

Dash to Heart Health

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Objectives

1. Identify nutrition-related risk factors for CVD
2. Treat CVD with heart healthy foods
3. List components of Mediterranean and DASH diets
4. Apply a heart healthy lifestyle to everyday living by practicing trends in nutrition research

Nutrition Screening for Risk Factors

♥ Dyslipidemia vs. Hyperlipidemia

♥ Waist Hip Ratio ↑ CVD risk with ratio:

$$(R=W/H)$$

>1 Men, >0.8 Women

♥ C-reactive protein

♥ Fibrinolytic activity

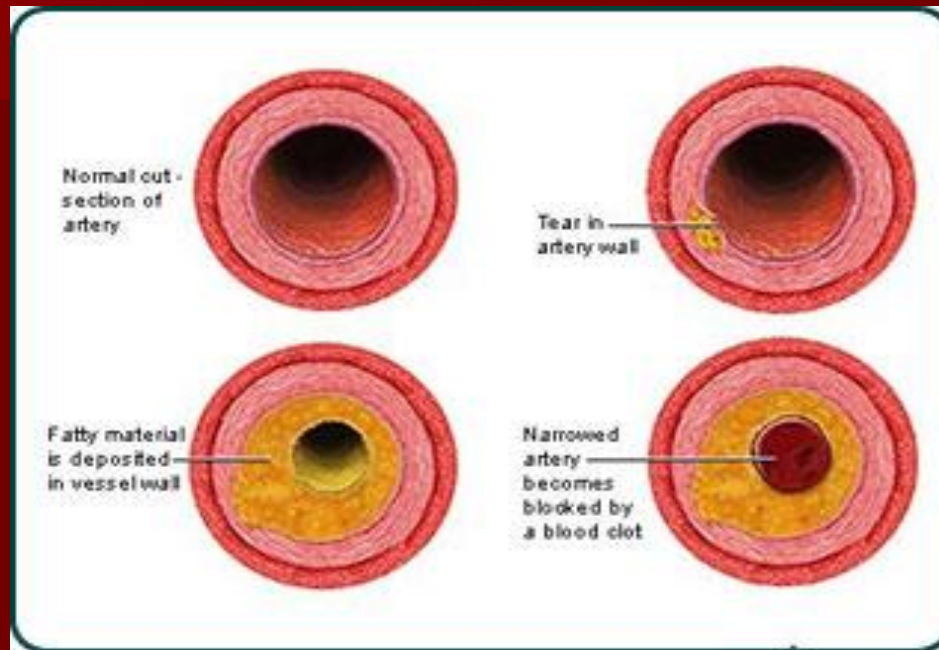
Risk Factors (cont'd)

■ Metabolic syndrome

3 or more present:

- Waist circumference >40 in. Men, >35 in. Women
- Fasting blood TGL ≥ 150 mg/dL
- HDL ("good") of <40 mg/dL Men, <50 Women
- Blood pressure of $\geq 130/85$ mm Hg
- Fasting glucose ≥ 110 mg/dL

CAD



Underlying cause:
Atherosclerosis → plaque development

Plaque Development

Factors that speed up plaque development:

→ Elevated cholesterol and triglyceride levels

→ Hypertension

→ Infection that initiates the inflammatory response

Plaque Development (cont'd)

GOALS

- ↓ Total cholesterol <200 mg/dL
- ↓ LDL <100 mg/dL
- ↓ HDL : Male >40 mg/dL
Female >50 mg/dL
- ↓ TGL <150 mg/dL
- Prevent HTN despite aging! <115/75
- Reduce Inflammation!

Fiber

- Meta analysis by Pereira and colleagues in 2004
 - 10 large prospective studies
 - ↑ fiber by 10g day assoc. with 14% ↓ risk CHD
 - 10g = 1 bowl high fiber cereal, 1 large banana, & 1 serving of carrots
 - 27% reduction in coronary death with this association

Tips for Lowering Cholesterol with Fiber

♥ High fiber lowers LDL

– “dietary fiber”

- the storage and cell wall polysaccharides of plants that are not hydrolyzed by human digestive enzymes

– For adults, needs vary by age and gender:

- Men, 50 years old and younger=38 g/day
- Men, 51 years old and older=30 g/day
- Women, 50 years old and younger= 25 g/day
- Women, 50 years old and older=21 g/day

Fiber (cont'd)

- Found in whole grain starches, peas, corn, potatoes, broccoli, beans, higher-fiber fruits such as prunes, apricots, berries, cantaloupe, apples (with skin)



11 Foods that Lower Cholesterol

- Oats
- Barley and other whole grains
- Beans
- Eggplant and okra
- Nuts
- Vegetable oils (canola, sunflower, safflower)
- Apples, grapes, strawberries, citrus fruits
- Foods fortified with sterols and stanols
- Soy
- Fatty fish

Triglycerides

- Produced by alcohol, extra calories, or sugar in the body
- Lowered with “good fats”



Ways to Look for Healthy Fats

- **Oils with a higher percentage of monounsaturated fat:**
 - Canola oil
 - Olive oil
- **Omega-3 fatty acids:**
 - Decrease risk of arrhythmias
 - Decrease triglyceride levels
 - Decrease growth of atherosclerotic plaque
 - Lower blood pressure (slightly)

Where Do I Find Omega-3 Fatty Acids?

World's Healthiest Foods rich in Omega 3 Fatty Acids



Trans- Fat

***Trans* fats are in:**

- **Packaged cookies**
- **Packaged baked goods**
- **Packaged crackers**
- **Commercially prepared fried foods**
- **Chips**
- **Doughnuts**
- **Some margarines**
- **Most shortening**



Hypertension

- 60 million Americans (~ 1 in 4 adults)
- As BP \uparrow above 115/75,
each 20 pt (systolic), 10 pt (diastolic)
DOUBLES the risk for MI !!!!
- From 115/75 to 135/85 = 2x the risk
- From 115/75 to 155/95 = 4x the risk
- From 115/75 to 175/105 = 8x the risk

Hypertension (cont'd)

Essential HTN: can't be attributed to a specific renal/adrenal disease

(ie. Chronic renal failure or an adrenal tumor)

- Majority of patients with HTN
- Pathophysiology is complex
- Reduce with
 - 1) Healthful dietary pattern
 - 2) Reduced Na intake
 - 3) Reduced body fat

Hypertension (cont'd)

- High fiber, fruits, & veggies lower BP

- **Dietary**

Approaches

>DASH diet

Stopping

Hypertension

- More physical activity

Result→ Weight loss!

Weight Loss

- **Weight loss:**
 - Reduces risk for cardiovascular disease
 - Lowers blood pressure
 - Lowers blood sugar
 - Improves lipid levels
- Caloric restriction can ↓ BP from 130/80 to 100/60 in 3 years

Source: Office of Surgeon General. Available at:

http://www.surgeongeneral.gov/topics/obesity/calltoaction/1_6.htm

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Weight Loss



“Okay, but each pound counts as a separate wish!”

Weight Loss (cont'd)

- High fiber helps you feel full on lower calorie foods
 - Promotes satiety by slowing gastric emptying
→ overall decrease in caloric intake
 - Stay hydrated
 - Stabilizes blood sugars
- Dietary sources vs supplements

Weight loss (cont'd)

- Drinking H₂O assoc. with wt loss in overweight dieting women independent of diet & activity.
 - Data from short-term experiments suggest wt loss by
 - Lowering total energy intake and/or
 - Altering metabolism



Reading Food Labels

Start Here

Nutrition Facts

Serving Size 1 cup (228g)
Servings Per Container 2

Amount Per Serving

Calories 250 Calories from Fat 110

% Daily Value*

Total Fat 12g	18%
Saturated Fat 3g	15%
<i>Trans</i> Fat 1.5g	
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%

**Limit these
Nutrients**

**Get Enough
of these
Nutrients**

**Quick Guide
to % DV**

**5% or less
is low
20% or more
is high**

DASH Diet

Nat'l Heart, Lung, and Blood Institute (NHLBI)'s

- Recently named #1 Diet
- 2 Key Studies → BP ↓
 - ↓ Saturated Fat, Cholesterol, Total fat
 - ↑ Fruits, Vegetables, Fat-free/Low Fat dairy
 - Also including, whole grains, fish, poultry, nuts
 - Reduced lean red meat, sweets, added sugars, & sugar-containing beverages
 - Rich in K⁺, Mg, Ca, protein & fiber

DASH

1st study

Consisted of→

459 adults with systolic BP <160 mmHg
diastolic 80-95 mmHg

27% participants had ↑ BP

50% Women

60% African Americans

DASH

1st study (cont'd)

- Compared 3 eating plans:
 1. Typical American diet
 2. American diet + more fruits/vegs
 3. DASH
- All 3 plans ~3,000 mg sodium
- None were vegetarian, specialty, etc.

DASH

1st study (cont'd)

- Results were dramatic!
 - Eating plans 2 & 3 had ↓ BP
 - DASH had greatest effect on BP and within 2 weeks of starting the plan



DASH

2nd Study

- Observed the effect on BP of reduced Na⁺ intake for both DASH & typical American diets
 - 412 participants, randomly assigned to plan
 - Followed for a month at 3 sodium levels
 - 3,300 mg/day (level consumed by many Americans)
 - 2,300 mg/day
 - 1,500 mg/day

DASH

2nd Study (cont'd)

- Results: Reduc. dietary Na lowered BP for both eating plans
- At each Na level, BP was lower on DASH
 - Greatest BP reduction on DASH @ 1,500mg
- HTN pts saw greatest reduction in BP, though preHTN pts also had large decrease in BP

DASH (cont'd)

*Together, these studies show the importance of lowering Na⁺ intake- whatever your eating plan!



Winning combo → DASH + low Na⁺

Recipes found on
<http://www.nhlbi.nih.gov/health/prof/heart/index.htm>

DASH-Tips for gradual change

- Add a serving of vegetables to lunch, next day to dinner
- Add fruit to breakfast or snack
- 3 servings of low-fat/fat-free milk products
- Limit meats to 6 oz. per day
- Include more meatless meals per week
 - ie. Meatless Mondays

Other credible “Fad diets”

- Dean Ornish: an *overall* way of eating
 - Based on a Spectrum approach
- Glycemic Index: numerical index ranking CHO-rich foods according to their effect on blood glucose levels
 - The higher the number, the greater the rise in blood glucose. Pure glucose is used as a reference point and is given a GI of 100.
- South Beach: low CHO diet <20g/day initially
- Mediterranean: similar to DASH; ranked #2 diet

Mediterranean Diet

Successful for 2 reasons:

1. High palatability helps life-long adherence
2. Beneficial properties in cardiovascular, cancer, & cognitive age-associated decline



Mediterranean Diet (cont'd)

- Olive oil- oleic acid
 - Virgin olive oil can reduce sensitivity of platelets to aggregation
 - Decreasing von Willebrand & thromboxane B2 plasma levels
- Haemostasis: platelet fxn, thrombogenesis, & fibrinolysis
- Wine

Mediterranean Diet (cont'd)

- Resveratrol found in red wine, grapes, & other fruits
 - Anti-aging
 - Anti-carcinogenic
 - Anti-inflammatory
 - Anti-microbial
 - Anti-viral
 - Anti-oxidant



Mediterranean Diet (cont'd)

Resveratrol has the ability to:

- Reverse dyslipidemia & obesity
- Attenuate hyperglycemia & hyperinsulinemia
- Protect endothelial function

Also, has been shown to ease heart contraction.

Mediterranean Diet (cont'd)

■ Resveratrol

- Observed in recent years to fxn as antioxidant
 - Suppressing atoms that cause cell damage during the oxidation process in the human body
- How the chemical works is not yet understood
- May lead to development of novel therapeutic strategies for
 - Atherosclerosis
 - Ischemia/reperfusion
 - Metabolic syndrome
 - Heart Failure

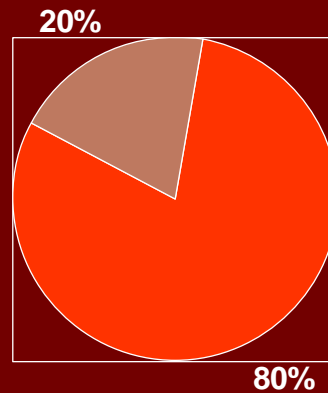
Mediterranean Diet



Summary

- Know your #s- lipid profile, BP, BMI, etc.
- Embrace fibrous foods
- Follow a diet regimen that works for you and don't be afraid to try new foods!
- Way of the Future: where our food comes from
- September is Cholesterol Education Month

80% of Heart Disease is Preventable



"Awareness empowers positive lifestyle changes."—Unknown

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