

Heart Disease
The Most Preventable of
All Diseases
Are You At Risk ?

D.C. Department of Aging

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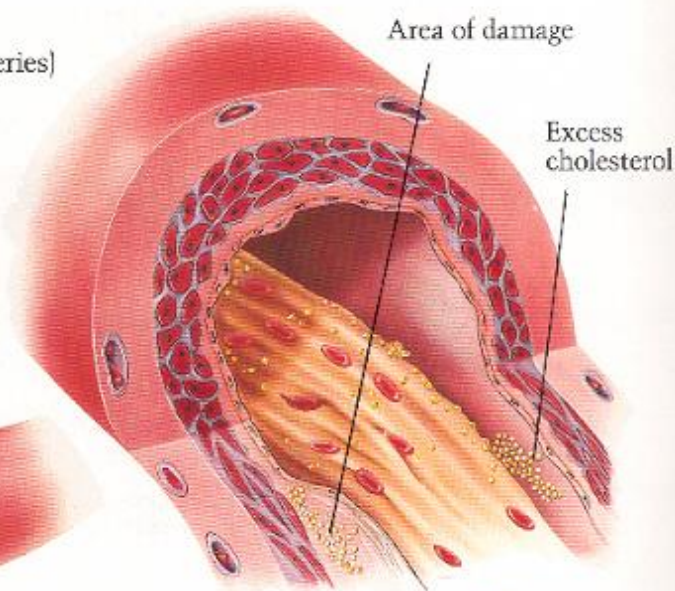
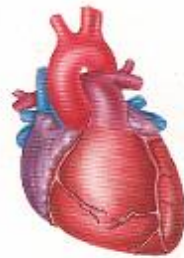
Atherosclerosis

“Hardening of the arteries”

The primary killer of all
Americans, all ethnic groups
and genders.

WHAT CAUSES ANGINA PECTORIS?

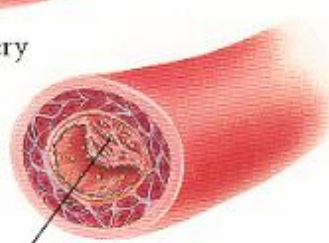
Atherosclerosis
(Hardening of the arteries)



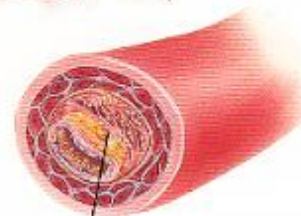
Normal artery



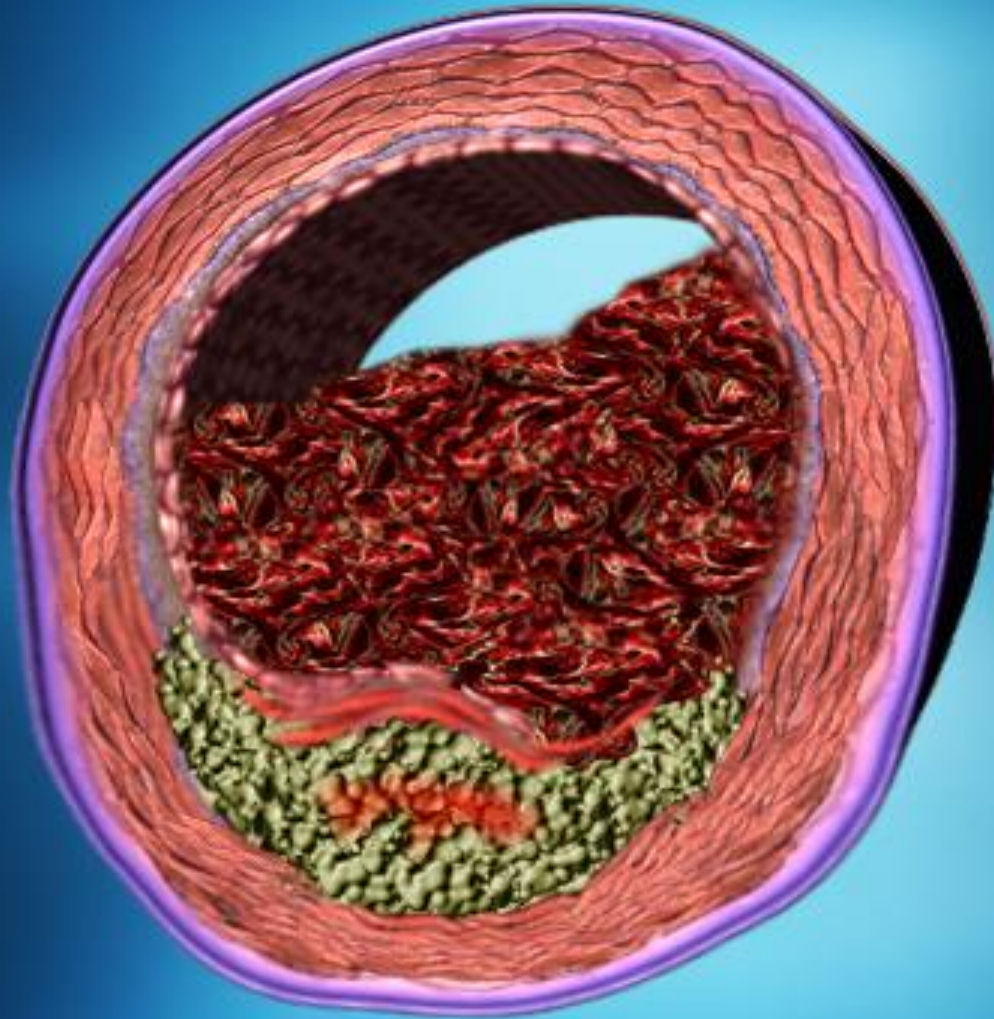
Plaque buildup



Advanced plaque buildup



The Cause of Most Acute Coronary Syndromes: Thrombosis of a Disrupted Atheroma



Atherosclerosis

- It is preventable.
- It is not a natural process of aging.
- It is reversible.

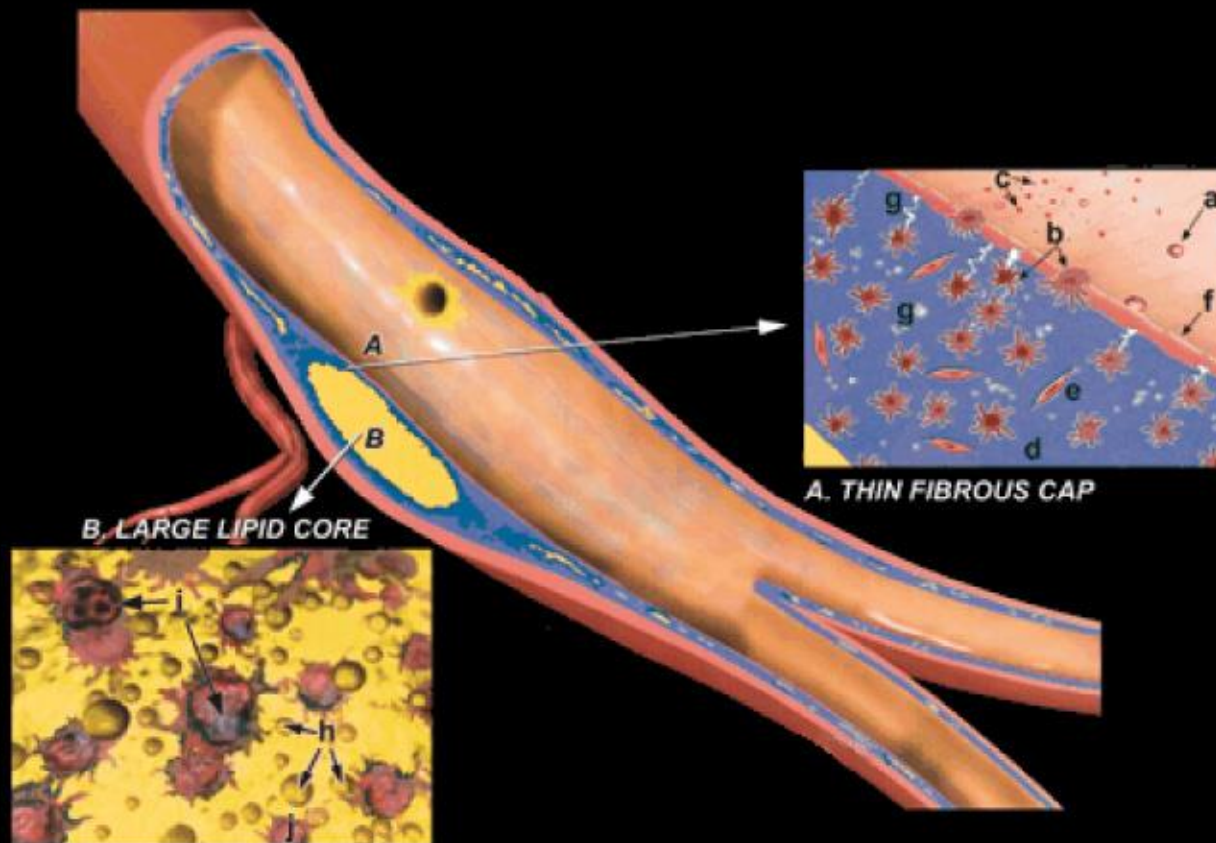
Atherosclerosis

- Onset is in the fetal state if your mother has a high cholesterol when she is carrying you.
- Otherwise it will begin in the first decade of life.

ED (ERECTION DYSFUNCTION)

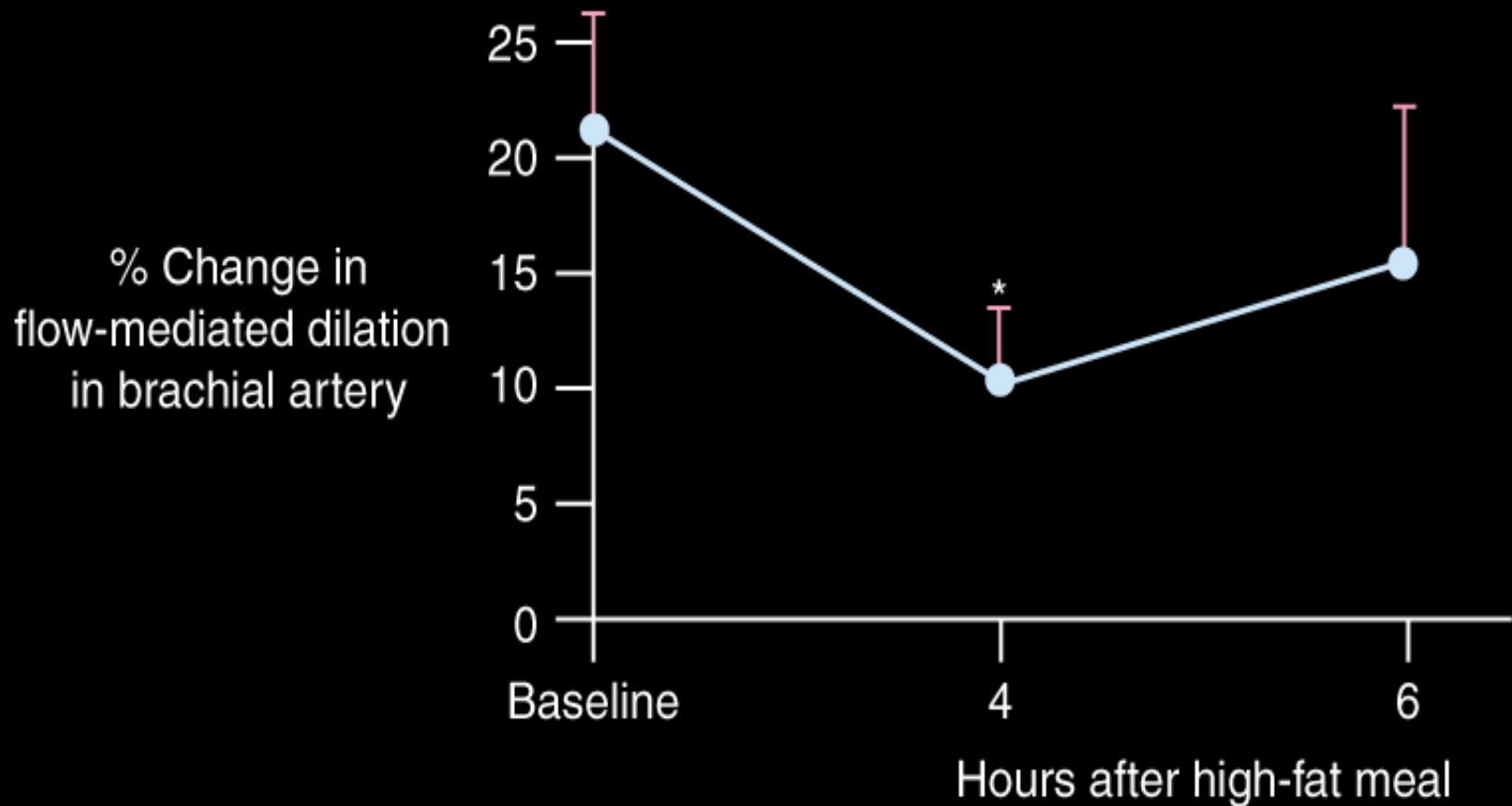
- This is one of the first signs of artery wall dysfunction in men from atherosclerosis.

Most common type of vulnerable plaque



- Thin fibrous cap
- ↓ Smooth muscle cells
- ↑ Macrophage infiltration
- Large lipid core with little luminal narrowing

Effect of a high-fat meal on vascular activity in normocholesterolemic subjects



* $P = 0.03$ vs baseline

Adapted from Vogel RA, et al. *Am J Cardiol.* 1997;79:350-354.

Heart Attack

- Bruise on the muscle wall.
- Called MI, myocardial infarction.
- The coronary artery is totally clogged.

Congestive Heart Failure

- Failure of the heart to efficiently pump blood to the organs and back again.
- Uncontrolled blood pressure is the major cause in African Americans.
- Coronary artery disease is the major cause in the majority of the population.

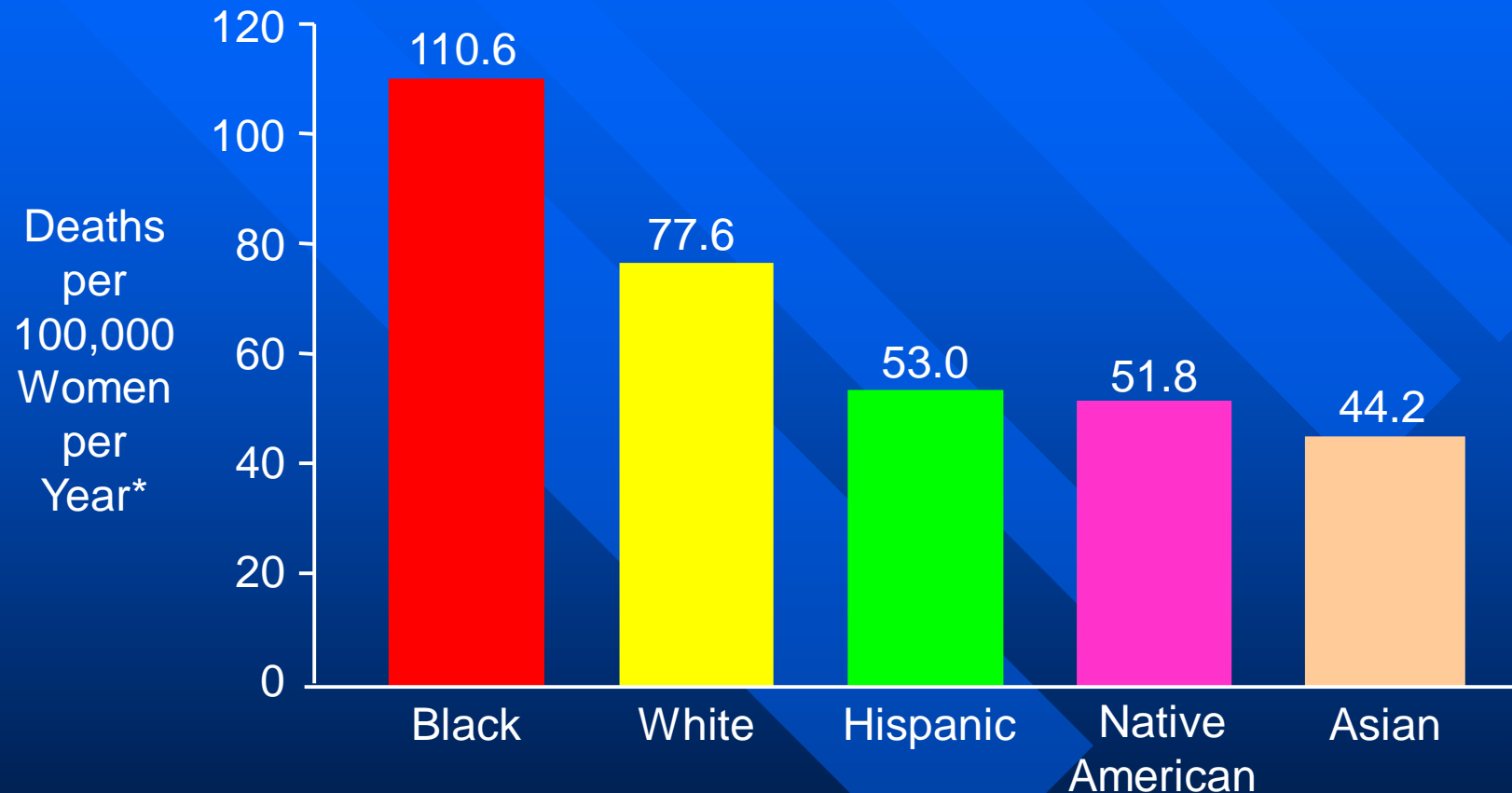
What is Your Risk?

- If you eat animals every day
- If your BMI is over 25
- If your LDL “BAD” Cholesterol is over 100
- If your systolic blood pressure is over 120
- If your fasting blood sugar is over 100
- If you do not exercise
- If you smoke
- If you have an inflammatory process as poor oral hygiene, arthritis, chronic infections
- **YOU CAN NOT HAVE NORMAL ARTERIES!**

STRESS, DEPRESSION & HEART DISEASE

- Heart rhythms are affected
- Blood pressure increases
- Blood clotting is altered.
- Insulin levels increase
- Cholesterol increases
- Stress hormones, cortisol and adrenaline increase.
- Eating disorders increase

Heart Disease Mortality Among Women By Race



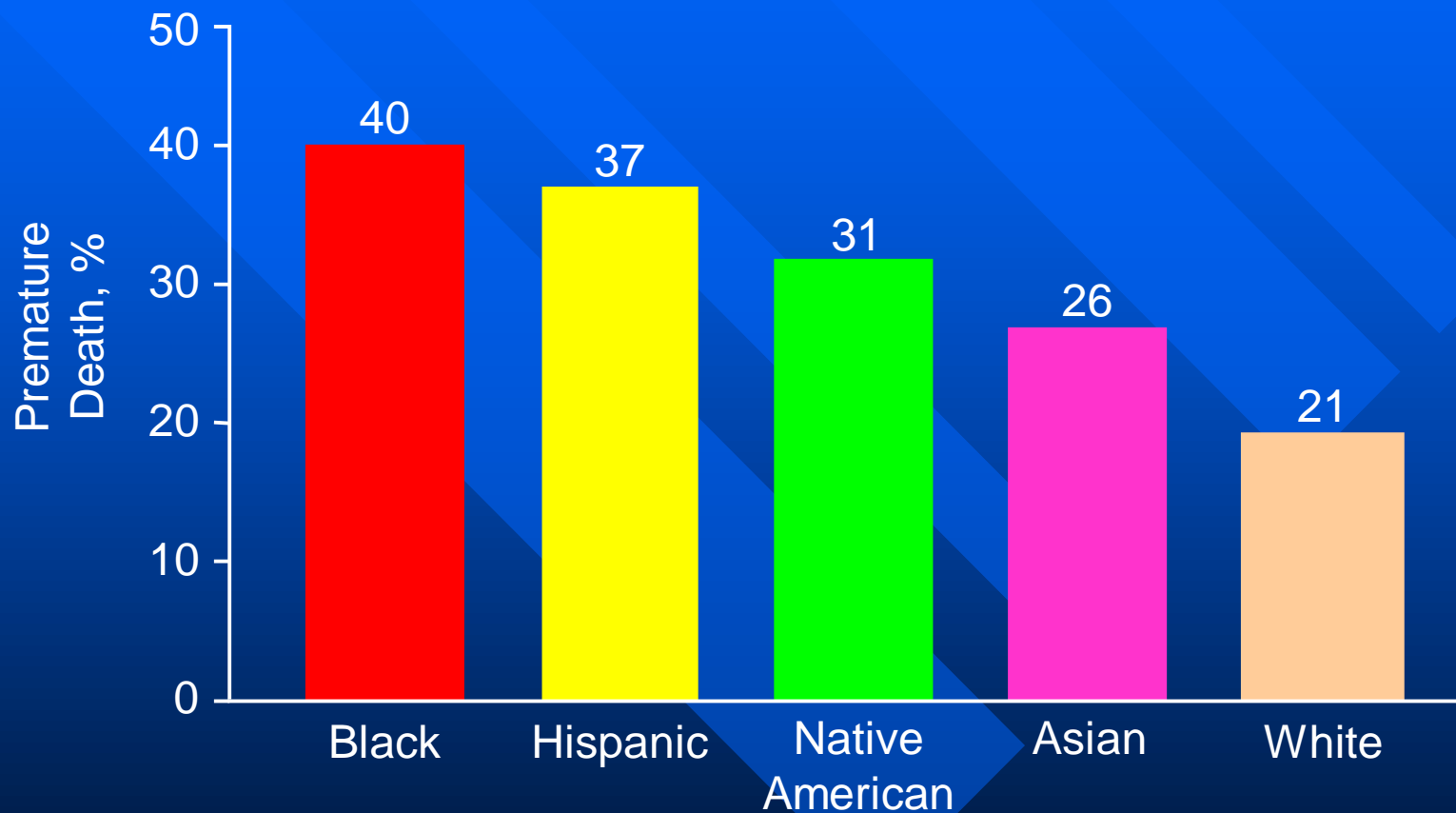
*Women >35 years of age; 1991–1995.

American Heart Association. 2001 Heart and Stroke Statistical Update.

Casper ML et al. *Women and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality*. 2nd ed. 2001.

Available at: <http://www.cdc.gov/cvh/womensatlas/index.htm>.

Premature Death From Heart Disease in Men <65 Years of Age



Risk Factors

The background of the slide features a gradient from dark blue at the bottom to a lighter blue at the top. Overlaid on this are several thick, parallel diagonal stripes in a medium blue color, running from the bottom-left towards the top-right.

Simplified BP classification

<u>BP Classification</u>	<u>SBP mm</u>	<u>DBP mm</u>
	Hg	Hg
Normal	<120	<80

SPRINT STUDY

Systolic Blood Pressure Intervention Trial

- Research sponsored by NIH compared treating BP to 120 versus 140 systolic.
- 120 or less resulted :
- One third reduction in heart attack, stroke, and heart failure
- Reduced death by 25%.

WEIGHT & BP

- Every pound you loose is a 2 mm drop in BP

Dietary Approaches to Stop Hypertension (DASH)

- Diet rich in fruit, vegetables, low fat dairy, & low salt can substantially reduce blood pressure.

*Salt is for snow and
sore throats!*

Role of obesity in insulin resistance



↑ Caloric intake

Sedentary lifestyle

Genetic factors

↑ Free fatty acids

↑ Glucose

↑ Lipids

Oxidative stress

Inflammation

Insulin resistance

Metabolic Syndrome

- Prediabetes which is just as destructive as diabetes.
- Waist: women of color > 31.5 in.
European women >35 in.
- Waist: men of color 37 in.
- Fasting sugar over 100 mg/dl.
- BP and cholesterol elevation.

Diabetics can not have normal arteries.

We call this coronary artery
equivalent.

DIABETES & CHOLESTEROL

- Optimal LDL “BAD” CHOLESTEROL GOAL :
- Heart Disease or equivalent (Diabetes) <70
- All diabetics should be on a “statin” cholesterol drug no matter what their cholesterol level.
- *New data: cholesterol plaque may show a trend toward reversal with an LDL of <70*

Classification of Overweight Based on Body Mass Index

- Overweight >25 BMI
- Obese >30 BMI

BMI= kg/m^2

NHANES 111

Complications of Obesity

- Stroke
- Coronary heart disease
- Diabetes
- Hypertension
- Gall bladder disease
- Arthritis
- Gout
- Deep vein thrombosis
- Venous stasis
- Cancer: breast, colon, uterus, pancreas, kidney, prostate.
- Lung: sleep apnea
- Fatty liver
- Reproductive abnormalities: polycystic ovarian disease, infertility, abnormal menses.

OBESITY & the HEART

- Structural changes occur:
- Increase in left atrium
- Increase in Atrial Fibrillation
- Increase in left ventricle thickness



JACC 2010, 55: 2319-27

FAT is metabolically active
tissue that attacks every
organ in your body

Percent of Overweight Women by Ethnicity

■ African American	68.3%
■ Asian	10.1%
■ White	46.8%
■ Mexican American	69.3%

EBONY

**9 To
Watch
In '99**

**How To
Survive
A Disastrous
Love Affair**

Star Jones

Lana Thompson

Kim Coles

**ROY ROBERTS:
General Motors'
\$100 Billion Man**

**The Full-
Figured
Revolution**

**'If You Got It,
Flaunt It'**

**Power
Couples**

**Why Children Are
Killing Children**

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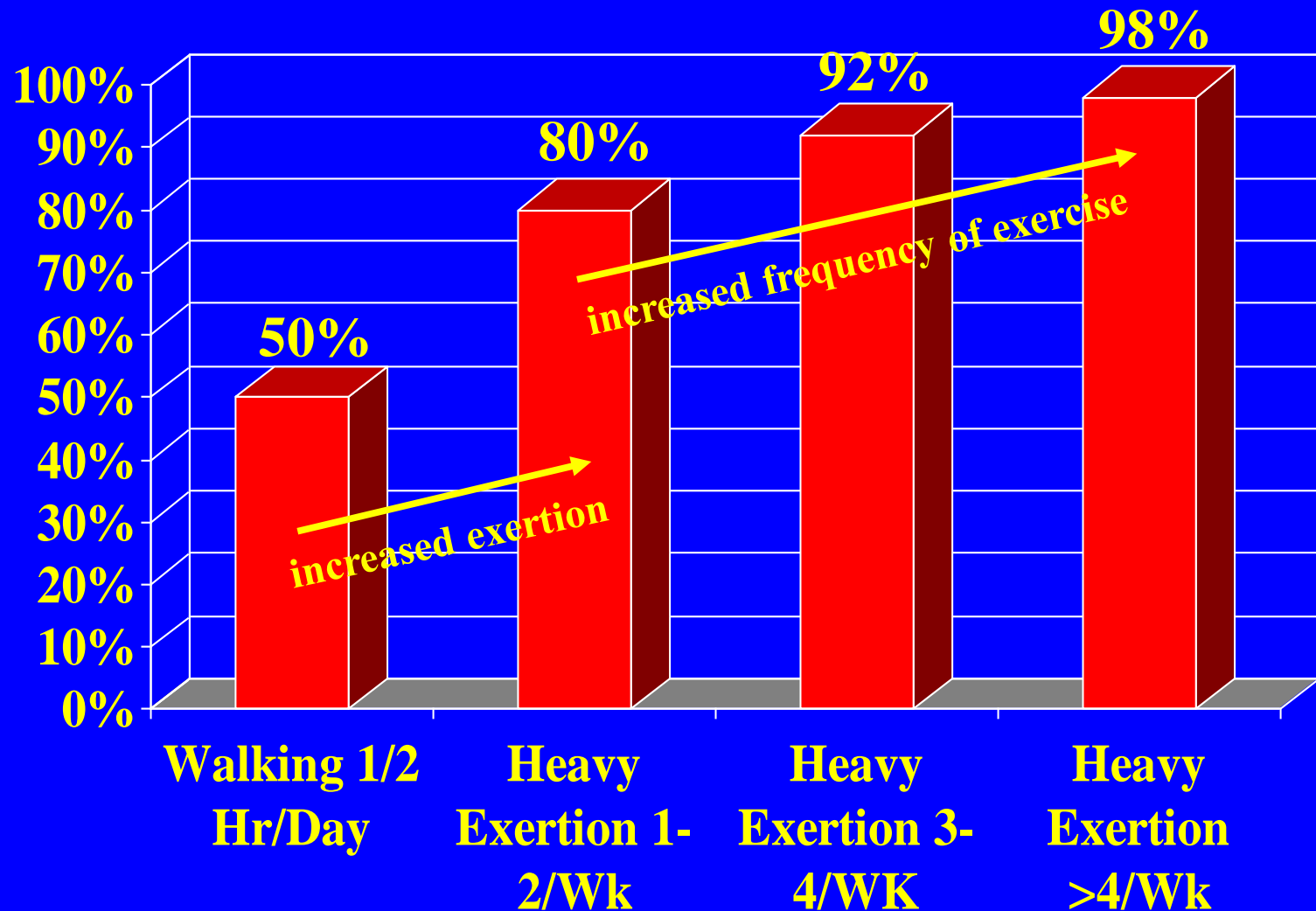
PREVENTION

CAN YOU TURN BACK THE
DISEASE?

Mittleman MA et al, N Engl J Med 1993;329:1677

Hakim AA et al, Circulation 1999;100:9

Effect of Exercise on Reduction in CHD Risk



NUTRITION

YOU ARE WHAT YOU EAT

National Cholesterol Education Program Guidelines (NCEP)

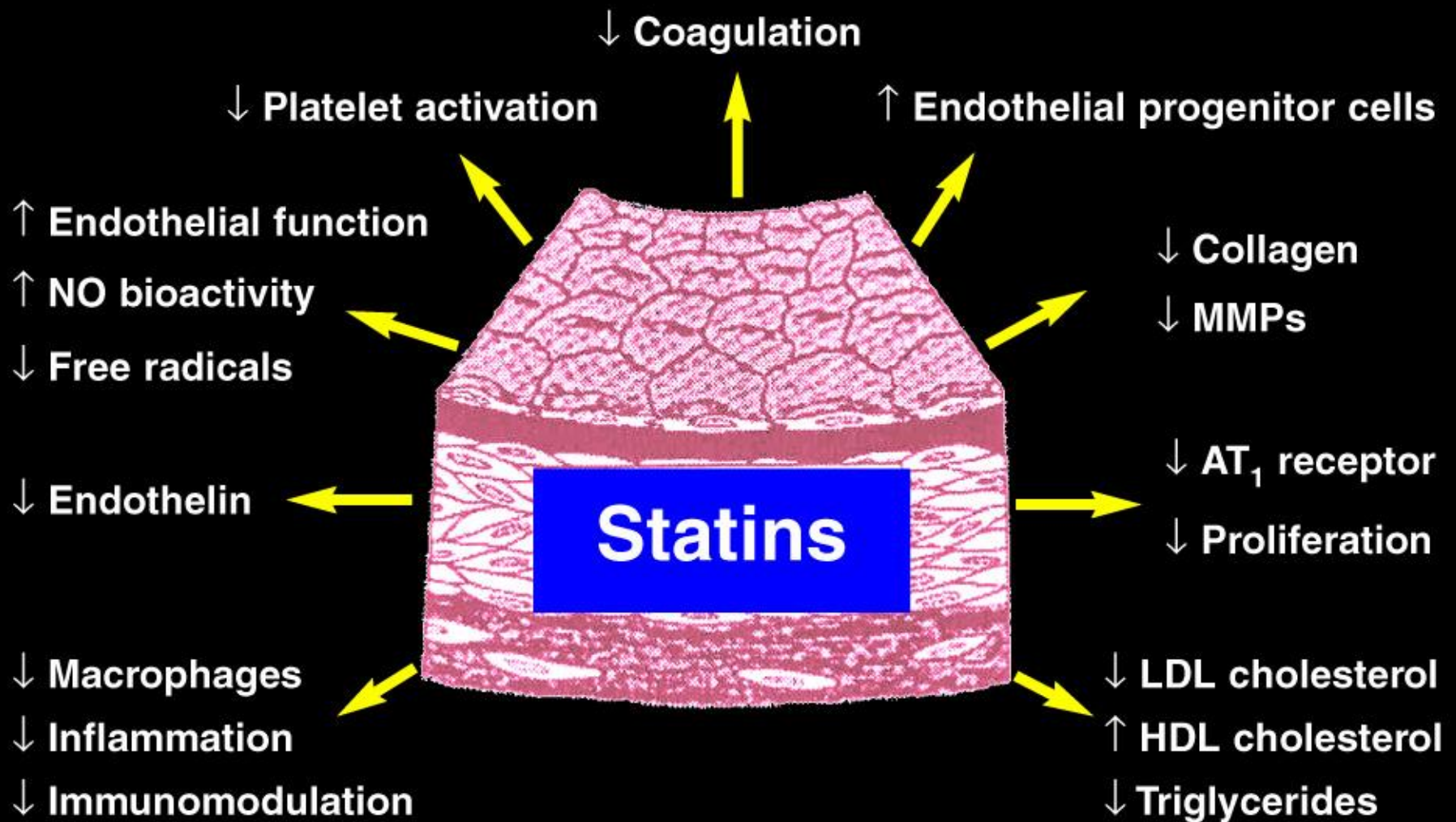
- LDL “BAD” CHOLESTEROL GOAL :
- Heart Disease or stroke or equivalent (Diabetes)
<70
- ***OLD DATA:***
- < 130 (Qwest lab still has this as normal)
- ***cholesterol plaque may show a trend for reversal
with LDL of <70. No one should be over 100.***

Where Does Cholesterol Come From?

■ *Animals.*

- Every living cell is composed of cholesterol.
- We can have a genetic defect in how we metabolize our cholesterol.

Pleiotropic effects of statins on the vessel wall



MMPs = matrix metalloproteinases

Wassmann S, Nickenig G. *Endothelium*. 2003;10:23-33.

Protein Sources

- Beans including soy beans as tofu
- Animal products dairy and meat
- Pick the lowest in cholesterol. Fish and poultry, without the skin
- *You cannot eat an animal everytime you eat and have arteries free of cholesterol.*

COLOR CODE YOUR FOOD

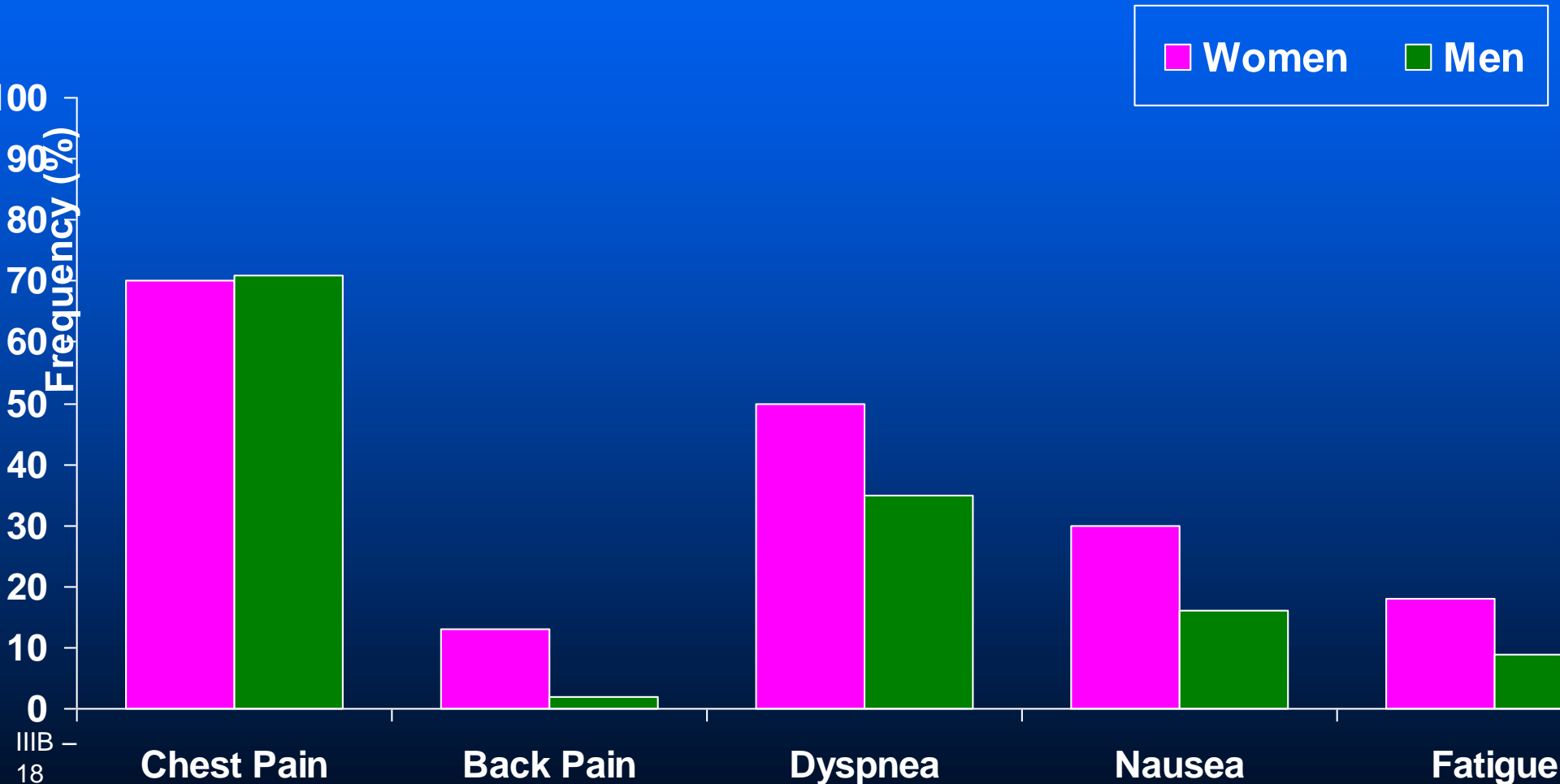
- Green food is lowest in sugar, highest in nutrients
- Red, yellow and orange food is high in sugar and nutrients
- White food is refined, high in sugar, low in nutrients



Differences in Presentation Racial and Gender Bias



Clinical Presentation — Gender Differences



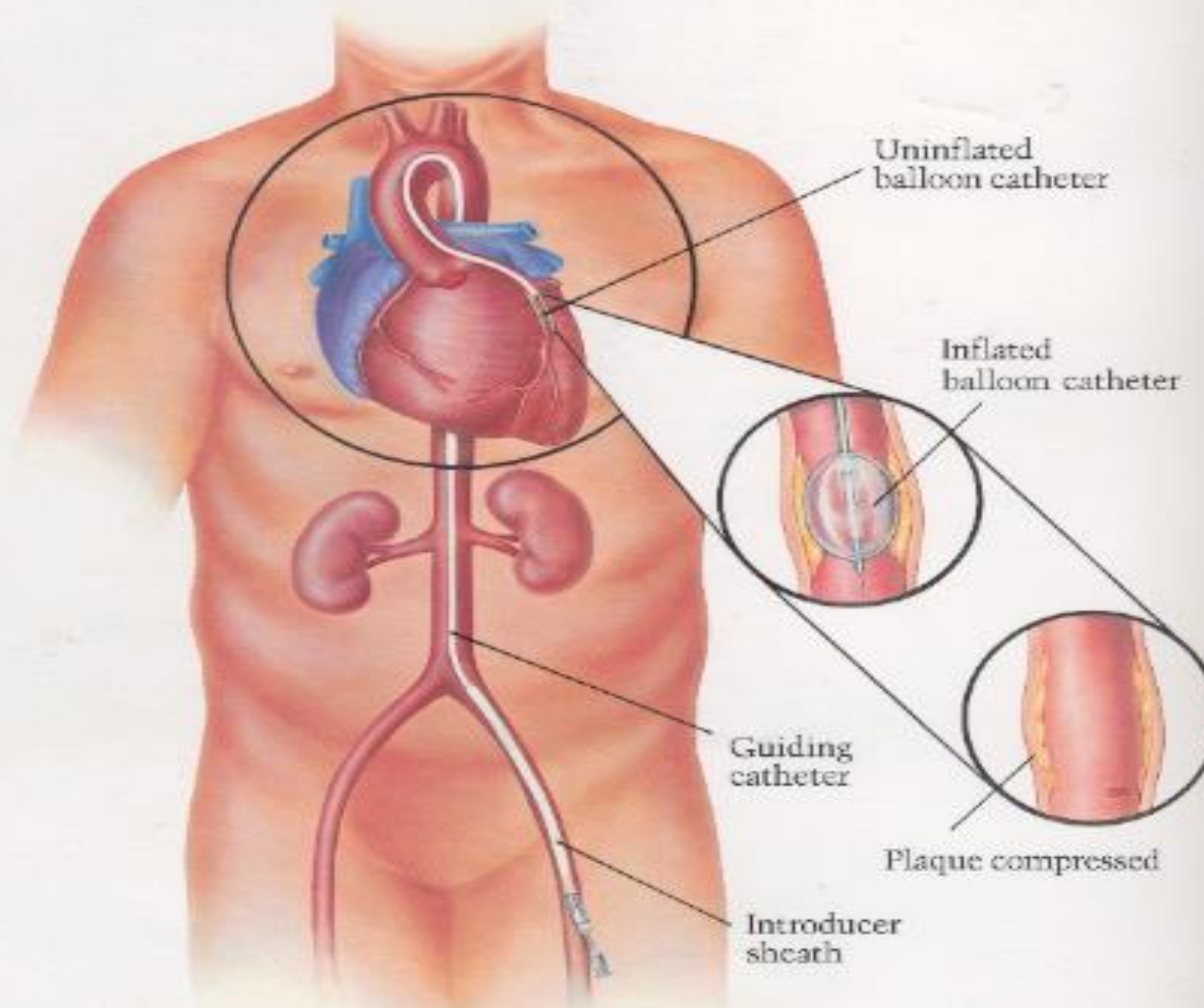
Disparities Solution Center , Harvard University

- Clinical vignette of a patient presenting to ER with acute heart attack.
- Implicit Association Tests and questionnaire were given.
- Physicians with an implicit preference favoring white Americans were more likely to treat patients of color less aggressively.

Disparities Solution Center con't

- Results suggest that a physicians' unconscious biases may contribute to racial/ethnic disparities in use of medical procedures.

WHAT IS ANGIOPLASTY?

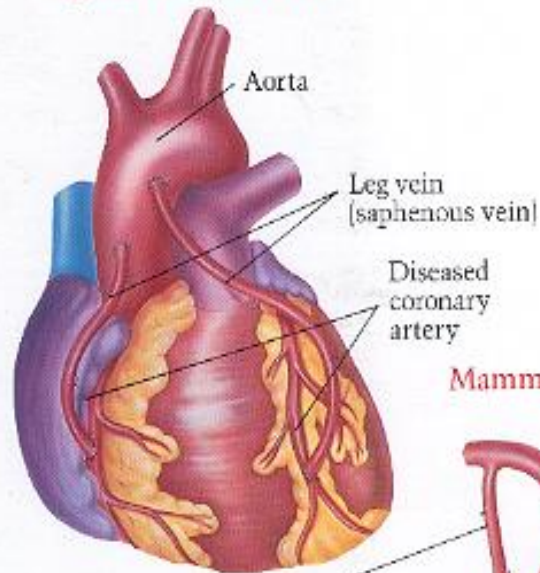


WHEN ANGIOPLASTY SHOULD BE DONE

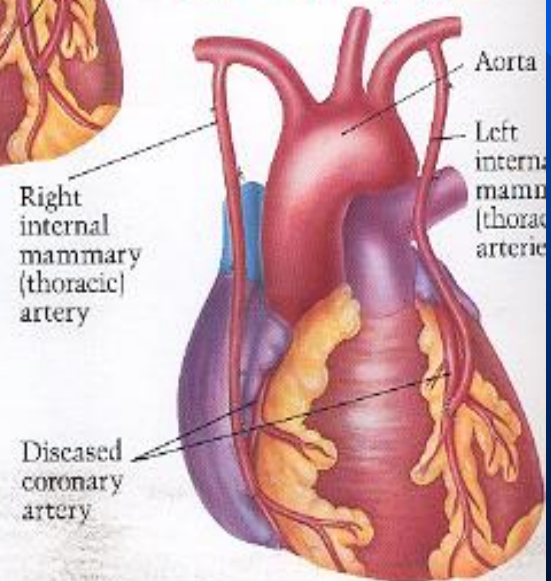
- *You need to be symptomatic.*
- The artery needs to be over 70% closed.
- There has to be proof that the artery is causing the symptoms.
- It will not prevent death or heart attacks.
- The less significantly closed arteries can be treated with medical therapy.

WHAT IS BYPASS SURGERY?

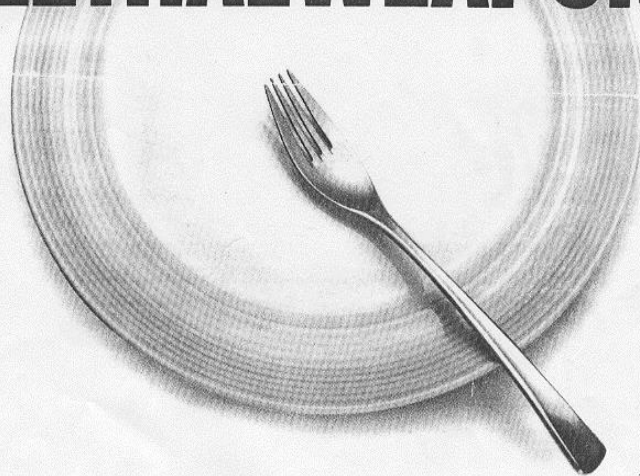
Saphenous vein bypass



Mammary artery bypass



YOU'RE LOOKING AT A LETHAL WEAPON.



Fact is, more Americans may die by the fork than by any other weapon. That's because so many of them use it irresponsibly. Like to fill up on high-fat, high-cholesterol foods. Foods that can load the blood with cholesterol, which can build up plaque in their arteries, increasing their risk of heart attacks and threatening their lives. So next time you pick up a fork, remember to handle it as you would any other weapon. For self-defense, not self-destruction.



**American Heart
Association**

WE'RE FIGHTING FOR
YOUR LIFE

This space provided as a public service.

