

**Risk Reduction & Optimal Health:
Nutrition Supplements, Weight &
Exercise**

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Topics

- Breast Cancer Risk
- Cancer Survivorship
- Chronic Disease
- Supplements
- Weight
- Exercise
- Optimal Eating & Lifestyle Choices

Survivorship Issues

- Bone Health
- Cardiovascular Disease
- Risk of recurrence or new primary cancer
- Side Effects of Treatment
- Issues related to menopause: hot flashes
- Psychosocial Issues: anxiety, depression

Optimal Weight

Weight Loss Goals

Step 1: Get BMI < 30

- a. Eg under 200 lbs for a 5'8 person
- b. Eg under 175 lbs for a 5'4 person
- BMI over 30 related to more cancer, heart disease, diabetes, high blood pressure, fatigue, pain, GERD, etc, etc. McGee DL. Ann Epidemiol 2005;15 :87-97
- BMI under 30 (with 30+ minutes daily exercise, not smoking and good diet) reduces risk of diabetes by 93%, heart attack by 81%, stroke by 50%, and cancer by 36%.

Ford, E et al. Arch Intern Med 2009;169:1355-62

Weight Loss Goals

Step 2: Get BMI < 25

- a. Eg under 175 lbs for a 5'8 person
- b. Eg under 145 lbs for a 5'4 person

Older women with BMI of 23-30 have lowest mortality Dolan, CM Am J Public Health 2007;97:913-18

Being overweight is especially risky if you also:

- Have insulin resistance Stefan, N. Arch intern Med 2008;168:1609-16
- Have high waist circumference
- Have fatty liver, high fasting glucose (>100), high triglycerides (>150), low HDL
- Unfit, out of shape

Waist Circumference

- Aim for <35" women, <40" for men
- Larger circumference = higher mortality, more likely to have fatty liver

Simpson, JA. Obesity 2007;15:994-1003

What's the Best Way to a Better Weight?

- Bottom line:
 - Reduce daily input by 500-1000 calories a day (= 1-2 lb/week weight loss)
- There are two paths down this mountain – best results come from taking BOTH:
 - Reduce intake (EAT LESS)
 - Exercise more (EVERY DAY)

200 extra calories a day = 20 lbs in a year

Examples:

- Jamba Juice Strawberry Smoothie 12 oz (212 calories)
- Starbucks Grande Vanilla Latté (250 calories)
- Orange Juice, 12 oz (170 calories)
- M & Ms, small bag (290 calories)
- Red wine, 8 oz (200 calories)
- Hershey's Kisses, 9 (230 calories)
- ½ cup ice cream (250 calories)
- Snickers bar (280 calories)

What's the Best Way to a Better Weight?

- ▶ Low fat, low carb, Mediterranean-style all work to some degree (Sacks NEJM 2009;360:859-73)
- ▶ Calorie restriction matters most
- Moderate fat diets (Mediterranean-style, Atkins) = better weight loss & metabolic improvements longer-term (Shai NEJM 2008;359:229-41)
- Better long-term compliance if diet is closer to "normal" eating patterns (Mediterranean-style, modified Atkins or South Beach)

Heart Health

Insulin Resistance

Definition: condition where higher than normal insulin levels are needed to maintain normal blood sugar levels

Associated with: high blood pressure, high triglycerides, low HDL cholesterol, weight gain/fat around the waist

Risks: stroke, heart disease, dementia, diabetes, cancer (breast, uterine, pancreatic, prostate, colon)

A component of so-called metabolic syndrome

Metabolic Syndrome after Oophorectomy

- Women who had oophorectomy (ovary removal) had 1 ½ time increased risk of metabolic syndrome in a 6.5 year study
- Saw: weight gain, abdominal obesity, negative changes in lipids (HDL etc)
- = increased risk of diabetes, heart disease

Michelsen TM, Eur J Cancer. 2009 Jan;45(1):82-9. Epub 2008 Nov 12.

Living Well

Four lifestyle/nutrition factors significantly decrease risk for chronic diseases by these amounts:

- Developing diabetes by 93%
- Heart attack by 81%
- Stroke by 50%
- Cancer by 36%

Living Well

Those four factors:

- Physical activity of 3.5 hours or more per week (30 minutes or more daily)
- A diet emphasizing fruits, vegetables, whole grains, and small amount of meat
- A body mass index (BMI) of less than 30 (not model-slim, but not obese; weight under 200 pounds for a 5'8 person)
- Not smoking

Ford. Arch Intern Med 2009;169:1355-62

Exercise

Exercise for Weight Loss

- Studies inconsistent, many show weight gain
- Weight loss DOES NOT motivate women to exercise
- Best motivator: stress reduction, better mood & thinking ability (and IT WORKS!)

Segar. Women Health Issues 2008 (18)281-291

- **Cutting calories without protecting muscle = losing muscle mass = decreased metabolic rate = eventual weight regain with MORE difficulty losing weight with dieting the next time**

Exercise for Weight Loss

- An issue of intensity or amount?
- Walking 5-7 days weekly for 45-60 minutes is twice as effective for weight loss than 25-40 minutes 3 days weekly
- Also better reduction in insulin resistance, more improvement in lipids (HDL etc.), markers of metabolic syndrome
- Walking more effective than cycling, rowing, cardiac rehab exercises

Ades. Circulation 2009;119:2671-78

Exercise

The best exercise plan is a diversified plan:

- Cardio – benefits heart, lungs, mood, calorie-burning, insulin, energy, lipids, brain health
- Strength training/weight lifting (ESPECIALLY IMPORTANT) – preserve muscle mass, protect bones
- Balance & Flexibility training – prevent falls in older people
- Do more **deliberate** exercise (walking, weights, exercise classes), don't count **accidental** exercise (childcare, around the office, housework)

Exercise – Where to Start?

- 30 minutes daily of exercise, walking is great
- Add time and intensity as you get more fit, working up to 60 minutes DAILY
- Strength training/weight lifting, work up to 2-3 times weekly
- May want to work with a trainer if you are new to exercise or have a lot of health issues
- Look at: <http://www.citracal.com/best/> for great online info on strength training for bone health

Exercise and Breast Cancer Risk

- 6% risk reduction for every 1hr/week of physical activity Systematic review in Monnikhof, E. Epidemiology 2007;18:137-157, also McTiernan JAMA 2003;290:1331-36
 - Less benefit for premenopausal breast cancer prevention
 - Benefit when started in young adulthood
 - Benefit independent of BMI. Bardia Arch Intern Med 2006;166:2478-2483
- In women with breast cancer, risk of dying is 50% lower in those who exercise over 3 hrs/week of brisk walking Observational. Nurses Health Study n=2987 Holmes JAMA 2005;293:2479-2486
 - Less benefit in premenopausal cancer Enger Br J Ca 2004;90:2138-41

Optimal Eating

Mediterranean-Style Diet

- One of the best-studied ways of eating
- Studies show the Med Diet associated with:
 - Effective weight loss
 - Reduced risk of heart disease, stroke, dementia, cancer
 - Lower overall death rate
 - Improvement many chronic diseases and health concerns: rheumatoid arthritis
- The closer you follow the diet, the better the results

Trichopoulos NEJM 2003;348:2599-608, Sofi. BMJ 2008;337:a1344; Lyon Heart Study, deLorgeril Arch Int Med 1998;158:1181-87 Knoop JAMA 2004;292:1433

Mediterranean-Style Diet

- Some debate about what traditionally made up the Med Diet
- Some generalities, lots of regional variations with local foods prominent
- Modern changes include more refined flour foods and processed meats
- For our purposes, we will focus on a Mediterranean-style whole foods way of eating

Mediterranean-Style Diet Basics

- Whole grains, lots of legumes & vegetables, some fruit, fish, poultry, nuts, dairy (cheese, unsweetened yogurt), meat, game and local foods as available
- Rich in good fats (nuts, olive oil, fish); some butter
- Minimal or no: refined flour products & grains (typical bread, pasta, bagels; white rice, most cold cereal), sugar, white potatoes, processed foods, preserved meats (luncheon/deli meat, sausage (unless fresh bulk), bacon, ham)

Bone Health

Bone Changes in Typical Menopause

Bone loss at specific sites over 8 years:

- 10.50% for the spine
- 7.73% Total body bone mineral
- 5.30% femoral neck
- Bone loss begins 2-3 years before menses end, rate of loss peaks in the first few years post-menopause

Recker. J Bone Miner Res. 2000 Oct;15(10):1965-73.

Bone Changes after Cancer Treatment

Bone fracture risk elevated in women using aromatase inhibitors (e.g. arimidex)

Other risk factors: bone density studies showing bone loss, age >65 years, low body weight (BMI <20), family history of hip fracture, own history of bone fracture after age 50, oral corticosteroid use (>6 months), smoking

Hadji. Annals of Oncology. 19(8):1407-16, 2008 Aug.

Bone Health

Prescription intervention:

- Bisphosphonate (e.g. zoledronic acid, 2x year) to prevent bone loss in high risk women
- Trend towards fewer fractures but firm figures on fracture reduction still pending

Hadji. Annals of Oncology. 19(8):1407-16, 2008 Aug.

Other interventions: Adequate calcium, weight-bearing exercise, Vitamin D, magnesium, potassium, omega-3 fats, Vitamin K (green leafy veggies!), adequate protein (60-80 grams daily) including animal protein

Adequate Calcium Intake: Food, Supplements or Both?

Study: post-menopausal women

3 groups of calcium intake (with average daily intake):

1. 70% intake from supplements (1030 mg)
2. 70% intake from diet (830 mg)
3. Diet + supplements (1620 mg)

Highest bone density:

- Diet + supplements (group 3)
- Next highest: 70% intake from diet (group 2)
- Lowest: 70% intake from supplements (group 1)

Napoli; Am J Clin Nutr 2007;85:1428-33

Exercise & Bone Health

Necessary components:

- Weight bearing cardio: walking, hiking, dancing, aerobics
- Weight lifting to strengthen lumbar spine, wrist, hip
- Women on HRT added bone at most sites, women not on HRT added bone at hip
- See: <http://www.citracal.com/best/> for full protocol

[Going S.](#) Osteoporos Int. 2003 Aug;14(8):637-43. Epub 2003 Jul 3.

Side Effects: Hot Flashes

Flash-Free Eating?

- Small study descriptive study found that hot flash incidence peaked in the 30 minutes before meals and snacks; eating gave a 90 minute hot flash-free period
- Conclusion: Eat regular meals with enough protein and good fats to maintain reasonably steady glucose levels

Dormire JGWN 2007;36:255-262

Flash-Free Eating?

- Additional benefit: lower insulin levels may reduce risk of breast cancer, may give better outcomes in women with cancer
- Low-glycemic diet helps keep insulin levels low
- Avoid: white flour; sugar, fruit juice
- Eat: whole grains, beans, whole fruit, vegetables

Sieri Am J Clin Nutr 2007; 86:1160-6

Mindfulness Based Stress Reduction (MBSR)

- Based on mindfulness meditation
- Addresses stress response which has been shown to aggravate hot flashes
- Small pilot study looked at MBSR in women with typical menopause, found 39% reduction in hot flash frequency and 40% reduction in overall severity over 7 weeks

Carmody Menopause 2006;13:760-76

Paced Respiration

- Slow, controlled abdominal breathing
- Practice 1-2 times daily for 10 minutes
- Some women report being able to stop a hot flash by starting this breathing pattern as soon as they feel a flash beginning

Freedman Menopause 1995; 2(4): 211-218

Other Hot Flash Helpers

- Lose extra weight
- Exercise regularly
- Don't smoke
- Avoid wine if it aggravates
- Step outside or drink ice water if you feel a flash coming on

Supplements

Supplements May Be Harmful

Folic acid associated with more cancer in multiple studies (consistent non-significant trend) Ebbing, M. JAMA 2008;300:795-804

- Especially concerning because folic acid is: prescribed in large doses for pregnant women; widely added to food supply; considered safe

An overview of vitamin studies...

Multivitamin Supplements

- Did not reduce lung cancer risk, and high levels of E may increase risk in smokers 10 y, 11% higher risk for every 100mg/d increase p<0.01 Statore Am J Resp Crit Care Med 2008;177:524-30
- Did not effect overall prostate cancer risk, but associated with more advanced and fatal disease Lawson JNCI 2007;99:754-64
- Did not reduce illness in elderly Avenell BMJ 2005;331:324-7
- Review of Mutivitamin/mineral studies showed showed no reduction in cancer and chronic disease Huang Ann Intern Med 2006;145:372-385

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3 Recent Studies

- Selenium and/or vitamin E to prevent prostate cancer: No benefit overall, trend for increase in prostate cancer for E and for diabetes with Se. SELECT 7y, RCT, n=35 533, Se 200mcg (not yeast), E400 (dl) Lippman, S. et al JAMA 2009;301:39-51
- E and C for cancer prevention in men: No effect seen PHS2 n=14641 8y,RCT, C500mg, E400 (dl) Gaziano, JM et al. JAMA 2009;301:52-62
- MVI for cancer, heart disease or death in postmenopausal women: No effect WHI 8y Observational n=161808 Neuhausser, M et al. Arch Intern Med 2009;169:294-304

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Vitamin D

- Higher self-reported vitamin D intake associated with lower risk of breast cancer Holick Mayo Clin Proc 2006;81:353-73
- Women with breast cancer usually low in D Neuhausser, M. Am J Clin Nutr 2008;88:1333-9
- In women with breast cancer, low vitamin D levels associated with worse outcome Goodwin, P. ASCO 2008
- Vitamin D supplements associated with:
 - Lower risk of cancer in randomized trial 1000 IU daily, placebo controlled, n= 1179, 4y. Lappe, I. Am J Clin Nutr 2007;85:1586-9
 - Lower total death rate in general population Randomized placebo controlled trials. Arch Int Med 2007;167:1730-37

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Flax Seed

- Flax meal (whole ground flax seeds) is preferred over flaxseed oil
- Contains lignans, associated with less breast, prostate, and colon cancer
- Flaxseed are high in fiber and rich in healthy omega-3 fats
- How it might work:
 - Decreases estrogen effects and production
 - Encourages normal cell differentiation
 - Reduced supply of blood to tumor

Kurzer. Annu. Rev. Nutr. 1997;17:353-81. Also Ingram.

Flax Seed

- Women who ate a muffin containing 25 gm of flaxseed had reduction of tumor markers after 39 days

Goss. Breast Cancer Res. Treat. 2000;64:50, A157
Thompson. Nutrition after cancer. AICR 2002

Flax Seed and Hot Flashes

- 40 grams of flaxseed daily reduced menopausal symptoms (Kupperman Index, looks at a range of symptoms)

Lemay Obst Gyn 2002;100:495-504

- 40 grams of flaxseed daily also reduced total cholesterol

Dodin J Clin Endocrinol Metab 2005;1390-1397



Using Flax Seed

- Buy whole seed and grind in a coffee grinder reserved for this purpose
- Take 2-4 tablespoons ground daily
- Add to yogurt, smoothies, hot cereal, sprinkle on salad
- Or, add to 4-6 ounces of water and drink
- Grind enough to last the week and store in a jar in the fridge

Summary

Summary

1. Exercise
 - a. At least 3.5 hours weekly of weight-bearing cardio
 - b. Weight lift 3 times weekly
 - c. Stretching, balance work (yoga, tai chi)
2. Get bodyweight to a BMI of around 25
3. Mediterranean-style, whole foods; minimize sodium (anything out of a box, bag, can or deli), maximize potassium (vegetables, beans, whole grains)

Summary

- Eat at least 3 cups of vegetables daily, including at least 1 serving of green veggies daily (broccoli, spinach, chard, kale, collards, mustard greens)
- Eat enough protein (60-80 grams) daily; count only protein from dairy products, fish, poultry, eggs, meat

Summary

- Adequate calcium from dairy & supplements (aim for 1200-1500 mg total from all sources)
- Basic supplements: Vitamin D ~2000 units daily for most people; ground flax seed 2-4 tablespoons daily; other supplements on case-by-case basis

Upcoming Lectures

March 18th 2010 (Thursday) - Making Your Way Through The Supplement Jungle (Free)

6:30-8:30 PM, Cancer Center Amphitheater, Providence Portland Medical Center, 4805 NE Glisan Street, Portland
Co-presenting with Miles Hassell, MD. Join us for a lively discussion covering the medical evidence about nutrition supplements.

Register at: www.providence.org/classes

May 4th 2010 (Tuesday) 12-1:30 PM - NEXT Steps Against Breast Cancer (Free)

St. Vincent Medical Center Cancer Center Conference Room 23 (East Pavilion)

Register at: www.providence.org/classes

Upcoming Class

April 2010 - Mindfulness-Based Stress Reduction (MBSR)

8 week class begins April 2010

Free orientation classes are April 13 and April 20.

Register for the free orientation at:

www.providence.org/classes

* You must attend one of the orientations and complete an application to attend the class.

* Class dates are: Tuesdays (4/27-6/15) 6-8:30 PM, PLUS Saturday 6/5, 9 AM - 4 PM

* Class tuition is \$325, \$300 if paid in full by the early registration deadline (April 22nd).

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