical studies published over the last decade.



Karpinski M, et al. Roles of Vitamins D and K, Nutrition, and Lifestyle in Low-Energy Bone Fractures in Children and Young Adults. *J Am Coll Nutr* 2017 Jul;36(5):399-412.

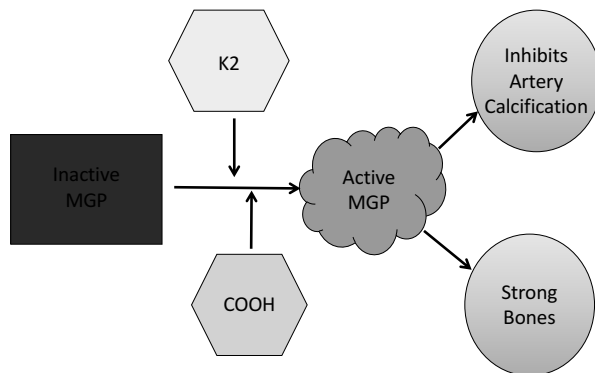
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Vitamin D and Respiratory Infection



Martineau AR, et al. Vitamin D supplementation to prevent acute respiratory tract infections: systematic review and meta-analysis of individual participant data. *BMJ* 2017; 356: i6583.

- Acute respiratory infection kills ~2.65 million people/year.
- A review of 25 randomized controlled trials found that vitamin D supplementation **reduced risk of acute respiratory infection** among all participants and those who were vitamin D deficient experienced the most benefit (NNT=4).
- Why not screen those at high risk?

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Vitamin D and Asthma

- Viral respiratory infections are a major cause of **asthma exacerbations**.
- Review and meta-analysis of 8 RCTs found **vitamin D supplementation reduced rate of asthma exacerbation requiring systemic corticosteroids** among all participants but greatest benefit seen in those with low baseline levels of vitamin D.
- Cochrane review found data suggest vitamin D is likely to reduce **both the risk of severe asthma exacerbation and healthcare use in those with mild-to-moderate asthma**.

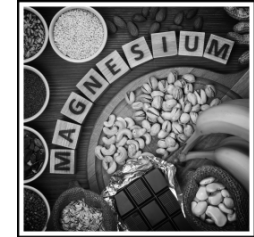
Jolliffe DA, et al. Vitamin D supplementation to prevent asthma exacerbations: a systematic review and meta-analysis of individual participant data. *Lancet Respir Med* 2017 Nov;5(11):881-890.

Martineau AR, et al. Vitamin D for the management of asthma. *Cochrane Database Syst Rev* 2016 Sep 5;9(11):CD011511.

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Magnesium

- Low magnesium associated with type-2 diabetes, metabolic syndrome, inflammation, high blood pressure, sudden cardiac death, osteoporosis, migraine headache, asthma, and colon cancer.
- Magnesium required for the activation of vitamin D.
- **50% of U.S. population** consumes less than the required amount of daily magnesium.
- FDA requires warning that **proton pump inhibitors can cause dangerously low magnesium levels**.



Rosanoft A, et al. *Nutr Rev* 2010;70(3):153-64

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D-mannose for Recurrent UTI



- After antibiotic treatment 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

Vickianna Low Dog, M.D.

the Vitamin Shoppe

Cranberry With D-Mannose (60 Veggie Caps) Supplement Facts

SUPPLEMENT FACTS

Serving Size: 2 VEGGIE CAPS

Serving Per Container: 30

	Amount Per Serving	% Daily Value
Vitamin C - (As Ascorbic Acid)	60 Mg	100%
D-Mannose	1,000 Mg	N/A*
CRANBERRY (CRANBERRY CONCENTRATE)	400 Mg	N/A*

Now Foods

D-Mannose (3 Ounces Powder) Supplement Facts

SUPPLEMENT FACTS

Serving Size: 1 LEVEL TEASPOON (2 G)

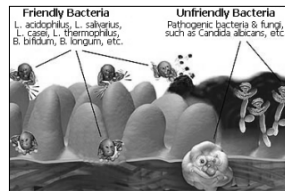
Serving Per Container: 40

	Amount Per Serving	% Daily Value
CALORIES	10	N/A*
TOTAL CARBOHYDRATE	2 Gm	1%
SUGARS	2 Gm	N/A*
D-MANNANOSE	2,000 Mg	N/A*

Vickianna Low Dog, M.D.

Make Friends with Your Microbes!

- Rapidly expanding research on benefits of certain probiotic strains in women's health.
- Gastrointestinal
 - Reduce symptoms of irritable bowel syndrome
 - Reduce incidence of antibiotic associated diarrhea
- Genito-urinary
 - Reduce the risk of recurrent bladder infections
 - Help reduce recurrent yeast infections
- Pregnancy
 - Reduce allergies and eczema in high risk children, especially if born by Cesarean section, if taken last 2 months of pregnancy.



Grin PM, et al. *Can J Urol* 2013 Feb;20(1):6607-14; Ford AC, et al. *Am J Gastroenterol* 2014; 109(10):1547-1561

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1. **Move more.** Whether it's the 7 minute workout, cycling, yoga, or taking long walks - one of the surest ways to maintain heart, brain, bone and muscle health is daily exercise. It's not optional. **Just do it.**
2. Eat food. Minimally processed, **low glycemic load**, diverse, and largely **plant based** diet. **Organic, local, and/or humanely raised** when possible,
3. **Meditate.** Meditation widens the gap between trigger and response, allowing you to feel a greater calm and awareness. It's a **game changer** for almost anyone.
4. **Stay connected.** Social isolation and loneliness is as dangerous as being an alcoholic or being obese. **Invest in your friends and family.**
5. **Take a multi.** Many lack when it comes to key micronutrients. A food based multi can be insurance against the gaps. **Age and gender** appropriate.
6. Be tech smart. Technology makes life easier and more complex. Use **blue light blocking glasses** at night, make one day each week **tech free** or tech "light", and **limit work email in the evening.**
7. **Nurture spirit.** The search for meaning and purpose is a fundamental part of being human. A **richly nourished inner life** is a source of strength during hard times. **Look inward. Honor mystery.**

Viviana Low Dog, M.D.

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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.

Viviana Low Dog, M.D.

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