

# Women's Health Issues



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# Women Differ from Men

## Women have:

- 10% higher body fat
- 30-50% less upper body strength
- Smaller hearts; lower stroke volume
- 10% less hemoglobin; less oxygen capacity/decade
- Hormonal differences
- Smaller muscle fibers
- Smaller, lighter bones

# Age Segments

- **Young Adult Women** (20-39)
- **Mid-Aged (Peri-menopausal)** (40-55)
- **Older (Post-Menopausal)** (55+)

# Healthy Living

- **Vitality**
- **Healthy Weight**
- **Healthy Cholesterol level, Healthy Heart**
- **Healthy Blood Pressure**
- **Normal Blood Sugar**
- **Strong Bones to Prevent Osteoporosis**
- **Strong Immune System**
- **Cancer Prevention**

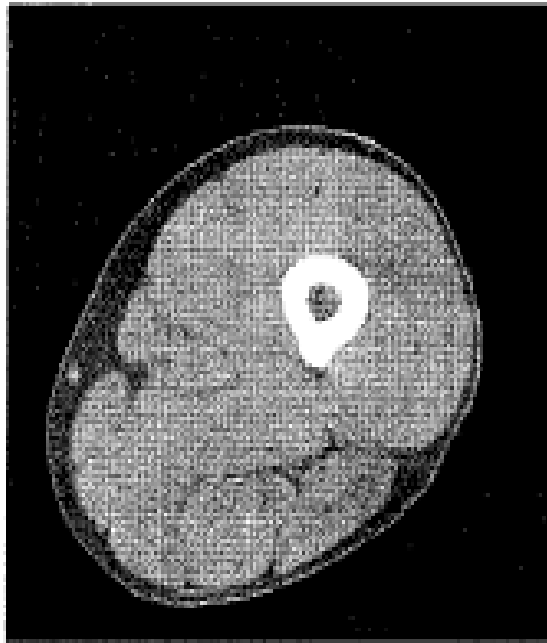
# Major Health Concerns – All Ages

- Excess weight
- Inactivity
- Lack of dairy, calcium, Vit D, Vit C, Mg, potassium, fiber, wholegrains, fruit, vegetables, zinc, iron, omega 3's, nutrient-rich foods; excess fat & sugar
- Prevention of chronic diseases

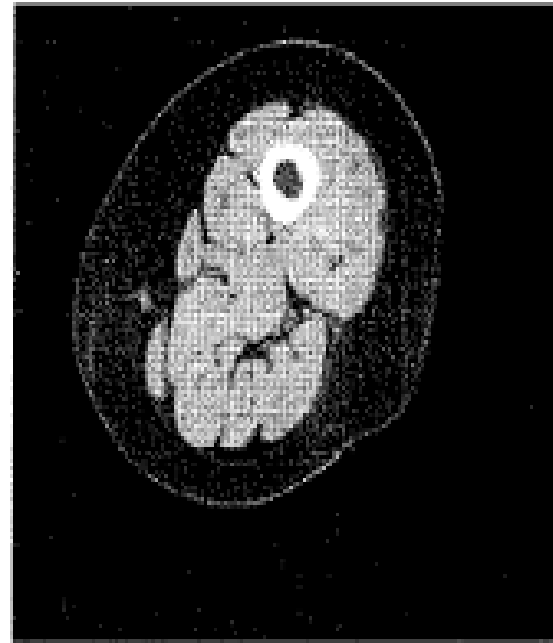
# Body Changes as we Age

- **Body Composition** - ↓ muscle, ↑ body fat  
- ↓ 0.5% muscle/yr (ages 25-40) ; ↓ 1% muscle/yr (ages 40+)
- **Redistribution of fat** – “central obesity” (↑ CHD)
- **Skeletal changes** – shorter, ↓ bone mass & strength; more risk of frailty ; ↓ bone density ( 1% a year, age 40+)
- **Muscle mass (size) ↓** & strength ↓ (sarcopenia)
- **Metabolism ↓** as muscle ↓- (↑1 lb BW/yr); bld sugar ↑
- **Hormones** – impact risk of diseases
- **Aerobic (oxygen capacity) ↓** - 65 yo has 30-40% less than young adult ; fit seniors have greater VO<sub>2</sub> max
- **Body temperature regulation ↓**
- **Immune system ↓** - zinc, iron, protein, A, C more impt.

# MRI Images of Thigh Muscle



**Young adult**



**Older adult**

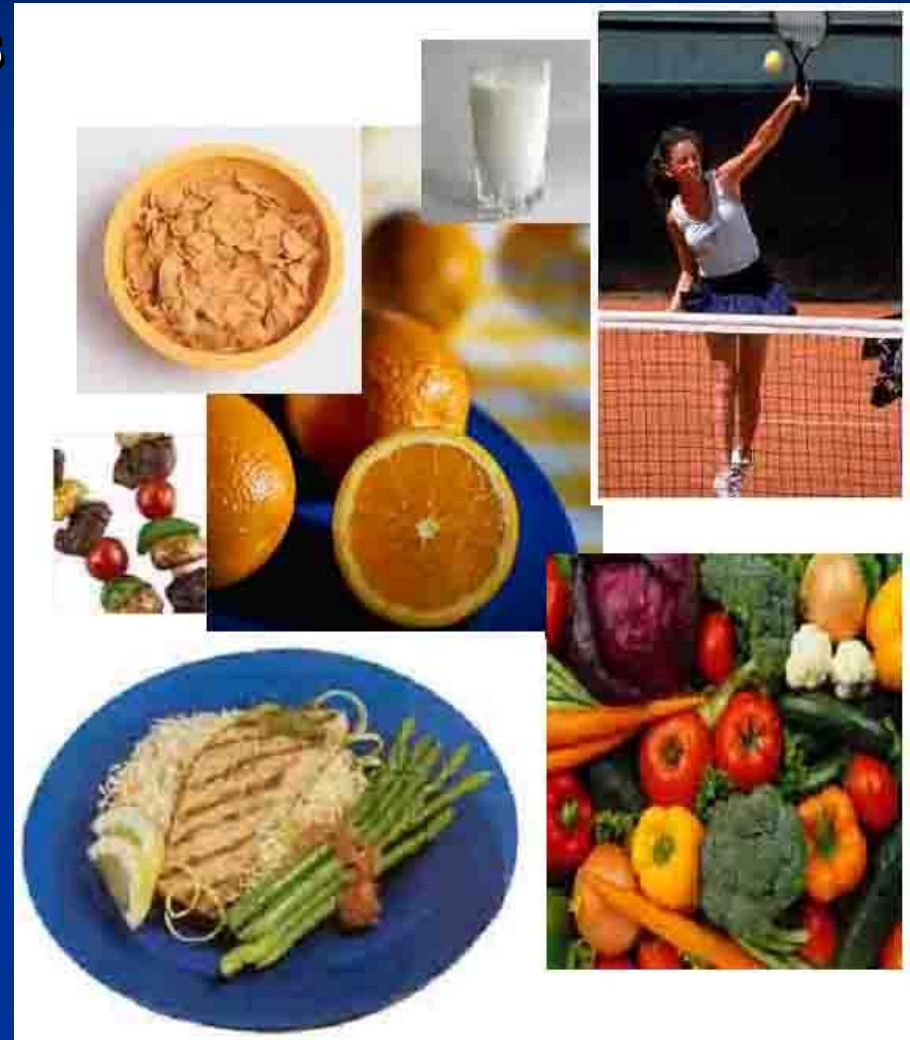
From ages 30 to 60: 20% less muscle/nerves in thigh; we move slower

**YOUNG YEARS** are  
**PRIME TIME** to Prevent  
Premature Adult Chronic  
Diseases -

**Obesity, CVD, HBP, Diabetes, Metabolic  
Syndrome, Low Bone Density**

# Young Adult Women (ages 20's – 30's)

- Lifestyle/ health habits
- Weight/prevent gain
- Exercise
- Build Bones
- Prevent CHD, HT, Diab
- Diet Quality/↓ def.
- Healthy Pregnancies



# Obesity – #1 Health Problem

- Rising, even between 1999-2004!
- 1% of population moves from OW to Obese every year!

NHANES	Obese: BMI > 30		OW: BMI 25-29.9	
	Women	Men	Teen Girls	Teen Boys
1999-2000	33.4%	27.5%	13.8%	14%
2003-2004	33.2%	31.1%	16%	18.2%

- 33% obesity in American adult population
  - 45% obesity in African-Americans
  - 37% obesity in Mexican-Americans
  - 32% obesity in Caucasian-Americans
- 1 in 20 Americans are “extremely obese” (BMI > 40)

# Be Pro-active for a Healthy Weight

- **Prevent creeping obesity** - 1-2 lbs/yr after age 25
- **Exercise** - keep metabolism up, preserve muscle/ prevent fat gain
- **WG & fiber**- for weight, girth
- **Dairy, Calcium, Vit D** - girth, bones, muscle
- **Eat nutrient-rich foods** - chol, nutrient shortfalls
- **Eat Breakfast.**



# BMI & WG, Fiber, Dairy, Breakfast

Women with lower BMI's, eat:

- Breakfast<sup>1, 2</sup> (24% skip-ages 18-24)<sup>1</sup>
- B'fast cereal<sup>2</sup> ; more fiber<sup>1</sup>, less fat all day<sup>5</sup>
- Ample dairy/Ca – have less body fat, weight, waist size<sup>3</sup>; cells burn more fat, store less fat<sup>4</sup>
- More wholegrains & fiber<sup>6</sup>

1 Song et al, JADA 2005; 105: 1378-1372

(NHANES 1999-2000 data on 4200 adults)

2 Albertson et al, Am J Clin Nutr 2002;75:363S

3 Zemel MB et al, The FASEB Journal 2000; 14:1132-38

(NHANES III data)

Davies KM et al, J Clin Endocrin & Metab 2000; 85:4635-4638

Jacqmain EL, Am J Clin Nutr 2003;77:1448-1452

4 Zemel MB et al, Am J Clin Nutr 2004; 79(suppl 5):S907-S912

5 Anderson et al, JADA 2003;103:1613-1619



# Wholegrains, Weight & Weight Gain

**NHANES 1999-2000 data (n= 2353 women):**

# WG svgs	BMI
0	29
1	27
2	27.5
3	26.8

(Good CK, Albertson AM, et al FASEB J. 2005;19A:1465)

## **Harvard Nurses Health Study (n=75,000)**

followed female middle-aged nurses followed for 12 yrs:  
those who ate more WG (3+daily) had lower weights & less  
weight gain over time

(Liu et al, Am J Clin Nutr 2003; 78:920)

# Dairy, Weight & Body Comp

## Summary of Nine Dairy Trials

- Less weight gain of women at midlife if adequate dairy (1000 mg calcium) (Heaney et al, J Am Coll Nutr 2002; 21: 1528S-155S)

## Other studies find dairy associated with:

- Less wt, less fat gain (w/age) & fat regain (after loss)
- Less middle fat – may mobilize fat
- More lean mass (w/ age and wt loss); more strength gain with weight lifting -  
whey protein, BCAA (leucine), glutathione, calcium

# Dairy Bioactive Ingredients

- **GMP** (glycomacropeptides) in cheese – may suppress appetite and reduce blood clotting
- **BCAA** (leucine, glutamine, cysteine) – spare LBM ; promote muscle growth + strength w/ wt training
- **ACE inhibitors** – dilate vessels; lower BP
- **CLA** –may lower cholesterol, plaque, body fat; may lessen cancer risk
- **Calcium** - may act alone or w/ other dairy cmpds



# Exercise Guidelines

by ACSM/ AHA 2007 – Ages 18-65

- Mod-intense activity,  
30 min, 5x/week **or**
- Vigorous-intense activity,  
20 min, 3x/week **and**
- Strength-training,  
20 min, 2-3x/wk



# Key Nutrient Concerns

- **Iron** – healthy pregnancies, prevent anemia
- **Folic Acid** – healthy pregnancies, prevent anemia, prevent heart disease, build bones
- **B vitamins-** B12, B6, B2, B3
- **Calcium & Vit D** – healthy bones, pregnancies
- **Omega 3's** – healthy pregnancies, heart health
- **Zinc** – immune system
- **Fiber/wholegrains** – weight, diet quality
- **Nutrient-rich foods** – diet quality

# Chief foods to meet Shortfalls

- **Dairy** – protein, calcium, Vit D, B vitamins, B12, potassium
- **Lean beef** – protein, iron, zinc, selenium, B-12, B-2, B-3, magnesium
- **Fish**, walnuts, canola oil, soy, flax – omega 3's
- **DHA-fortified foods** – cheese, milk, yogurt, eggs
- **Wholegrains, beans, nuts** – fiber, Mg, K, B's
- **Greens, beans** – B's, folic acid, Mg, Zn, K, fiber



# Folic Acid

- Beans
- Greens
- Grains
- OJ



400 micrograms  
daily helps prevent :

- Heart disease
- Anemia
- Osteoporosis
- Alzheimer's
- Colon cancer
- Spina Bifida

# 29 Lean Beef Cuts

Eye Round - Roast or Steak • Round Steak

Top Round - Roast or Steak • Shank Cross Cuts

Bottom Round - Roast, Steak or Western Griller

Sirloin Tip - Center Roast, Steak or Side Steak

Round Tip - Roast or Steak • Tri-Tip - Roast or Steak

Chuck Shoulder Pot Roast or Steak • Flank Steak

Shoulder Center (Ranch) Steak • Top Loin (Strip)

Shoulder - Petite Tender or Medallions • Flank Steak

Tenderloin Roast & Steak • Top Sirloin • T-Bone

Brisket - Flat Half • 95% Lean Ground Beef

# Dairy Builds Bone – build bone while you can

- **Peak bone mass - age 25-35**
- 1000-1200 mg/day Calcium ( 3 dairy/day)
- **400-800 mg Vitamin D**
- **Weight-bearing activities & weight training to build a strong bone/muscle foundation; pilates exercises**

# DASH Diet - for health, heart, weight

2-3 large fruit

2-3 cups of vegetables

3 servings of whole grains

3 cups milk (1000 mg calcium)

≤ 6 oz lean meat/poultry/fish

2-3 teaspoons healthy oils



**BP, Cholesterol, Weight**

Chobanian AV et al. *Hypertension*. 2003;42:1206-1252.

Lichtenstein AH et al. *Circulation*. 2006;114:82-96.

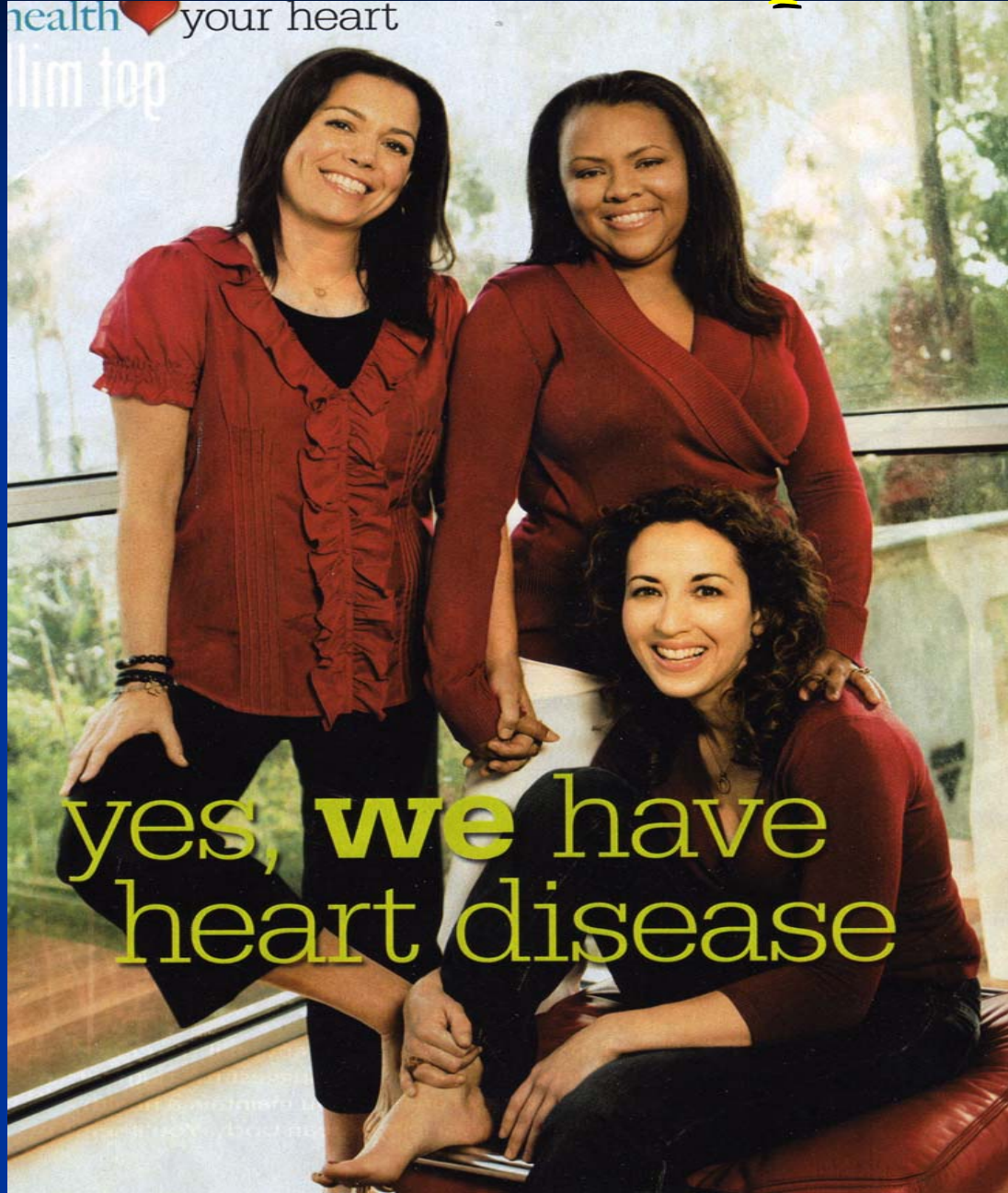


# Peri-Menopausal Women

(ages 40-55)

health  your heart

lim top



yes, **we** have  
heart disease

Heart Disease  
is the #1 killer of  
women ...

regardless of race or  
ethnicity...

ahead of all cancers,  
including breast &  
ovarian cancers.

# Peri-Menopausal Women

- **CHD** - Be pro-active / prevent CHD - diet and exercise
- **Body Weight** – prevent weight gain; aim for fit weight
- **Body composition** – strength train (for muscle, bones)
- **Muscle health** – flexibility / stretching
- **Aerobic exercise** – weight, % BF, CVD, BP, diabetes
- **Bone Health** - Calcium, Vit D, Dairy ; get BMD test
- **Colonoscopy, mammogram, pelvic exam, pap test, %BF, TM test , Vit D, lipids**

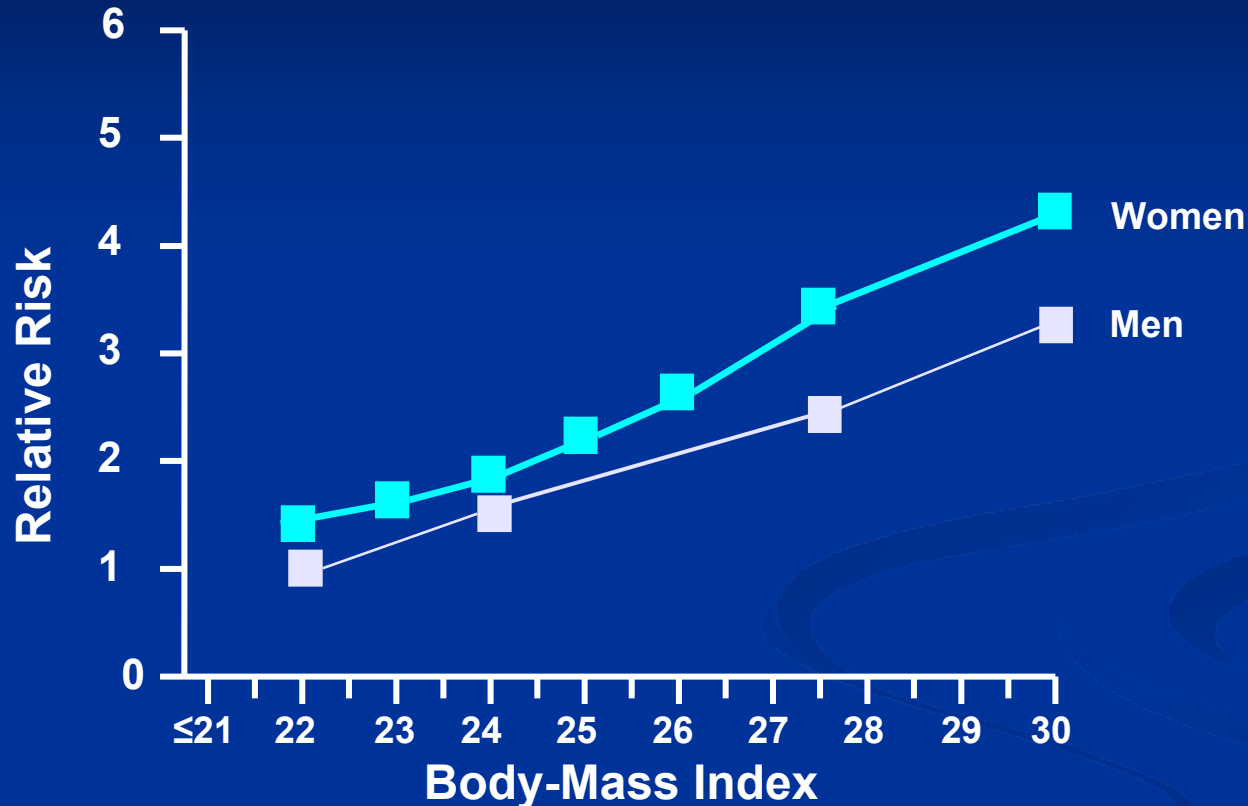
# Women's Heart Health

- More women than men die of CHD- HA, stroke, heart surgery; 66% of women w/ HA's never fully recover.
- Women more likely to have 2nd HA in year, CHF, disabled.
- Smoking increases heart risk 7x more than in men.
- Women don't have "typical" symptoms.
- Women develop CHD 10 yrs later than men & live longer. They need aggressive prevention before menopause.

# What ↑ CHD Risk for Females

- Race - African-Am (40%) & Mex-Am (30%)
- HBP - 37% African-Am women; 80% women > age 70
- Cholesterol > 200 ( 70% women) ; ↓ HDL, ↑ TG
- Diabetes (5x risk) ; Metabolic syndrome (2x risk)
- BMI
- Abdominal fat - Stroke risk ↑ as waist size ↑ over 35”
- Menopause
- Depression/stress (2.5x risk) ; inadequate sleep

# Higher BMI & Hypertension



- BMI is proportional to changes in HTN prevalence (NHANES 2003-2004;  $P < 0.001$ ):
  - BMI values of  $< 25 \text{ kg/m}^2$ ,  $25.0 \text{ to } 29.9 \text{ kg/m}^2$  and  $\geq 30 \text{ kg/m}^2$  corresponded to age-adjusted HTN prevalence rates of 20.5%, 28.4% and 39.0%, respectively

# CHD Symptoms - Women

- Unusual fatigue (70%)
- Sleep disturbances (48%)
- Shortness of breath –  
bedtime or w/ exercise
- Chest discomfort –diffuse  
(confused for stress)
- No chest discomfort w/HA
- Fluttering heartbeats
- Indigestion
- Anxiety
- Edema
- Dizziness
- ↑ TG, ↓ HDL , Diabetes-  
stronger RF than in men
- Abdominal Fat  
> 35” waist

# CHD Treatment Differences

- Slower HA treatment for women (4 days) vs men (2 days). Delayed drug therapy & surgery is less effective.
- Interventions such as cardiac catheterizations, balloon angioplasties, rehab -used on 14% women vs 34% men.
- Drugs act differently in women.
- 0 -1/2 aspirin (man - 1 pill) is recommended.

# Reducing CHD Risk in Women

- Healthy body weight (BMI < 25)\*; waist < 35"
- Regular phys activity\* (3 hrs a wk)
- Healthy chol, HDL, TG, c-reactive protein, homocysteine, BS, BP
- Ample dairy, Ca, D
- Ample fiber, WG
- Ample fruit, veg, greens
- Low-fat AHA/DASH diet \* (fiber, K, Mg, C, Anti-Ox)
- Nutrient-rich foods
- Low salt /sodium
- Omega 3's; fish 2x/wk
- Aspirin – 0-1/2 daily
- Alcohol  $\leq$  .5 drink/day\*
- Not smoking \*

\* NHS,2000: 75% strokes; 82% CHD-events

**LIFESTYLE COUNTS: ↓ risk by 77%**

# Lipid Goals (NCEP)

## LDL Cholesterol (mg/dL)

- < 100 High Risk
- < 70 Optional for very high risk person
- < 130 Moderately high or moderate risk
- < 160 Lower risk

## Total Cholesterol (mg/dL)

- < 200 Desirable
- 200 - 239 Borderline High
- ≥ 240 High

## HDL Cholesterol (mg/dL)

- < 40 Low
- ≥ 60 High

## Triglycerides (mg/dL)

- < 150 Optimal

# NCEP Therapeutic Lifestyle Changes & LDL Reductions Achievable

	Dietary Component	Dietary Change	Approximate LDL Reduction
Major Diet & Lifestyle Changes	Saturated Fat	< 7% of calories	8-10%
	Dietary Cholesterol	< 200 mg/day	3-5%
	Weight Reduction	Lose 10 lbs.	5-8%
Therapeutic Options	Soluble Fiber	5-10 grams/day	3-5%
	Plant Sterols & Stanols	2 grams/day	6-15%
<b>Cumulative Estimate</b>			<b>20-30%</b>

# Heart Protective Factors

Food Factors	Lowers CHD risk
5 fruit / veg a day	30%
Regular exercise	14%
$\leq 1$ alcoholic drink/day-women	9%
Fiber (20 grams/day)	28%

Every 10 gm fiber lowers CHD event risk by 14% and death risk by 28% -

Mark Pereira, PhD, Univ of Minnesota

# Heart-Protective Foods



**Seafood Salmon Blueberries**  
**All Berries Spinach Red Grapes**  
**Wholegrains Olive & Canola Oils**  
**Tub Margarine Oatmeal**  
**Asparagus Onion Garlic**  
**Tomatoes Soy Broccoli**  
**Fiber Walnuts Almonds**  
**Apples Psyllium**  
**Greens Beans**  
**Colorful Fruit / Veg**  
**Dark Chocolate**  
**Tea Wine**

# Eat More Fruit & Veggies & WG (2-3 cups of each daily)

## Fruit/veggies:

- ½ plate per meal
- 3-5 colors / plate



# JNC-7 Lifestyle Guidelines to ↓ BP

<b>Lifestyle Modification</b>	<b>Approx Systolic BP ↓ *</b>
Weight reduction	5-20 mm Hg Per 10 kg of weight loss
<b>DASH eating plan</b>	<b>8-14 mm Hg</b>
Dietary sodium reduction	2-8 mm Hg
<b>Regular exercise</b> prevents/reduces HBP in women; (type, freq, intensity –not important)	<b>4-9 mm Hg</b>
<b>Moderate alcohol intake</b> 1 drink/day for women; 2 for men	2-4 mm Hg

\*Adapted from Chobanian AV et al. *Hypertension*. 2003;42:1206-1252.

# Wholegrains - 3 A Day

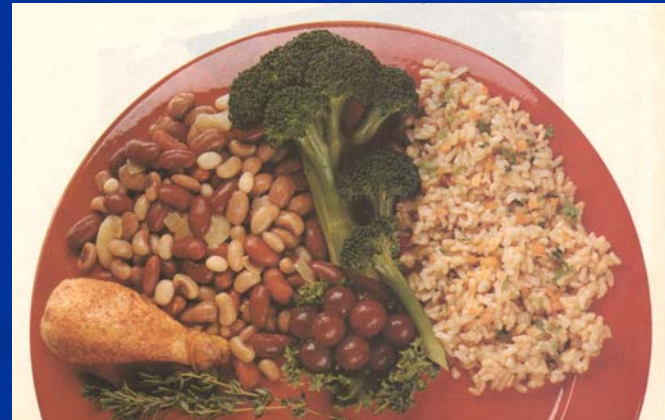
- 100% wholewheat bread/cereals
- wholewheat or corn tortillas
- brown rice or wild rice
- Kashi; quinoa
- oatmeal & oat cereal
- corn & popcorn
- Bulgur / cracked wheat
- wholegrain barley / rye
- wholewheat crackers  
(ie. Triscuits)





# Fiber (20 – 35 gm)

- 5+ fruit/veg = 10 - 15+
- 3+ wholegrains = 6 - 10
- ½ cup beans or high-fiber cereal = 6 - 10



# Wholegrains & Heart Disease Risk

## ■ Atherosclerosis Risk in Communities (ARIC) Study

(15,792 men and women) Steffen et al, Am J Clin Nutr 2003;78:383-90

3 WG / day



28% ↓ CAD risk

## ■ Iowa Women's Health Study

(36,000 women, ages 55-69) Jacobs et al., Am J Pub Health 1999;89(3): 322-329

≥ 1 WG / day



30 - 36% ↓ risk of  
ischemic heart disease

## ■ Harvard Nurses' Health Study

(75,000 women, ages 38-63) Liu et al., JAMA 1999; 70:412-9

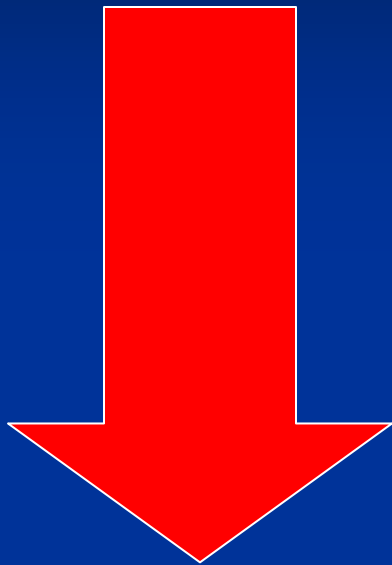
3 WG / day



25% ↓ CHD risk  
27% ↓ Diab risk

**WG add benefits beyond & independently of fiber**

# Omega-3s Lower CHD Risk



- C-V events by 20-45% \*
- CHD death rates by 40%
- arrhythmias
- triglycerides by 20-50% (3-4 g/d)
- growth of atherosclerotic plaque
- blood pressure (slight)

**AHA Goals:** eat 6-8 oz oily fish/wk  
**Omega 3's:** 1/2 g/day (no CAD)  
1 g/day (if CAD)

Kris-Etherton et al, *Circulation*, 2002

Connor, *Am J Clin Nutr*, 2000

Lee. JH, et al. *Mayo Clin Proc.* 2008; 83:324-332

\* Evidence from 3 large controlled trials; n= 32,000

# Healthy Fats – Omega-3's

- Fatty fish
- Flaxseeds/oil
- Soy foods/oil
- Canola oil



- Walnuts
- Pumpkin seeds
- Enriched eggs
- Fortified foods

# DHA-fortified Foods



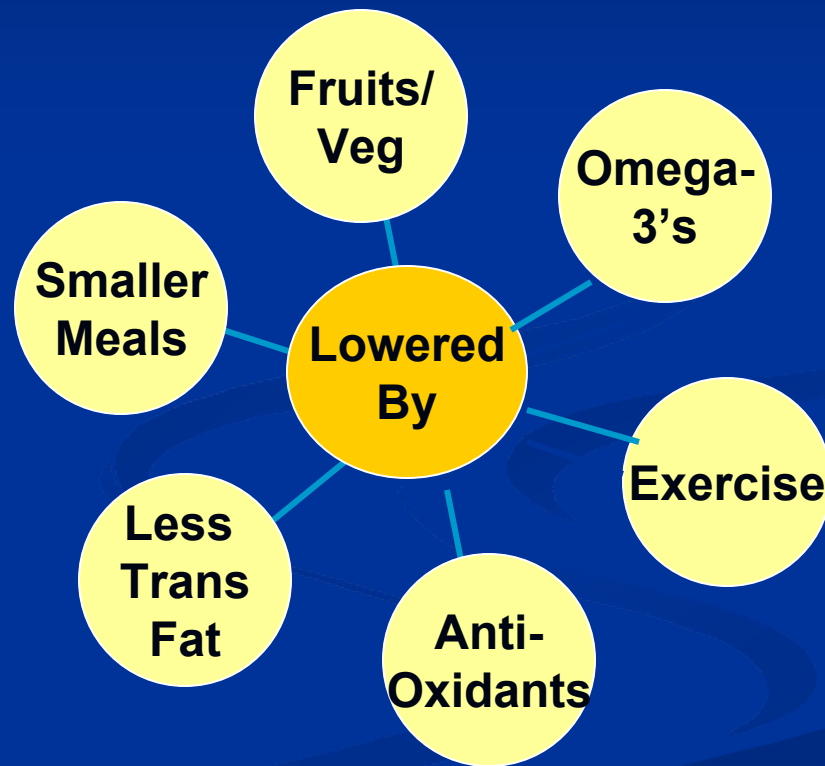
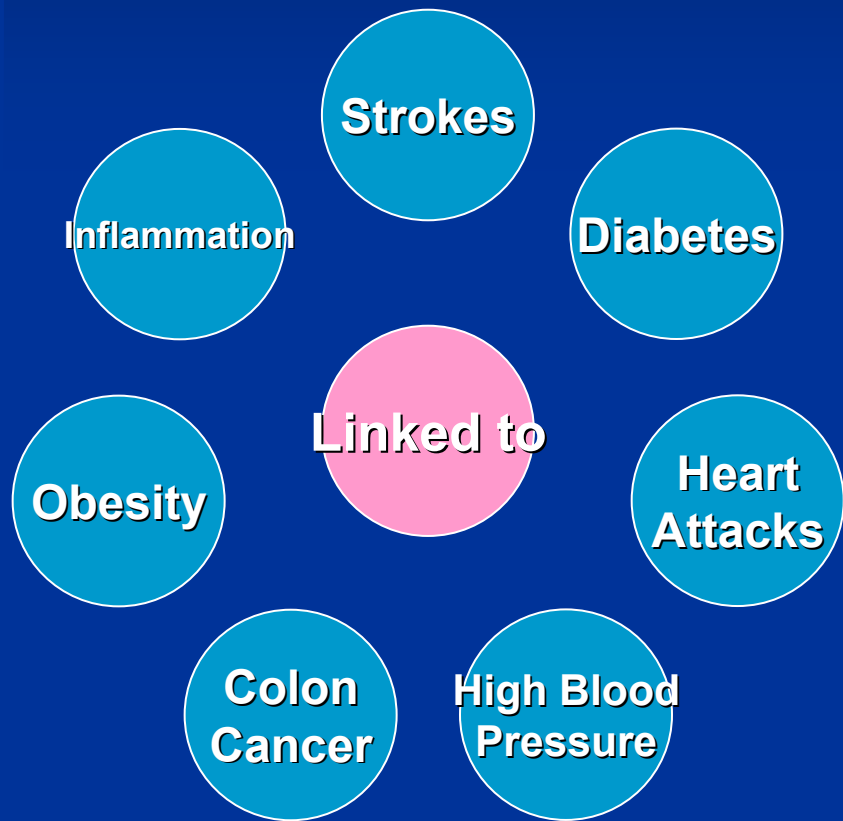
# Fats - how much?

<b>Gender</b>	<b>Fat (g)/ day</b>	<b>Sat fats (g) / day</b>
<b>Women</b>	<b>30-50</b>	<b>10-15</b>
<b>Men</b>	<b>50-60</b>	<b>15-20</b>



# C-Reactive Protein

(stronger predictor in women than men of CHD risk)



# Exercise Lowers Coronary Events

## Harvard Nurses Health Study:

- walk briskly regularly (3 hrs/wk)<sup>1</sup>
- add intensity to lower stroke risk<sup>1</sup>

## Women's Health Initiative:

- do not sit for prolonged periods<sup>2</sup>
- walk/exercise longer for additional benefits<sup>2</sup>

(1) Harvard Nurses Health Study - Manson 1999; Hu 2000

(2) Women's Health Initiative

# Exercise Lowers Diabetes Risk

- **Nurses Health Study:** walking 1 hr/day reduced diabetes risk by 34% & obesity by 24%
- **Projections:** even 30 min/day brisk walking and <10 hrs TV/week would prevent new cases of Diabetes by 43% and Obesity by 30% (Hu, 2003)\*
- **FINDING:** Prolonged sitting and inadequate physical activity independently impact diabetes
- **Diabetes Prevention Program:** walking 2.5 hrs/wk, with diet and weight loss – reduced BS more than meds

\* Study followed 68,500 women for 6 years (’92-’98)

# Reduce Diabetes Risk

## Diabetes Primary Prevention Trial:

- Keep a healthy weight.
- Exercise 3-4 hours/week
- Consume ample dairy (3/day)
- Consume ample WG (3 a day)
- Eat a healthy diet.

# Reduce Breast Cancer Risk

- 5+ fruit & veg / day; more WG
- Healthy weight; less body fat - to reduce inflammation, insulin resistance & estrogen, which promotes cancer growth.
- Avoid alcohol
- Walk 3-5 hours/wk (↓ cancer risk by 50%)

# Protect Bone Health

- Preserve bones **NOW** with exercise & ample dairy, calcium & Vitamin D
- Last chance before menopause when rapid bone loss occurs (first 5 yrs after menopause)
- Most women do not get ample Vit D or Ca
- Need 1000 - 1500 mg calcium, 800-1000 IU Vit D
- Omega 3's, folic acid, boron, Vit K impt, too

# Post-Menopausal Women (ages 55 +)

- By 2030, the number of older Americans will have more than doubled to 70 million, or one of every five people.<sup>1</sup>
- If you live to age 65, 14 years



1 CDC . Healthy aging for older adults. June 20, 2007

2 CDC: Trends in health and aging: 1900-2004. Sept 7, 2007

# DHA and ALA fortified foods

(DV for DHA = 160 mg/day)

## DHA :

- Horizon milk +DHA
- Cabot 50% LF Cheddar DHA
- Yoplait Kids DHA yogurt
- Tropicana Healthy Heart OJ

## ALA :

- Barilla Plus or Hodgson Mills WW pastas
- Smart Balance 0-3 & Promise Activ spreads
- Cereals, breads, granola bars

# Post-Menopausal Women (ages 55 +)

## Health Focus:

- **Prevention:** CVD, HBP, stroke, diabetes, cancer ; metabolic syndrome; inflammation disorders
- **Healthy BMI**/prevent weight gain & middle fat (“apples”)
- **Osteoporosis & sarcopenia prevention**
- **Stronger body** (bones, muscle, core, heart)
- **Exercise** (cardio, flexibility, strength, core)
- **Arthritis management**
- **Eye health** (antioxidants, omega-3’s, zinc)
- **Stronger immune system** (Fe, Vit A, Vit C, Zn, protein)
- **Cognition** (omega 3’s, anti-ox, folic acid)

# Nutrition & Health Issues

## Nutrition Focus:

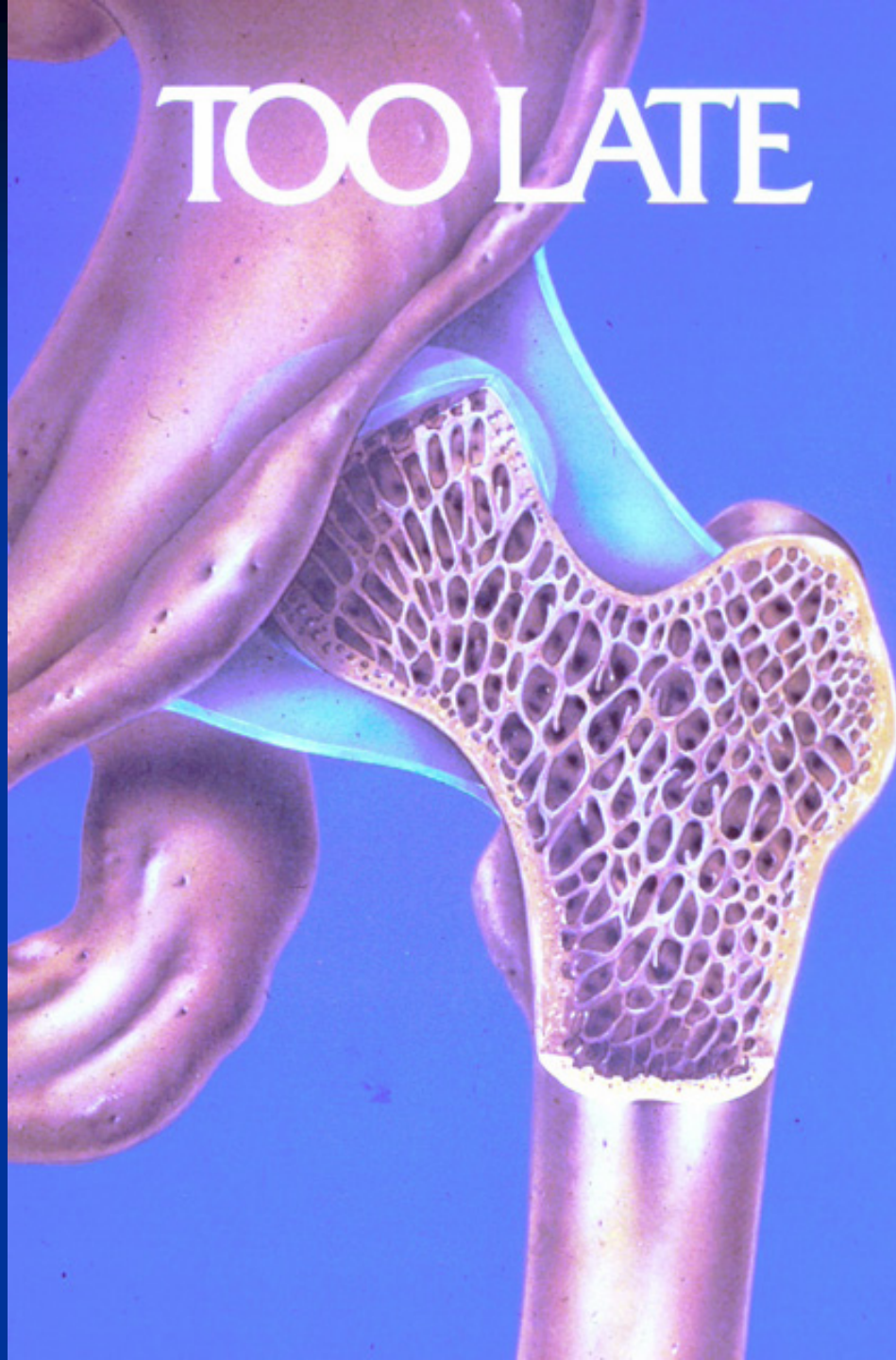
- More Cal, Vit D, Vit B<sub>12</sub>, Fe, zinc, potassium, Vit K, Mg, HBV protein, beta-carotene, folic acid, Vit C
- More dairy, fiber, wholegrains, lean meat, fish, fruit, vegetables, leafy greens, antioxidant-rich & color-rich foods
- Nutrient-rich foods; fewer calories
- More water; less caffeine
- 1/2 - 1 baby aspirin daily (blood thinner)

Prevent or Reverse

# OSTEOPOROSIS

Slow down loss / Sustain bone

TOO LATE



Do all you can,  
as long as you can,  
to preserve bone & body  
strength

# Major Risk Factors for Osteoporotic Fractures

- Age 55+
- Low bone density (bone density test)
- Prior adult fractures
- Parent –hip fracture
- Weight < 127 lbs.
- Inactivity
- Female
- Caucasian or Asian
- Petite
- Smoking (active or passive)
- Inadequate calcium or Vit D (Vit D blood test)
- 3 alcoholic beverages/day
- Meds (ie. Steroids)
- Aluminum (in antacids)
- Immobility
- Rheumatoid arthritis
- High salt, excess Vit A and caffeine

# Calcium and Nutrient Needs (50+) for Strong Bones

- Calcium – 1200-1500 mg; Vitamin D - 1000 IU
- Vitamin D3 – 800-1000 IU (NOF), age 50+
- Folic Acid – 400-800 micrograms
- Vitamin K – leafy greens
- Biotin, boron, omega 3's

# Calcium Lowers Bone Loss in 50+ yr olds

w/1200 mg Calcium supplementation, for 3-5 years;

(in 52,600 participants, 17 studies)

- Bone loss slowed by 20%
- **Bone fracture risk reduced by 12-16%**
- Calcium + D (800 IU) ↓ fractures by 16%  
(vs 13% reduction if less D)

\* Benjamin,MP,,The Lancet, August 23, 2007; 370(9588):657-666

# Vitamin D Daily

## Important for:

- ♦ strong bones, muscles
- ♦ insulin / blood sugar
- ♦ cancer prevention
- ♦ CVD, HBP, Diab, MetSyn
- ♦ Auto-immune conditions

## Sources:

- ♦ sunlight (10-15 min/day)
- ♦ 1 cup milk = 100 IU

Age	Amount
Under 50	200 IU
51-70	400 IU
Over 70	600 IU
Rx	1000 IU
6-8 wks	50,000 IU

# Monitoring Bone Density

- Bone Mineral Density (BMD) - every 2 years (DEXA Test)
- Measure Serum Vit D Status - 25-hydroxyvitamin D or 25 (OH) D > 30 (Cooper Clinic treats if < 30 ngm)

**Note:** only 5% women ages 51+ meet Vit D AI\*\*

\* Vieth,R et al Am J Clin Nutr 2007;85:649-650

\*\* NHANES 1999-2000 data: Moore et al, J Nutr 2005; 135:2478-2485

# FDA's Estrogen Therapy (ET) Recommendations

- use only if needed
- in the smallest dosage
- for the shortest time possible
- in younger women...55-60.
- Do not use to reduce C-V risk.

# WHI/NIH Follow-up Study

## (3 Yrs after Stopping Hormone Therapy)

Health risks of long-term hormone combo (progestin + estrogen) continue in post-menopausal women (3 yrs after stopping HRT):

- Breast cancer risk ↑ 27%; other cancers ↑ 24%
- Stroke and blood clot risk - remained high
- Benefits of fewer hip fractures & colorectal cancer ceased

n = 15,730 healthy postmenopausal women, ages 50-79 (avg 63)  
15 yr NIHLB study – osteoporosis, cancer, heart disease  
Follow-up Study: 2002- 2005  
Initial Study: 1996 – 2002 (avg 5.6 yrs); stopped when  
↑ HA 29%, ↑ stroke 41%, ↑ clots 100%

# Exercise Builds Bones

by adding bone density, which improves:

Balance

Flexibility

Coordination

Independence

Stability

Self-esteem

Strength

Less frailty

Mobility

Quality of life

Weight control

Chronic Disease

# New Aerobic/Cardio Guidelines for Older Adults - Over 65 (ACSM / AHA 2007)

- Mod-intense **cardio** or Vig-intense **30**  
min, 5x/wk 20minutes,3x/wk  
and
- 8-10 **strength** exercises,  
10-15 reps, 2-3x/wk  
and
- **balance** exercises &
- **exercise plan**



# Exercise for Older Adults for Stronger Bones

- Cardio (CHD, weight, stamina, balance)
- Flexibility/stretching
- Strength
- Core Strength

# Exercise Guidelines

Ages	% Cardio	% Strength
<b>Under 40</b>	<b>80</b>	<b>20</b>
<b>40's</b>	<b>70</b>	<b>30</b>
<b>50's</b>	<b>60</b>	<b>40</b>
<b>60 +</b>	<b>55</b>	<b>45</b>

# Tufts Univ Resources

- *Growing Stronger: Strength Training for Older Adults Program* by Tufts Univ.  
[www.growingstronger.nutrition.tufts.edu](http://www.growingstronger.nutrition.tufts.edu)
  - interactive program online
  - download free copy of booklet
- *Women's Health & Fitness Guide* by Michele Kettles, MD and Colette Cole, MS, Human Kinetics, 2007.

# Sarcopenia & Lean Protein

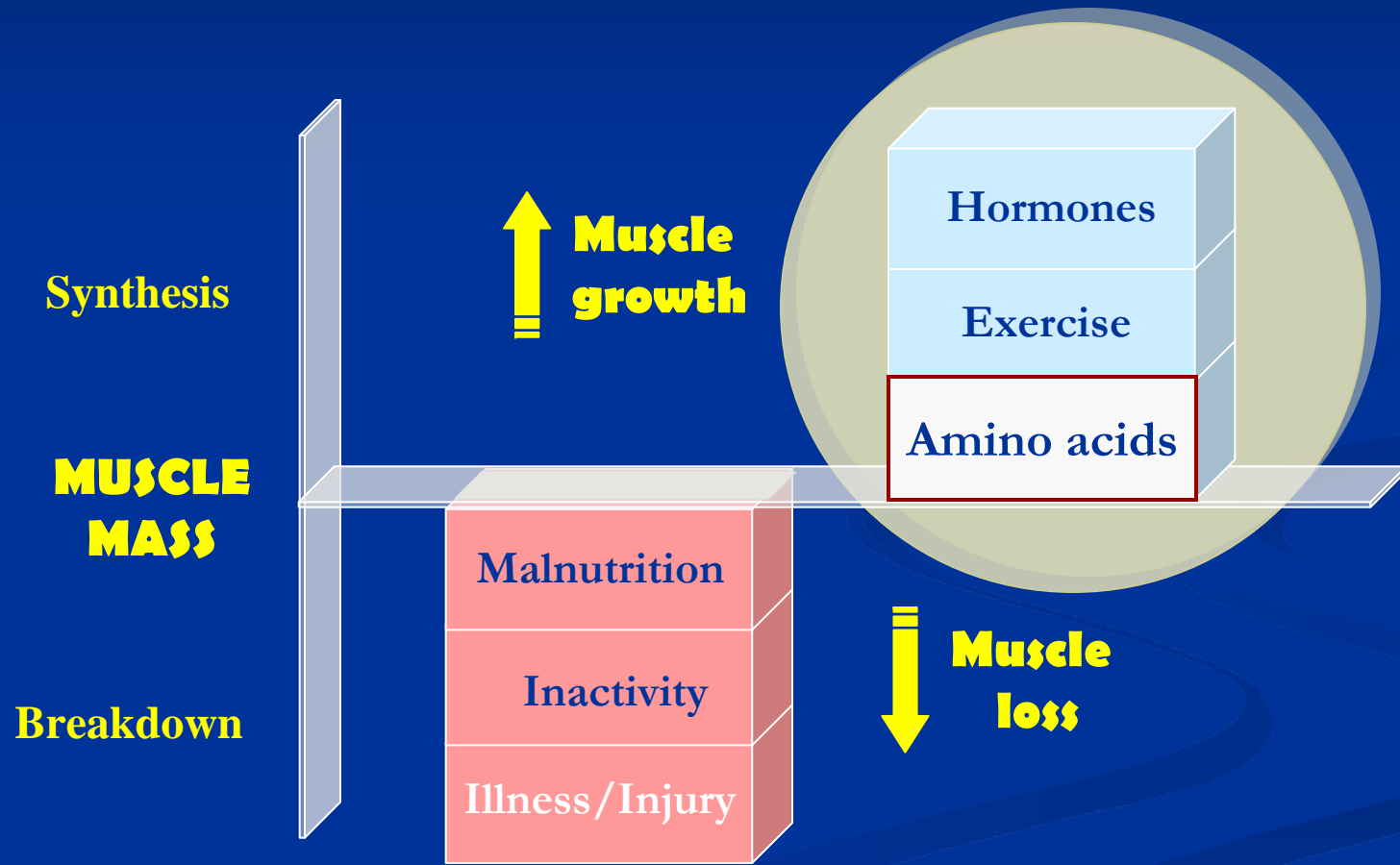
- HBV protein may stimulate muscle protein synthesis, increase muscle strength, improve overall health\*
- 4 oz lean beef acutely stimulated protein synthesis by 50% in young and elderly at bedrest, increasing muscle mass & strength.\*\*

(essential aa & leucine cited as keys)

\* Wolfe R, Am J Cl Nutr, 2006. 84:475-482

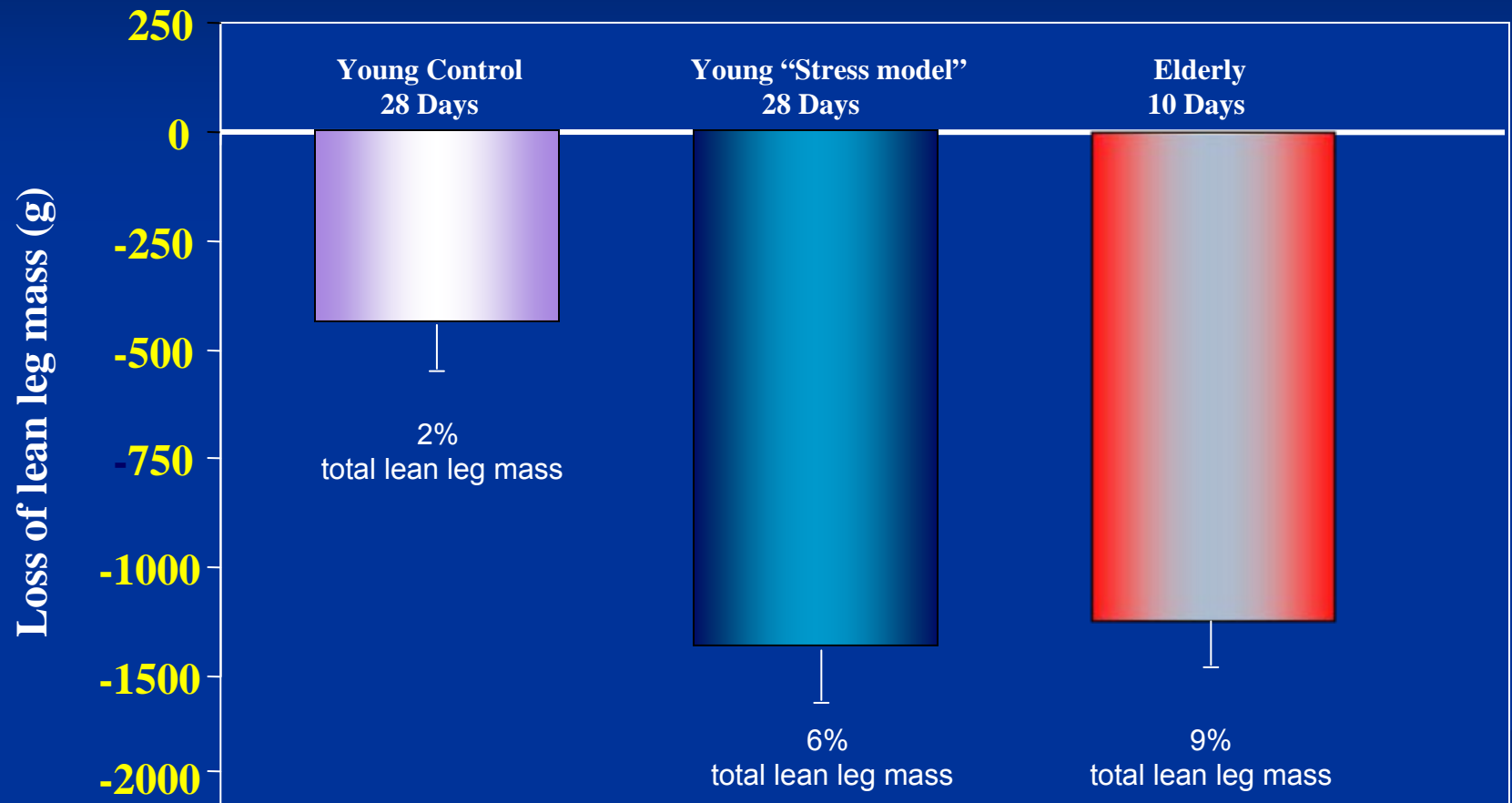
\*\* Padden-Jones D, UT-Galveston research.

# Maintaining Muscle Mass



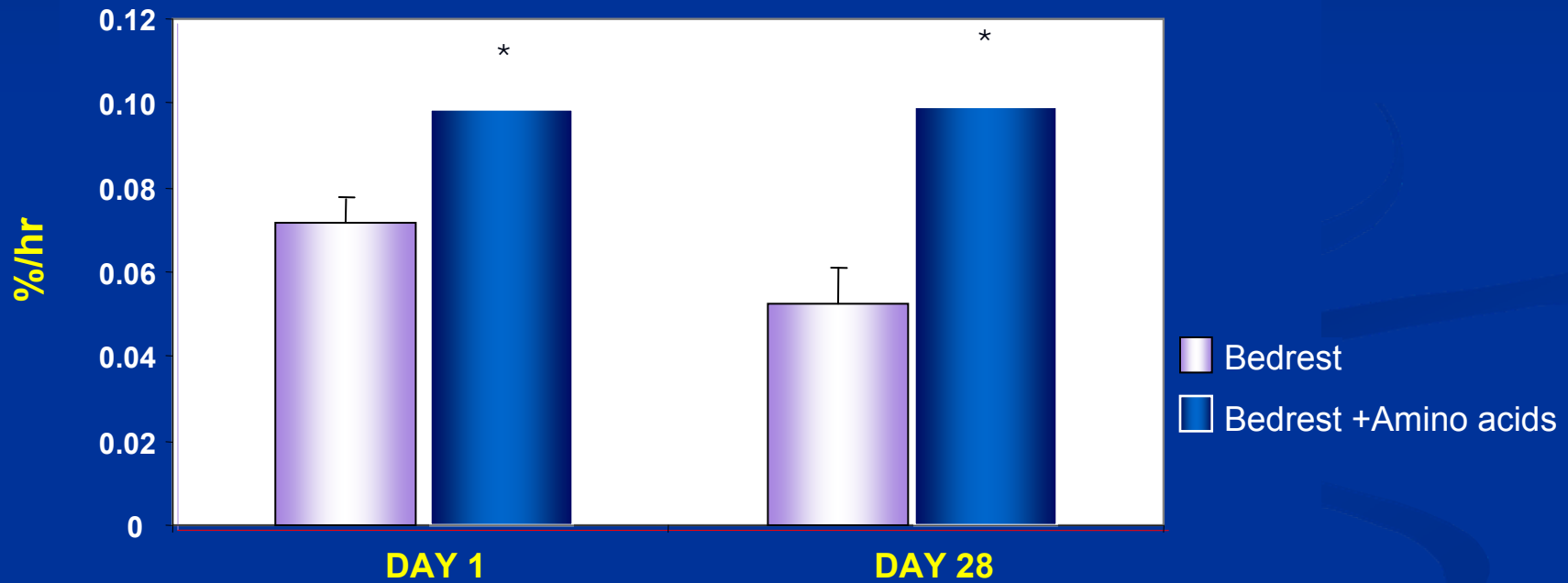
Slide used with permission by Douglas Paddon-Jones , PhD, The University of Texas Medical Branch and Shriners Hospital for Children , Galveston, TX

# Loss of Muscle Mass with Inactivity



Slide used with permission by Douglas Paddon-Jones , PhD, The University of Texas Medical Branch and Shriners Hospital for Children, Galveston, TX

# Protein Synthesis



Slide used with permission by Douglas Paddon-Jones , PhD, The University of Texas Medical Branch and Shriners Hospital for Children, Galveston, TX; 2004

# Omega-3's Help Cognition

- may reduce memory loss, dementia & Alzheimer's by stimulating the growth of neuron connections<sup>1</sup>
- with dementia, DHA levels in brain are lower; 180 mg or more of DHA daily ( in 2.7 fish servings weekly) is assoc w/ 50% lower risk of dementia.<sup>2, 3</sup>
- 2.7 fish svgs/wk reduces ischemic stroke by 27%

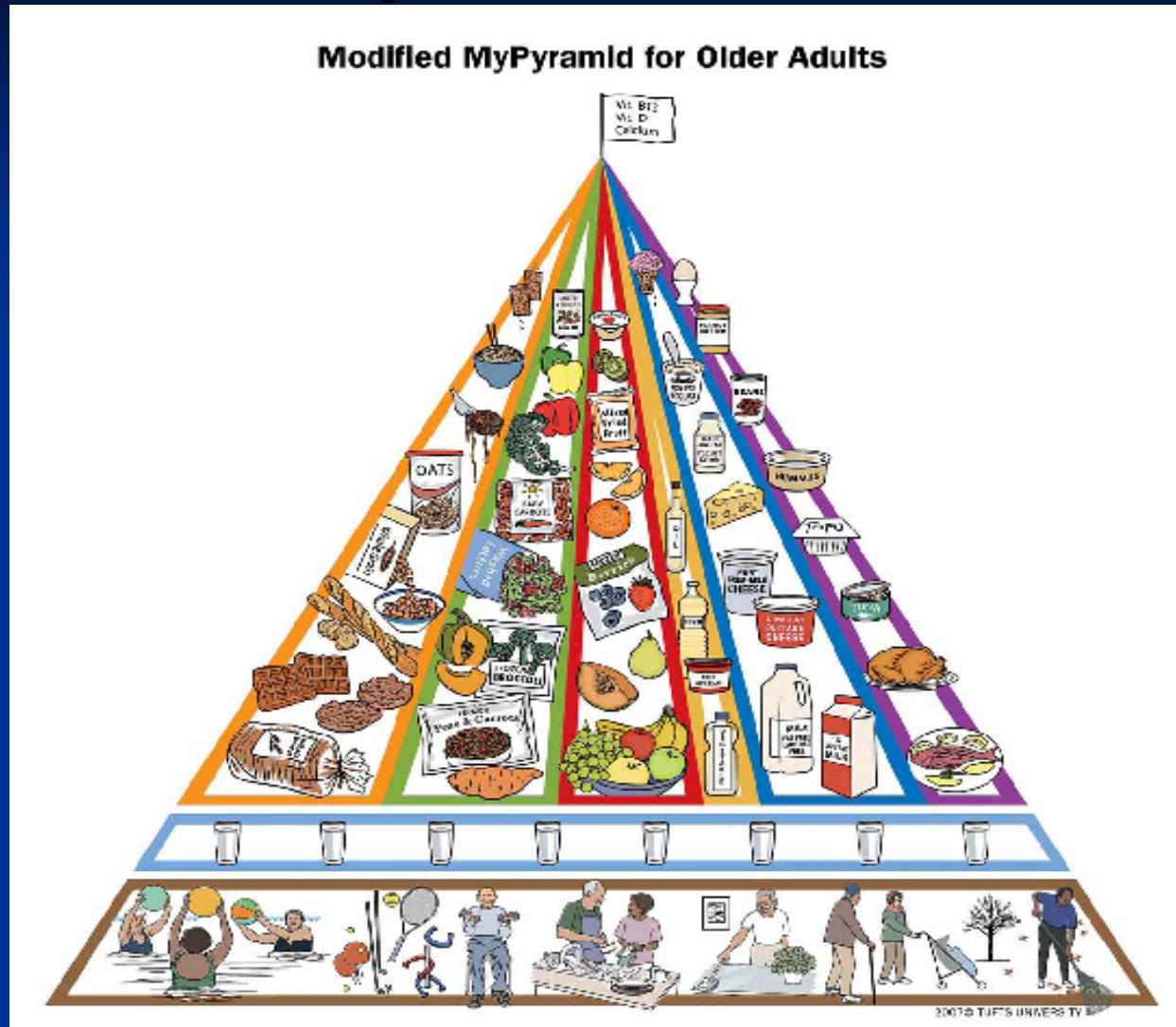


\* Alzheimer's Assn. Alternative Treatments.  
Oct 17, 2007.  
2 Bazan NG et al. HEP June 2007.  
3 Hutchins H. Oct 19, 2005.

# Exercise aids Cognition

- Walking 1.5 hours/wk, slowly (21-30 min/mile) improved cognitive skills in 70-81 year olds (Weive, 2004, Nurses Health Study)
- Fit older adults had better cognitive skills in Scottish study in Neurology (Deary, 2006)
- Circulation to brain may be factor
- Obesity & middle fat linked to Alzheimer's and dementia.

# Tuft's Pyramid for Seniors



Lichtenstein AH, Rasmussen H, Yu WW, Epstein SR, Russell RM.  
Modified My Pyramid for Older Adults. *J Nutr.* 2008; 138:78-82.

# Vitamin B12

**Over age 50 – take a B12 supplement!**

If over age 60, you cannot absorb 20%

If over age 80, you cannot absorb 40%

# Zinc

- Reduces infection
- Acts as antioxidant
- Reduces inflammation
- Promotes healing
- Promotes eye health

Prasad, As et al, A J Clin Nutr, March 2007, Vol 85(3):837-8444  
Studied 49 seniors, ages 55-87, 1 year, ± zinc supplementation

# Vitamin K

- Anti-inflammatory agent
- Helps osteoporosis and C-V disease
- Important for high-risk seniors
- Sources: green leafy vegetables



# Anti-oxidants & Phyto-nutrients



**Flavanoids** – onions, apples, berries, citrus, tea, red grapes, wine



**Isoflavones** – beans (especially soy)



**Lutein** – leafy greens



**Lycopene** – red grapefruit, watermelon, cooked tomatoes

# Nutrient-rich Foods put Power on your Plate!

- weight
- type 2 diabetes
- heart health
- cancer
- overall health
- energy

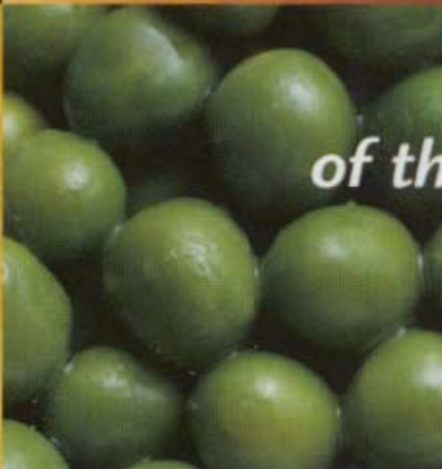




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*of the season.*

# Move More!

3-4 hours a week...



... all year!

# Lifestyle Matters

*“We could eliminate over 87% of all disease in the U.S. . . . if we could get Americans to do just three things:*

*... stop smoking*

*... stop drinking*

*... and not be obese . ”*

- Louis Sullivan, National Institutes of Health

*“It is easier to maintain good health through proper exercise, diet and emotional balance than it is to regain it once it is lost.”*

*- Dr. Kenneth Cooper*