Fighting Disease With a Fork: Nutrition Interventions for Fighting Chronic Disease

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What Matters? What Gets in the Way?

- **Issues that Impact Mortality**
  - Review nutrition's relationship to the leading causes of death
- **Common questions**
  - GI issues
  - Fatigue
  - Supplementation
- **Prioritization;** For you, for the patient

  Review basics, simplify, apply with case studies

Recognizing Barriers for the PCP

- **Time**
  - Competing priorities in short visits
- **Knowledge**
  - Med School curriculums are packed
- **Personal Interest**
- **Personal Skepticism**
- **Professional Frustration**
  - Lack of success with interventions

Nutrition Journalism for Providers

- **Who/What?** Screen to identify priorities
  - Give them 1 – 2 written goals
    - One diet: i.e. plate model; one exercise
- **Why?** If you don't who will? Healthstores?
  - Avoid compartmentalization of care
  - Add perceived value/holistic practice
- **How?** Keep it positive and simple
  - Understanding → motivation and compliance

Barriers to Patient Compliance

- **Knowledge Deficits**
  - Nutrition
  - Cooking/skills
  - Choices in eating out
- **Lack of Motivation**
  - Benefits versus perceived cost
- **Resources**
  - Financial, physical, transportation, social

Which comes first?

Nutrition Journalism for Patients

- **Why** should it be a priority? WIIFM
  - Must understand disease consequences
    - In language they can relate to
  - Your opinion matters to most patients
- **What gets in their way?** ID Barriers
  - You provide some basic "How to" that helps them work around these problems
  - Refer to available resources

Move them out of "victim" mentality

Match Responsibility to Where the Control Resides

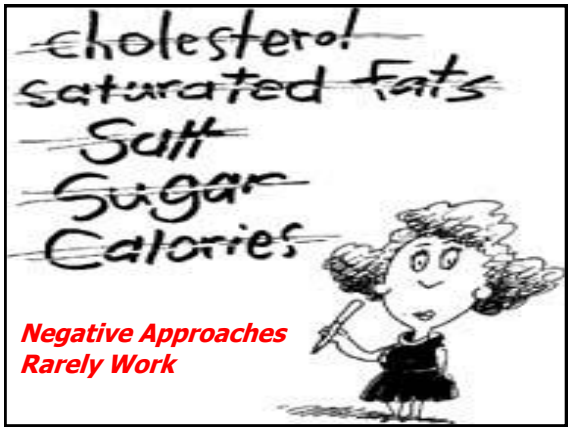
Never get into battles over eating, sleeping, or peeing; Because you'll lose

Screening + Listening = Prevention!

Early intervention can slow progression

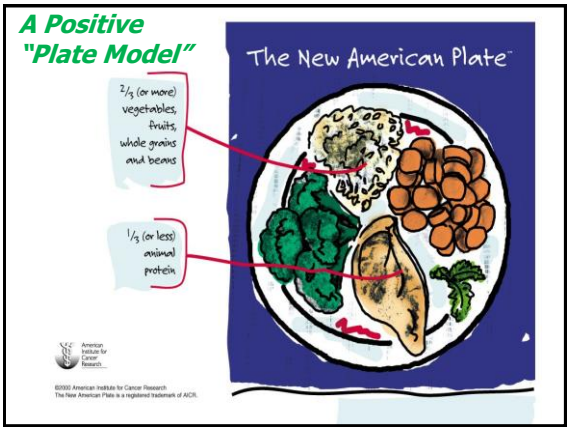
- Diabetes, identify at impaired glucose tolerance
  - FBS > 105; Triglycerides >100 - 150
- Weight gain over a year, waist measurements
- Monitor cardiac disease labs/risk factors
- Intervene with weight loss, eating problems

Information is power. It allows informed choices. Waiting rarely solves anything!



Negative Approaches Rarely Work

A Positive "Plate Model"



Leading Causes of Death, CDC

	Men		Women
1.	Heart Disease/Stroke	1.	Heart Disease/Stroke
2.	Cancer	2.	Cancer
3.	Accidents	3.	Respiratory Disease
4.	Respiratory Disease	4.	Alzheimers
5.	Diabetes	5.	Diabetes

Evaluate diet, supplement and medicine recommendations using Heart Health criteria

Nutrition Issues for PCP's

- **Vascular Issues/Mortality**
  - Heart, Stroke, Diabetes; top for 108/109 years
- **Adequacy of Dietary Intake**
  - Weight management
  - Failure to Thrive
- **GI Health**
  - Constipation/Diarrhea/IBS
- **Questions/Complaints:**
  - Fatigue, Supplements

Nutrition and Health

What we include is

> than what we exclude

- **Exercise and reach ideal weight**
  - Affects osteoporosis, fatigue, blood sugar control, immune function, estrogen metabolism, depression
- **Adopt a plant-based diet (Plate Model)**
  - Antioxidant, estrogen metabolism, detoxification
  - Calorically appropriate
- **Make good choices in Fats, Carbohydrates**
  - Limits inflammation, growth signals
  - Affects receptors, thus cell communication
  - Supports immune function, favorable lipid profiles

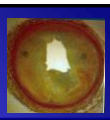
What Makes Nutrition Studies "Soft" (and Confusing)?

- **We are all eating**
  - No +/- to exposure; "Shades of gray"
- **We are all unique! Genetics Identify subgroups that benefit**

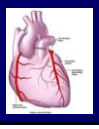
Key, et al; Lancet 360 (9): 861-68; 2002

- **Lifestyle factors often overlap**
- **Human studies are expensive**
  - **And complicated by human subjects**

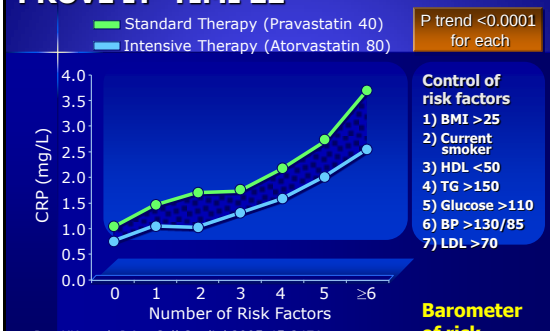
Review the BASICS: Diabetes/HTN → CAD



- **Vessel Damage/Inflammation → Cholesterol deposits**
  - **Narrowing, restricts blood flow**
  - **WIFFM:** Peripheral neuropathy, ED
- **Clotting is the "terminal event" in most heart attacks**
  - **Completes blockage → impairs blood flow downstream, damaging the tissue**



CRP/Inflammation vs Risk Factors PROVE IT–TIMI 22



Ray KK et al. J Am Coll Cardiol 2005;45:247A.

Barometer of risk

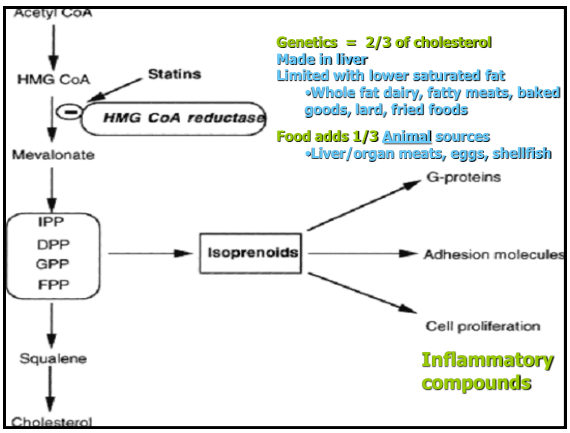
Inflammation and CVD

Associated with:

Obesity*, *7 – 10% loss lowers markers*
Gingivitis, smoking, diabetes
Inflammatory diseases

- **More angiogenesis/new blood supply**
  - Immature vessels → leaky cap/ruptures
- **Increases retention of macrophages**

CRP is a marker for CVD, DM, Cancer risk
7 -10% weight loss, reduces inflammation



Statin Drugs

- **Effective, MORE/LOWER is better**
  - ↓ cardiac mortality 22% (97 trials)
  - Overall survival 94% versus 81% over 9 years
- Intensive therapy beat moderation
  - ↓ LDL to 77 → 22% ↓ cardiac issues in at risk patients
- **Drug interactions:**
  - Grapefruit/POM juice; may increase levels/toxicities
  - Separate from magnesium, antacids by 2 hours
- **Liver enzyme changes; Muscle aches**
  - Red Yeast Rice is a natural statin; must monitor LFTs
  - CoQ10 may limit muscle aches (60 – 90 mg)

Mediterranean Diet

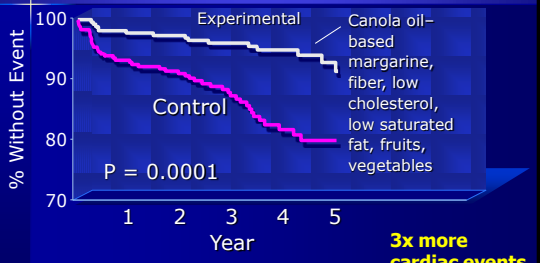
- Plant based, fruit as dessert
- Cheese/yogurt; Wine daily
- Fish/poultry, 0 – 4 eggs, low red meat
- Olive oil, but not unlimited! *120 calories/T*

Weekly use of recommended foods→

- 21% ↓ mortality, 22% ↓ CVD, 17% ↓ cancer
- Even more benefit for smokers: ↓ 45%

Food has an impact beyond what we can quantify

Lyon Diet Heart Study: *Cumulative Survival without Cardiac Death and Nonfatal MI*



3x more cardiac events in controls

de Lorgeril M, et al. Circulation. 1999;99:779-785.

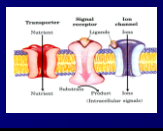
Fats Affect Cell Communication

Saturated and Trans fats make more "rigid" walls, impacting receptors

- Estrogen is held longer
- Insulin doesn't bind well = Insulin resistance

- Increases cardiac, diabetes, cancer risks

Substitute plant proteins for some animal protein in the diet



Essential Fatty Acid Families

lipidsonline.org

ω-6 family

C18:2 ω-6 Linoleic

- Corn Oil
- Safflower Oil
- Sunflower Oil

C20:4 ω-6 Arachidonic

More thrombotic and inflammatory metabolites

ω-3 family

C18:3 ω-3 α-Linolenic

- Flaxseed Oil
- Canola Oil
- Soybean Oil

C20:5 ω-3 Eicosapentaenoic (EPA)

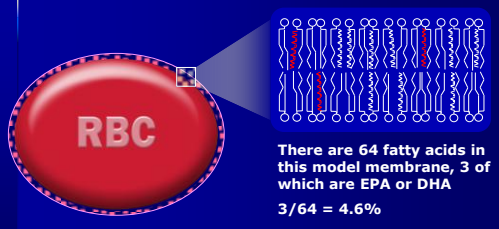
C22:6 ω-3 Docosahexaenoic (DHA)

- Oily Fish
- Fish Oil Capsules

Less thrombotic and inflammatory metabolites

Omega-3 Index

A measure of the amount of EPA+DHA in red blood cell membranes expressed as the percent of total fatty acids



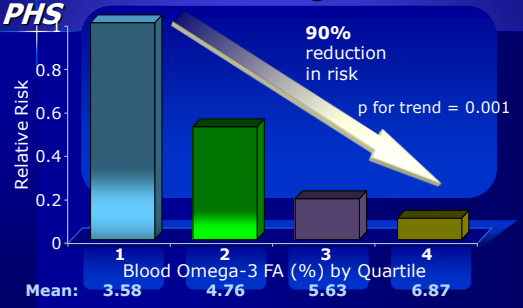
There are 64 fatty acids in this model membrane, 3 of which are EPA or DHA

3/64 = 4.6%

Omega-3 Index = 4.6%

Harris WS et al. Prev Med 2004;39:212-220.

Relative Risk of Sudden Cardiac Death and Blood Omega-3 Levels: *PHS*



Albert CM et al. N Engl J Med 2002:346:1113-1118.

Benefits of EPA + DHA

Reduced mortality 32% (97 trials)

Arch Int Med 165 (7) 725 – 30, 2005

- ↓ Triglyceride levels (at 3,000 mg/day)
- Inhibits clotting
  - Take care if low platelets or bruising easily
- Inhibits inflammatory hormones
  - Limits pain; ? RA, auto-immune disease
- ↓ Arrhythmias
- Improved insulin sensitivity

1800 mg + statin = 19% fewer events than statin alone

AHA Recommendations for Omega-3 FA Intake

Population	Recommendation
Patients without documented CHD	Eat a variety of (preferably oily) fish at least twice a week. Include oils and foods rich in α-linolenic acid (flaxseed, canola, and soybean oils; flaxseeds; and walnuts)
Patients with documented CHD	Consume ~1 g of EPA+DHA per day, preferably from oily fish (2+ oz/day); EPA+DHA supplements, per MD.
Patients needing triglyceride lowering	2–4 grams of EPA+DHA per day provided as capsules under a physician's care

Kris-Etherton PM et al. Circulation 2002;106:2747-2757.

Ways to Get 1 g/d EPA+DHA

- **Fish** 2–3 oz salmon, sardines, mackerel per day
- **Dietary Supplements**
  - Pills: 300 mg @ (x3); 500–700 mg @ (x2)
  - Fish oil: <1 teaspoon/day (~1750mg/teaspoon)
  - Gels: Coromega, etc., online at vitacost.com
- **Prescription**
  - Omega-3 acid ethyl esters (Lovasa) 1 g/capsule
- **Cod Liver Oil** ***(not recommended)***
  - 1 tsp (RDA for vitamin D; but 2× RDA for vitamin A)

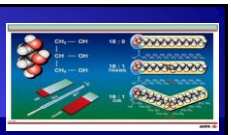
Substitute Monounsaturated Fats

Cook with olive oil, canola oil

- Lowers TC, LDL without affecting HDL
  - Other PUFA lower both LDL and HDL
- Choose extra virgin olive oil
  - Anti-oxidant content protects LDL from oxidation

Nuts, avocado, olives, seeds

Limit Saturated and Trans Fats



Saturated fat = High LDL

Animal based fats: meats, or in baked goods

- Limit animal based proteins to ¼ plate
- Bake, broil, trim fats; avoid deep fried foods
- Substituting PUFA ~more important than total SFA

Trans fats increase inflammation

↓HDL and ↑↑ Cholesterol, CRP, Triglycerides

- Used for shelf life, function. Average = 6 g; goal = 0 – 2 g
  - French fries: 5 – 10 g/serving

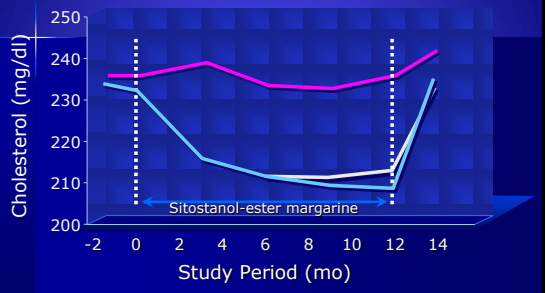
Plant Stanols, Sterols

Block cholesterol absorption in the GI tract
- 2 – 3 g of stanol esters/d → ***10% ↓ LDL***
- ***Different mechanism, adds to statins***

Sources
- 2 T Benecol; 4T Smart Balance margarine
- 4 Cholest-Off caplets
- 8 oz Minute Maid Heartwise juice
- 3 – 4 Benecol Smart Chews www.benecolUSA.com

Used with Omega 3: ↑ **HDL, ↓ TG, LDL**

Use a Stanol Ester Margarine



Miettinen TA, et al. N Engl J Med. 1995;333:1308-1312.

Add Soluble Fiber

Binds cholesterol for excretion
– 5 – 10 g a day reduced LDL 5%

Sources:
- Beans/lentils, 1. 5 – 3.5 g in ½ cup; Oats
- Sweet potatoes, parsnips, greens, carrots
- Citrus, pears, prunes, apricots, figs
- Flaxseeds, sunflower seeds
- Brussel Sprouts, broccoli, avocado
- Benefiber, Metamucil, etc.

Other Foods of Benefit

Soy, though required 25 grams or more
- Improved HDL; ↓ TC, LDL and TG
- Tofu, tempeh, edamame, soy milk, soy "meats", soy protein powders

www.soyfoods.org (or.com)

Garlic ↓ total cholesterol and TG
- Inhibits clotting, relax blood vessels
- 1 – 2 raw or lightly cooked cloves/day

Tea

4 studies show cardiac benefits
- Half the risk of first MI
- 2 – 3 cups of tea/day → 44% ↓ death rate
- 2 – 3 cups a week → 28% ↓ death rate

Green ~ > Black
- Increased HDL
- Antioxidant, limits oxidation of LDL
- Improved relaxation of vessels, less clotting

Vitamin D

Screening finds 1/3 deficient, 1/3 low

Low Vitamin D levels (25-OH Vitamin D)
- Twice the MI's at levels <15 vs > 30
- 3x risk of high blood pressure

Sufficient Vitamin D levels
- ↓Diabetes, triglycerides, hypertension

Rec: 1,000 IU per day; blood level= 35+
- ↓ cardiac disease by a half; affects muscle
- ↓ cancer risk by 25%
- Obvious bone benefits, limited falls

Vitamin E?

Mixed Data

- Nurses Health Study: ↓ 41%, 200 IU
- Physicians Health Study: ↓ 37%, 400 IU
  - Antioxidant, fewer clots, ↓ inflammation
- May benefit in Alzheimer's, eye health, fibrocystic breasts, arthritis, immune function

HOPE TOO → increased risk of heart failure
- Participants on average of 5 meds, elderly

Reinforced themes!

Adequacy versus excess

Natural form: mixed tocopherols best

Bottom Line: Plate Model +Details

- **Mono, O- 3's; less 0- 6, saturated/trans**
  - Use low fat dairy (1%), 95% fat free lunchmeat
  - Choose soft tub spreads; low fat dressings
- **⇑Soluble fiber, fruit/veg, nuts, fish**
- Consider soy, garlic, tea
- Cut back on food and drinks with sugar, salt
- Consider vitamin D, fish oil

Plant-based is better than Low-Fat alone

Watch the Salt (Sodium)

50% with hypertension are salt-sensitive

- Limit salt/sodium for BP > 130/80
  - Avoid adding salt; substitute Mrs. Dash, herbs
  - 1000 mg less sodium→ 25% fewer CHD events

BMJ 334: 3859, 85; 2007

- Control blood sugars/insulin levels

If man has touched it, READ THE LABEL!

- Processed meats, soups, boxed starches
- Salted chips, nuts, crackers, etc.

Sample Nutrition Facts Label

1. Check "Serving Size"

2. Calories/serving

3-6. Check nutrients

Goal: Check 2 labels a week

http://www.cfsan.fda.gov/~dms/foodlab.html

Making Recipe Changes

- **Make one change at a time**
- Take it slowly, let your taste buds adjust
- **Don't tell anyone, *until they've eaten***
- Include more fruits/vegetables and sear meats, then slow cook for flavor = 5th taste: umami
- **Include spices (phytochemicals!)**
  - Replaces flavor, limits salt/sodium

Cook in batches when time allows

Simplifying Diabetes/IR

Type 1 DM
- Lack of insulin
- Damage to the pancreas

Type 2 DM
- Insulin Resistance
- Making enough but it is not working well
  - Problems connecting to the "phone booth" on the cell wall

High Sugars = High HgA1C = Blood vessel damage and side effects

Simplifying a Diabetic Diet

Plate Model "flies under the radar"
- Limits total carbs at one time

Spread Carbs through the day
- Avoids overwhelming receptors
  - A gentle rain versus a storm
- Calories/10 = g carb allowed per day

Exercise
- Helps sugars clear without insulin; Burn calories

Impact of Excess Carbohydrate

- **Worsens IR, raising insulin levels *(FBS > 100-105; Triglycerides > 150)***
  - → Higher Triglycerides, altered lipid profiles
  - → Inflammation
  - → Triggers anabolic enzymes → weight gain
  - → Kidney retains sodium → hypertension
- **Exacerbates overt diabetes**
- **Promotes weight gain;** excess calories
- Impairs immune function

Bottom Line . . . Avoiding High Insulin Levels

- **Exercise, *be physically active***
- **Maintain a healthy weight**
- **Eat small, frequent meals**
  - Stabilizes blood sugar, ↓ fatigue, controls hunger
- **Eat it raw, eat it whole for a lower GI**
- **Avoid "Naked Carbs"** to slow stomach emptying
  - Add protein, healthy fats, fiber, acid/vinegar
- **Mix higher GI foods with lower GI**
  - www.mendosa.com Breads, grains, cereals, potatoes

Health Costs of Obesity

Over 60% of the population is overweight or obese, increasing their risk of chronic illness

- Type 2 diabetes
- Coronary artery disease
- Stroke
- Dyslipidemia
- Hypertension
- Cancer of the breast, colon, prostate and endometrium
- Erectile Dysfunction
- Asthma and other respiratory diseases
- Sleep apnea
- Osteoarthritis
- Gastric esophageal reflux
- Polycystic ovarian syndrome
- Gall bladder, liver and kidney disease

Financial Costs of Obesity to the U.S.

Estimated at $147 billion in total costs

Obese adults have annual health care costs 36-39% higher than normal weight persons.

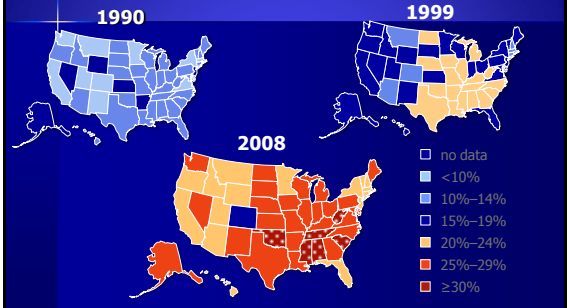
– They spend 77% more on medications

More health care costs are associated with obesity than any other medical condition, including smoking.

CDC Weight of the Nation Conference press release. Tuesday, July 28, 2009 47

Obesity Trends* Among U.S. Adults

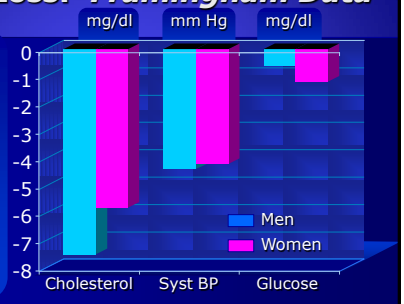
(*BMI ≥30, or about 30 lbs. overweight at 5'4")



* BRFSS: Behavioral Risk Factor Surveillance System, www.cdc.gov/brfss/

Metabolic Response to 10-lb Weight Loss: *Framingham Data*

Small changes can add up to significant changes in long-term risk



Higgins M, et al. Acta Med Scand. 1988;723(Suppl):23-36.

Monitoring Weight/Status

- Weight change over time
  Weigh at standard intervals
  - Weekly to monthly. NOT DAILY
- BMI can be misleading in some
- **Waist Circumference Works**
  - Reflects VAT; differentiates risk
    - CAD, diabetes, ED
  - Males: < 36; overweight at 38, obese 40
  - Women: < 32.5/35/37

Weight Loss Tips
Successful Loser Registry

- **Monitor! *Weight and diet***
  - **Journal regularly to "play detective"**
- **Exercise, often**
  - **Journal this too!**
- **Never skip meals**
  - Small, frequent meals with protein control appetite
- **Make small, permanent diet changes**
  - **Portion control = Plate model**

Balance is Key…

100 *extra* calories per day

10 pound weight gain per year

Little changes count
Pick the changes that are easiest for you

Watch Portion Sizes

JOIN THE SMALL PLATE MOVEMENT CHALLENGE

Eat off of a 10-inch plate for your largest meal for one month.

1985

2005

BAGEL

20 Years Ago

140 calories
3-inch diameter

Today

350 calories
6-inch diameter

Calorie Difference: 210 calories

Increased bagel size: 210 more calories

Raking leaves for 50 minutes burns approximately 210 calories*

*Based on 130-pound person

FRENCH FRIES

20 Years Ago	Today
	
210 calories 2.4 ounces	610 calories 6.9 ounces

Calorie difference: 400 calories

COFFEE

20 Years Ago	Today
Coffee (with whole milk and sugar)	Mocha Coffee (with steamed whole milk and mocha syrup)
	
45 calories 8 ounces	350 calories 16 ounces

Calorie difference: 305 calories

Sample Nutrition Facts Label

1. Check "Serving Size"

2. Calories/serving

3-6. Check nutrients

Goal: Check 2 labels a week

http://www.cfsan.fda.gov/~dms/foodlab.html

How many calories are in 4 T of this salad dressing?

Nutrition Facts

Serving Size: 2 Tbsp. (30 g)

Servings Per Container: 8

Amount Per Serving

Calories: 90 **Calories from Fat:** 80

ANSWER: 180; 90 calories is for 2 Tbsp.

Changing the Menu

- Roast Beef on a sub roll
- Potato chips
- Cookies

890 calories
35 g fat
13 g saturated fat
5 g fiber

- Roast Beef on whole wheat with romaine lettuce and tomato
- Three bean salad
- Peach

367 calories
9 g fat
2 g saturated fat
10 grams of fiber

What's On Your Plate?

1355 vs. 475

16 oz rib eye steak
12 oz baked potato with:
2 T of butter
4 T of sour cream
½ cup of squash with butter

6 oz grilled chicken breast
1½ c greens
½ c carrots & green beans
½ c brown rice

How Can We Eat Better?

- **Avoid overeating "problem foods"**
  - Buy smaller packages
  - Measure out servings, in smaller bowls
  - Put a barrier in the way of getting to them
  - Repackage them, remove from sight
- **Eating more of "good foods"**
  - Place them in clear and near proximity
  - Increase the variety and colors
  - Buy them in larger packages

Mindful Eating Increases Awareness

- **Slow down!** After ~ 4 - 5 bites, we lose taste
  - Study: 646 calories/9minutes; 579 in 29 minutes
- **Listen to your body (and journal)**
  - Keep hunger on a scale between 3 – 7
  - Small, frequent meals/snacks controls appetite
- **Avoid fluids with calories!**
  - **Adults don't compensate**
- **Eat out less often**
  - 2+ times a week → 10# gain

www.tcme.org

Realistic Expectations *Praise all progress!*

- **Healthy eating, preventing weight gain**
  No further gain is the first step!
- **Modest loss is an attainable goal**
  - → 10% reduced risk of complications
- **Greater weight loss**
  - → Greater risk factor reduction
- **Weight normalization**

A 10% weight loss reduces health risks Should be the initial goal

Medication Management?

- **Orlistat/Xenical** *(OTC at ½ dose: Alli, $2/day)*
  - Binds lipase, 1/3 less fat absorption (150+ cal)
    - Like antibuse for control of fat intake
  - Malabsorption with high fat → gas/bloating/diarrhea
    - Symptoms do lessen over time
  - Take MVI 1 hour before or 2 hours after a dose
- **Sibutramine/Meridia**
  - Serotonin/norepinephrin reuptake inhibitor
    - Increases satiety; ~300 fewer calories/day
  - ***Pulled by FDA this month due to cardiac SE***
- ***New?*** 2 rejected already in 2010

Snooze to Lose

Average 9→7 hours

40% sleep deprived

- **More stress hormones**
  - Increases insulin release, impairs glucose tolerance
- **15% less leptin, more ghrelin,** → increased appetite with 5 versus 8 hours sleep
- **Vulnerable** to empty calorie energy boosts
- **Decreased motivation** to stay with goals
- **Increased temptation** to skip exercise
  - Decreases quality of sleep
- **Impacts health risk:** Hypertension, Diabetes

Vitamin "Z" helps resist weight gain

Vitamin EX (You'd buy it!)
30 – 60 minutes most days

- Controls weight
- ↓ blood pressure, stress, Insulin resistance , fatigue
- Increases HDL, ↓ LDL

Exercise can be broken into 10 minute bouts

Pedometers offer great feedback!

(www.digiwalker.com)

Build in Accountability!
Schedule, Friends, Trainers

"I was going to wake up early to go jogging, but my toes voted against me 10 to 1."

If you are:

Inactive	Mildly Active	Active
Join a gym or recruit an exercise partner	Increase the frequency of your exercise sessions	Exercise at least 3 times a week—30 minutes a day
Walk on your lunch hour or coffee break	Join a gym or recruit an exercise partner	Choose activities that use the large muscle groups, such as swimming and biking
Take the stairs whenever possible	Explore new sports that interest you	Vary your routine to avoid burnout
Take the dog for an extra walk or two	Create an exercise schedule and stick to it	Keep up the good work

Eating well is not about deciding which food group to eliminate,

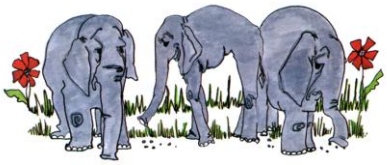
it is about making good choices in all of them

Watch Your Weight,

Exercise Regularly,

Eat a Healthy Diet

The Flip Side:
When Eating is Difficult



So you've been losing weight and you're just not interested in eating...

Loss of > 2#/week → Malnutrition

Safe Weight Loss = 1#/week

Diet modifications for chronic disease

Adequate protein

Most common deficiency

Adequate calories and fluid

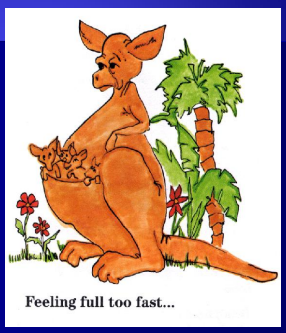
Most basic need is to fuel metabolism

Barriers in FTT

- **I'm Not Hungry**
- **Tastes Terrible**
- **I get full quickly**

+/- Nausea, pain, fatigue, constipation, desired weight loss…..

No brownie points for martyrdom



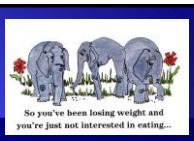
Patients Need Strategies

Eating becomes "work" requiring new ways to work around these problems!

Management strategies include:

- Adjusting expectations ***Medication analogy***
- Small, frequent meals ***Preschool schedule***
- Increased calorie density ***Fluids with calories***
- ***Liberalize their diet where possible***

Appetite = Reminder



- **Set up a schedule!** Eat frequently.
- **Post a list:** "Things I Tolerate" on the fridge
  - Lower expectations
- **Start "healthy", but** use calorie dense prn
  - With small volumes, nothing is problematic
- Accessible snacks, meals
- Variety is not important, on "bad days"

Maintain the schedule!
Vary choices depending on tolerance

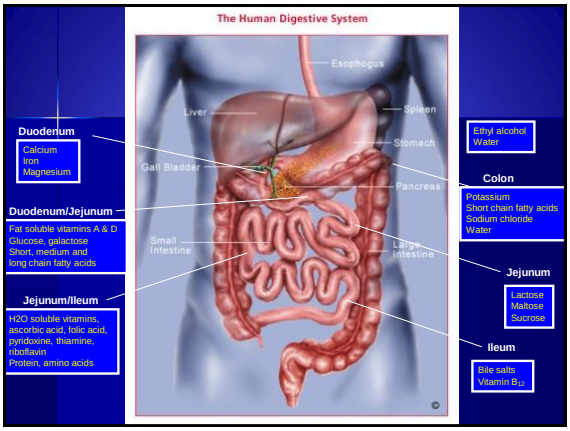
Medications for Appetite

- **Corticosteroids**
  - But lots of side effects!
- **Megace**, synthetic progestational agent
  - ES version 625 mg, 5cc; better absorbed nonfed
  - Three week trial
  - Expensive if not covered, >$400/month for ES
- **Marinol**, synthetic cannabinoid
  - Nausea, works within ½ hour; lasts 2 – 4 hours
    - Even better when combined with Compazine
  - Appetite stimulus may continue for 24 hours
    - 2.5 mg at bedtime; then add at lunch; try 5 mg

Role of the Support Team

- **Help develop the schedule and list** of "tolerated foods"
- **Shop** *guided by the list*
- **Remind** the patient of meal/snack time
  - *Let them choose from the list*
- **Cook and serve** the food
- ***Done!***

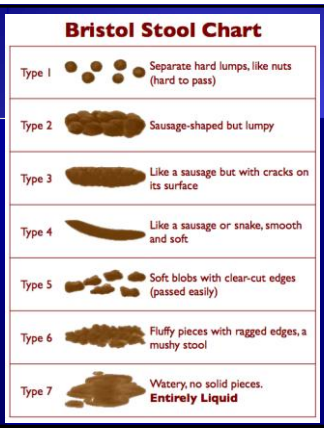
Avoid Control Battles



Irritable Bowel/IBS
Over-reactive GI tract

- **Small, frequent meals**; limit overreaction
- **Soluble fiber, probiotics** may help
  - Limit insoluble fiber: raw/skins/salad
- Hydration: room temp, limit caffeine, alcohol
  - Peppermint tea helps if there is no GERD
  - Ginger and chamomile
- Monitor sugar alcohols, fructose intolerance
- **Stress management**; exercise/yoga/therapy

www.helpforibs.org; www.ibsfree.net



Reference:
Lewis SJ, Heaton KW. Stool form scale as a useful guide to intestinal transit time. *Scand J Gastroenterology* 32(9): 920–924, 1997

Fiber and GI Integrity

- **Feeds "good bacteria" → GI health**
  - Making short chain fatty acids used for energy by cells in the GI tract
- **Goal 25 - 35 g/day = Plate, not pills**
  - High fiber cereal: Fiber One, Kashi, Puffins
  - Fruits/Vegetables = 2 –3 g/serving
  - Dried Beans = 6 g/serving
  - Whole grains = 2 – 3 g/serving

Start slow or plan on staying home!

Constipation
Fluids, Frequency, Fiber, Meds

- **Eat often** to increase GI contractions
- **Fluids before fiber**; All fluids count
- **Fiber holds fluid in the stool**
  - Cereals, bran muffins, fruits, vegetables, beans
  - Try mixing a favorite cereal with a high fiber one
- **Walk ,** exercise strengthens contractions
- **Honor the urge!** Develop a daily pattern
  - A cup of hot beverage can help; coffee stimulates
- **Add medications preventatively**
  - Senna, Stool Softeners, Benefiber/Metamucil

Managing Diarrhea

- **Meds: Anti-diarrheals to slow motility**
- **Replace losses: fluid and electrolytes**
  - Fluid: 8 to 10 cups of liquids a day
  - K: banana, potatoes, tomatoes, avocado, melon, citrus
  - Na: Sports drinks, broth, saltines, pretzels
- **Decrease demands on the GI tract**
  - Eat small, frequent meals and snacks (gentle rain…)
  - Limit GI irritants: magnesium, coffee, extremes in temperature (hot/cold)

Beyond BRAT
with timelines!

- **Choose low fiber/low residue foods**
  - White rice (congee), peeled potatoes, cream of wheat, select cooked vegetables, canned fruits, bananas
- **Avoid high fiber, gas-forming foods**
- **Limit lactose**
  - Yogurt, lactose free milk allowed if tolerated
- **Limit concentrated sweets, sugar alcohols**
  - Osmotic pull: s/p esophagectomy or gastrectomy
  - Sugar free gums and other "diet" foods

Dehydration Makes Everything Worse

- Fatigue
- Pain
- Nausea

Cells are made primarily of fluid and lose function when turned into "raisins"

Advice to "non drinkers"

- **Mix it up!** Avoid burn out with variety
- Pace it with 2 oz at every commercial
- Eat "solid" fluids: jello, popsicles, etc.

Managing Fatigue

- **Fluids**
- **Quality sleep**
- **Routine meals/snacks with protein**
- **Exercise** to improve mood and appetite
- **Stress reduction**
- **Social outlets,** maintaining connection
- **Prioritize** efforts, let others help
- **Anemia treatment,** *if indicated*

Sleep Repairs!

Only humans limit it

- Consolidates learning/memory
- Recharges; maintains emotional balance
- Immune function maximized with rest

Maximizing Sleep

- Short naps, if at all: < 30 minutes
- Watch evening fluids/bathroom trips
- More daytime activity; less evening excitement
- Limit caffeine, increase evening carbohydrates
- Medications as needed: control pain, aid sleep

Sources of Sleep Deprivation

- **Anxiety**, decreased ability to fall asleep
- **Drugs**, alcohol or stimulant use
- **Sleep apnea** (10% women/25% men)
  - Snoring/gasping; waking unrested
- **Pain** intensity and duration
- **Menopause, hot flashes**
- **Shiftwork; altered circadian rhythm**
  - Affects melatonin and cortisol levels

Blood Sugar Fuels Cells

Low blood sugars =
Less energy to cells → Fatigue

- **Eat every 4 hours**
- **Include protein in every meal/snack**
  - 1/3 will convert to carbohydrate over two hours, stabilizing blood sugars and energy
  - Sources: meats, dairy, eggs, nuts, beans, soy

Exercise: Most effective & least used

Often eliminated when tired, yet inactivity leads to worsening fatigue

- **Helps depression;** can present as fatigue
- **Safe if not overdone!**
  - A physical therapy eval may reassure, structure
- **Mornings are often best**
  - Most energy available, less likely to "cancel"
- **Options** Remind that short bouts count
  - Walking, stationary bike; anything they enjoy
  - Water aerobics*, swimming limit stress to joints

Targets for Managing Problems

- **Open Communication** — Identify issues early
- **Reasonable Goals** — Normalize; KISS
- **Prompt Action** — Waiting rarely solves anything
- **Continually Re-evaluate** — *Ask for Feedback!* Let patients know you have other options

Complementary Therapies Why Should We Care?

CAM "those therapies which I have had to pay for out-of –pocket and never felt comfortable discussing with my physicians"

- **CAM use is highest in chronic diseases; 42%**
  - 2009 spending: $22B vitamins/herbs
- **May Delay Conventional Therapy**
  - Fewer than 35% discuss it with their physician
- **Drug Interactions:**
  - **Between prescriptions and supplements**
  - Resource: Natural Medicine Database

"Be open-minded, *but not so open-minded that your brains fall out"* ***Groucho Marx***

"A state of doubt is unpleasant, but a state of certainty is ridiculous" **Voltaire**

Supplements Can Not Replace Food

- **Nutrients are better absorbed from food**
- **One serving of vegetables contains over 100 phytochemicals**
- **Calcium and Vitamin D may need to be supplemented depending on medical and diet history**

Supplement (add to) diet!

Juice of the Year: Acai
POM, Mangosteen, Goji, Noni

Not harmful, with normal renal function

- **Expensive**
  - Dose is 2 oz; most take more
- **Calorie source**: 150/8 oz
  - Obesity risk exceeds benefits
  - Moving from natural → processed
- **Multi-level marketing**
  - Approached by family/friend; $ motivation

Juice Plus raises similar concerns

Supplements/Herbs
Less may be More!

- **Omega 3/fish oil for inflammation/cardiac**

Multivitamin? Maybe Adequacy vs. Excess

Pick lowest dose, business side is making up the difference

- Folic acid > 400 mcg
  - Government fortification to limit neural tube defects → adequacy; excess associated with increased cancer/recurrence
- Beta carotene: Studies in smokers stopped early
- Selenium/SELECT trial negative
  - Average 1990: 114, by 2002: 135. Added to MVI, bars, etc.
- Iron: Unless premenopausal, document iron deficiency
  - Increases infection risk, hemachromatosis, free radicals

Supplements for Bone Health/Colon Cancer

- **D** (1000+ IU), check baseline levels
- **Calcium**: Total 12-1500, including diet
  - BMJ: increased calcification in those with adequate diet but supplemented; review with a dietitian
  - As citrate with kidney stones, constipation, PPI
- **Magnesium**: 250 mg +, except renal
  - Also limits constipation

Bone study in elderly → ↓ cancers

- 3% compared to 8% over 4 years

Vitamin D in Chronic Disease

Hormone, impacts 200 genes
Historically at higher levels/sun exposure

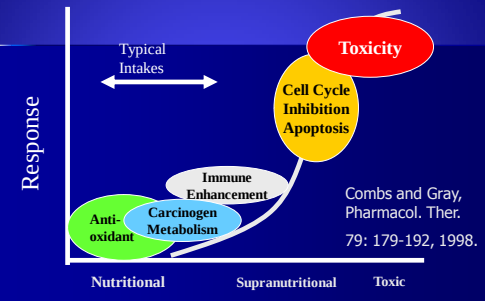
- Genes have not kept pace with rapid changes: Industrialization, sunscreen

Check levels; goal of ~ 40- 50; < 80

- 1000 IU x 3 months → 10 point increase in D
- 1 – 2, 000 typically maintains
  - *= 5 – 10" sun in young*
  - Higher needs in older, African Americans, Obese

Benefits: autoimmune disease, immune function, MS, decreasing falls/absorbing calcium

The Dose Makes the Poison



Combs and Gray, Pharmacol. Ther. 79: 179-192, 1998.

Believing if a little is good, then a whole lot is better, may prove the association between judgment and natural selection

Nutrition Advice

- **No licensure in Colorado**
  - RD = college degree (BS/MS) + internship
  - Others ??? Many credible, but some mail order degrees
  - Check training/experience with the disease/condition
- **Practice styles, philosophies vary**
- **Costs: $80 - $100 per visit**
  - Medicare/insurance for Diabetes, renal
  - Policies vary
  - Refer, don't decide for patients!
    - Prioritizing supplements alone may save them money

PCP's Role

- **Identify the problems, early**
  - Know the warning signs, "red flags"
- **Begin, then refer**
  - Your time is limited
  - Find someone you trust to refer to
- **Validate the importance with your patients**
  - Review the risks/benefits
  - Your interest and opinion really matter

Set Reasonable Goals

2 Changes at a time
WRITE IT DOWN; Prescribe

- **Exercise;** best included in daily activities
  - Start slow, use diversion/music
  - Mix it up, choose things you like!
  - Find a buddy, schedule/reschedule
- **Eat Healthy; avoid "diets"**
  - Plate model, increase variety/color
  - Listen to your body/satiety
- **Stay Positive/Focused**
  - Sleep well
  - Eat consciously! Journaling doubles weight loss

What's the Bottom Line?

- **2/3 of the plate should be plant based**
  - *50%* vegetables, legumes
  - 5 – 7 servings of cruciferous vegetables/week
- **Eat small, frequent, mixed meals**
  - Less refined, processed foods
  - More fish, olive oil and healthy fats
- **Limit the "bad stuff"**
  - Saturated/trans fats; deep fried foods
  - Excess sugar and alcohol
- **Lots of fluid**
  - Water, green tea, vegetable juices, organic dairy

Bottomline . . .

- **Get regular exercise**
  - Make it a ***scheduled priority***
- **Sleep well!** Impacts insulin resistance, weight
- **Don't smoke** Dose related increased risk of death
- **Take care of your other health risks**
  - LDL < 130 (100); HDL > 40 (50, females)
  - Triglycerides < 150 (100); CRP < 3 (1)

Heart Healthy Covers All Chronic Disease!

We all have room to improve: 4% NHS, 6% PHS

Change is NEVER Easy

- **Journaling doubles success**
- **Behavior based goals work best**
- **Expect failure (and learn from it)**
  - Find what is getting in the way, then adjust!
- **Reward/reinforce any progress**

Watch Your Weight,
Exercise Regularly,
Eat a Healthy Diet

Parting Thoughts

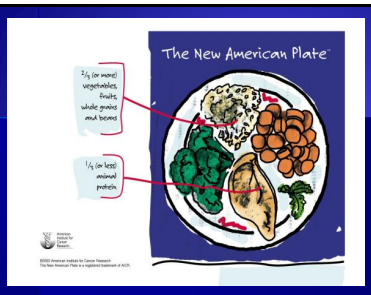
We need to act on the best available evidence rather than wait for the best possible evidence ***Jeff Koplan***

What will you work on first?

Write it down! _____

Resources

- http://hp2010.nhlbihin.net/atpiii/calculator.asp
- www.diseaseriskindex.harvard.edu
  Interactive site assesses personal risk for heart disease, stroke, diabetes, osteoporosis, cancer
- www.lipidsonline.org
- www.eatingwell.com; www.cookinglight.com
- www.aicr.org: newsletter, pamphlets, recipes
- The American Plate or AHA Cookbooks
- No BS Diet, Mark Moyad
- Eating for Lower Cholesterol, 2005
  - C. Jones, E Trujillo, www.staybalanceddiet.com



Resources: www.aicr.org

Monthly classes: 720-848-0316

Integrative Medicine: 720-848-1090

Anschutz Cancer Center: 720-848-0300

Weight Mgt
Supplements
Sugar/Tumor
Menopause
Fatigue
Detoxification
Breast Cancer Controversies
Heart Health
Immune Function

Low Income Resources

- Coming with the lecture!