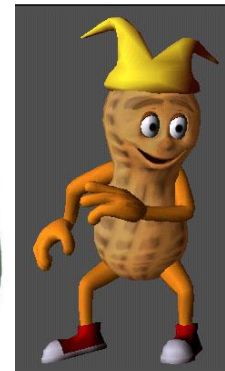




BI 121 Lecture 8

- I. Announcements** **Exam I next session; 10 am & 2 pm lab sections go directly to 5 KLA & 202 CAS. All others here (100 WIL)! Review: Sunday, 6 pm here!** Lab notebooks. Q?
- II. Cardiovascular Connections** LS 2012 ch 9, Torstar Books+...
- III. CV Physiology in News** AHA + NHLBI websites. Nic? ACSM, AHA, DHHS Healthy people exercise guidelines!
- IV. CV Pathophysiology & Risk Reduction** LS ch 9, 10 +...
 - A. AMI, CVA, CVD, PVD, TIA, HTN? + surgical treatments
 - B. Atherosclerosis? LS fig 9-27, 9-25, 9-26 pp 266-8
 - C. How to minimize risk of CVDs? Treatment triad:
Exercise, Diet, Drugs+Surgery
 - D. Food choices
make a difference?
What's HAPOC?

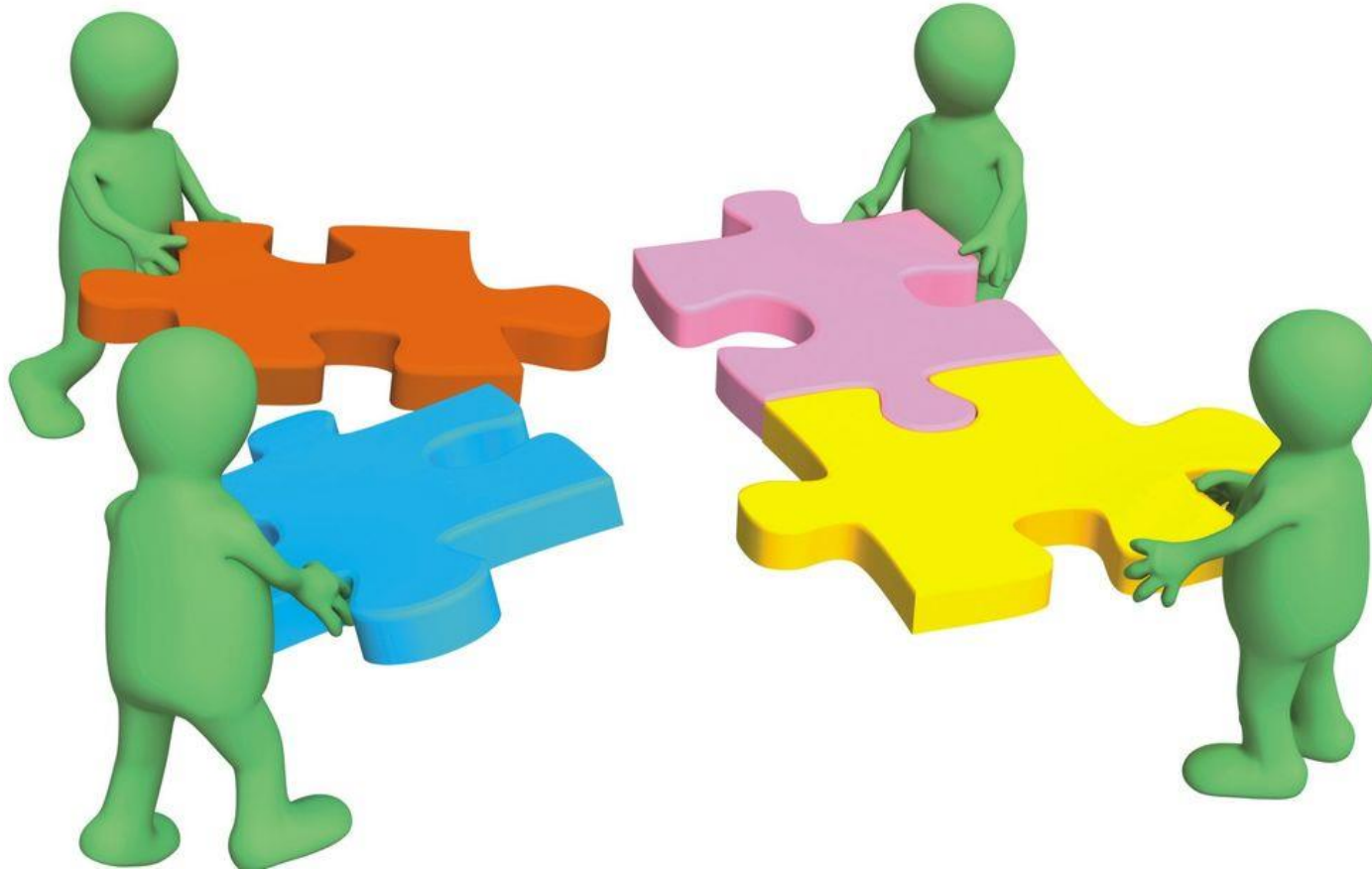


**10 am lab section takes Exam
on Tuesday in 5 Klamath (KLA)
2 pm lab section takes Exam on
Tuesday in 202 Cascade (CAS)
All others here (100 WIL)!**



**Study & blast
the exam!**

Study Groups?

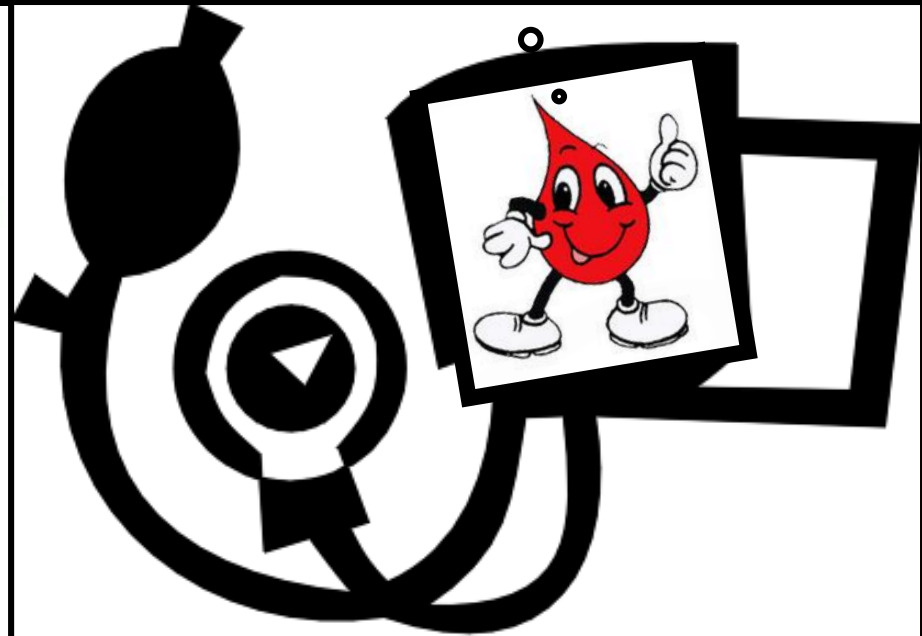


Heart-Blood Pressure Lab Today!

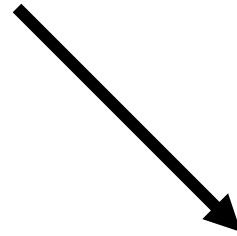
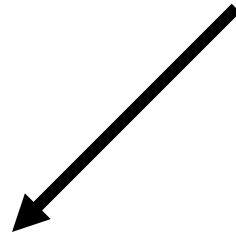
Lub-dup!



I'm cool!



Cardiac Cycle

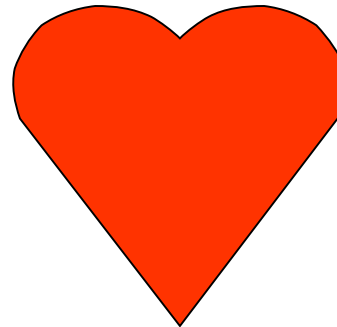
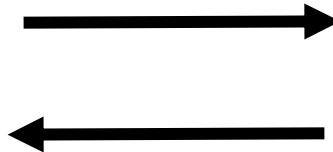
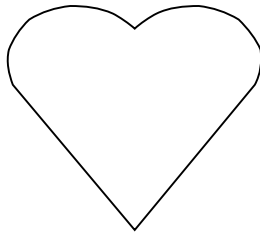


Systole

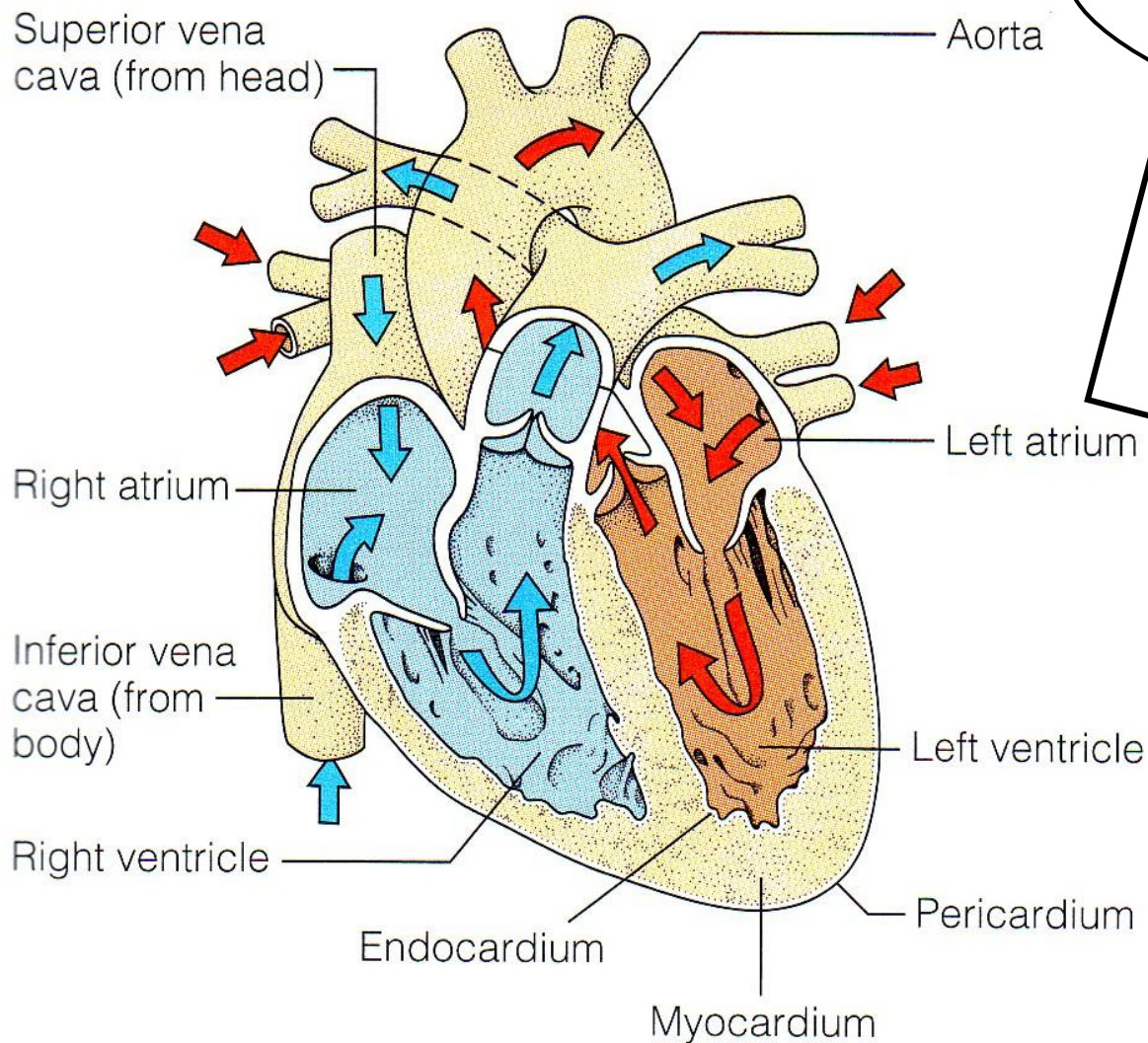
Contract
& Empty

Diastole

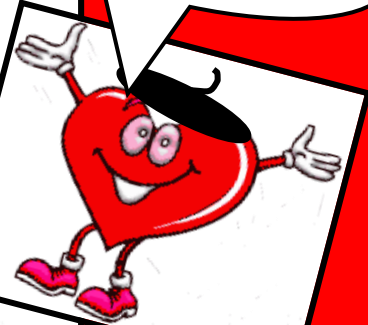
Relax
& Fill



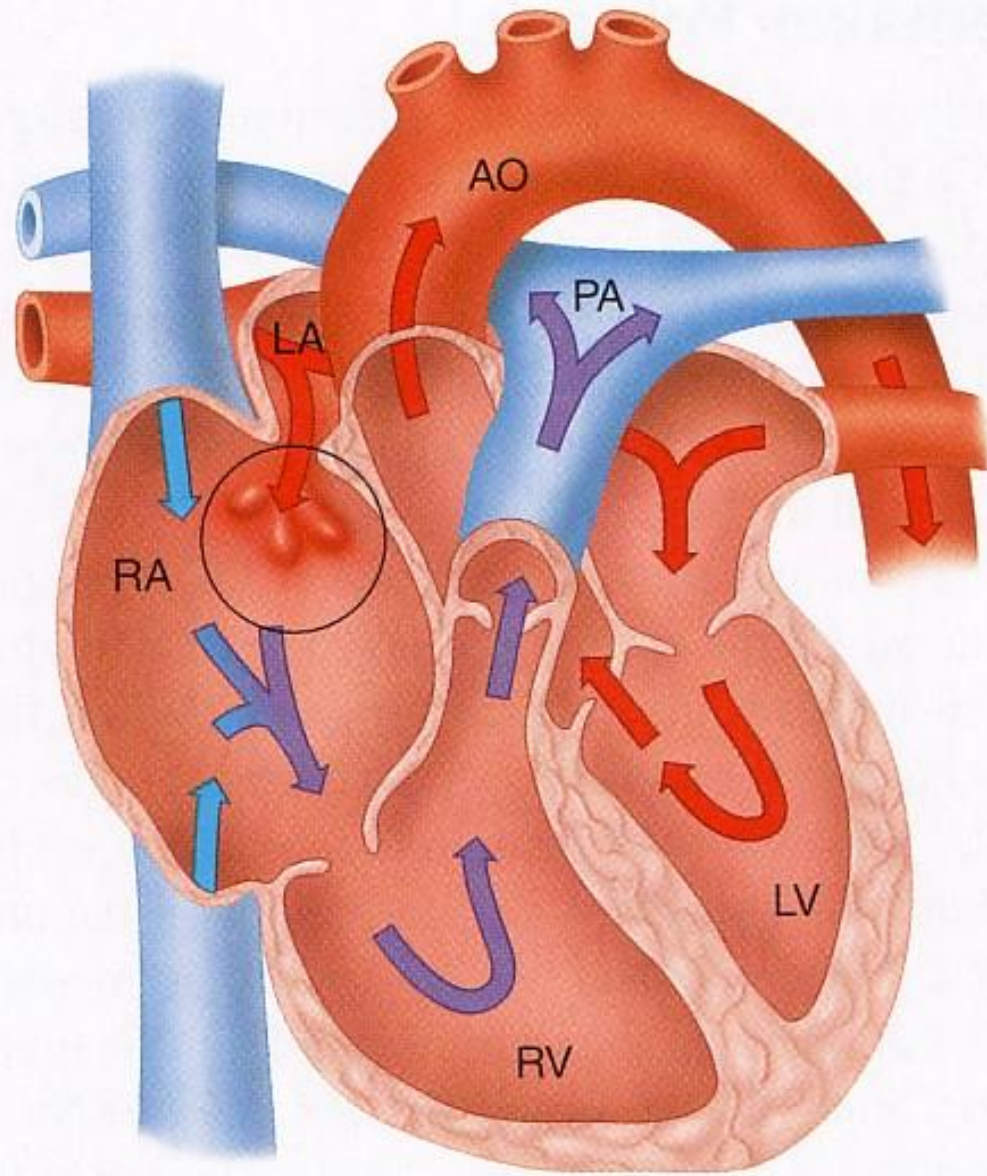
Veins → Atria → Ventricles → Arteries



VAVA!

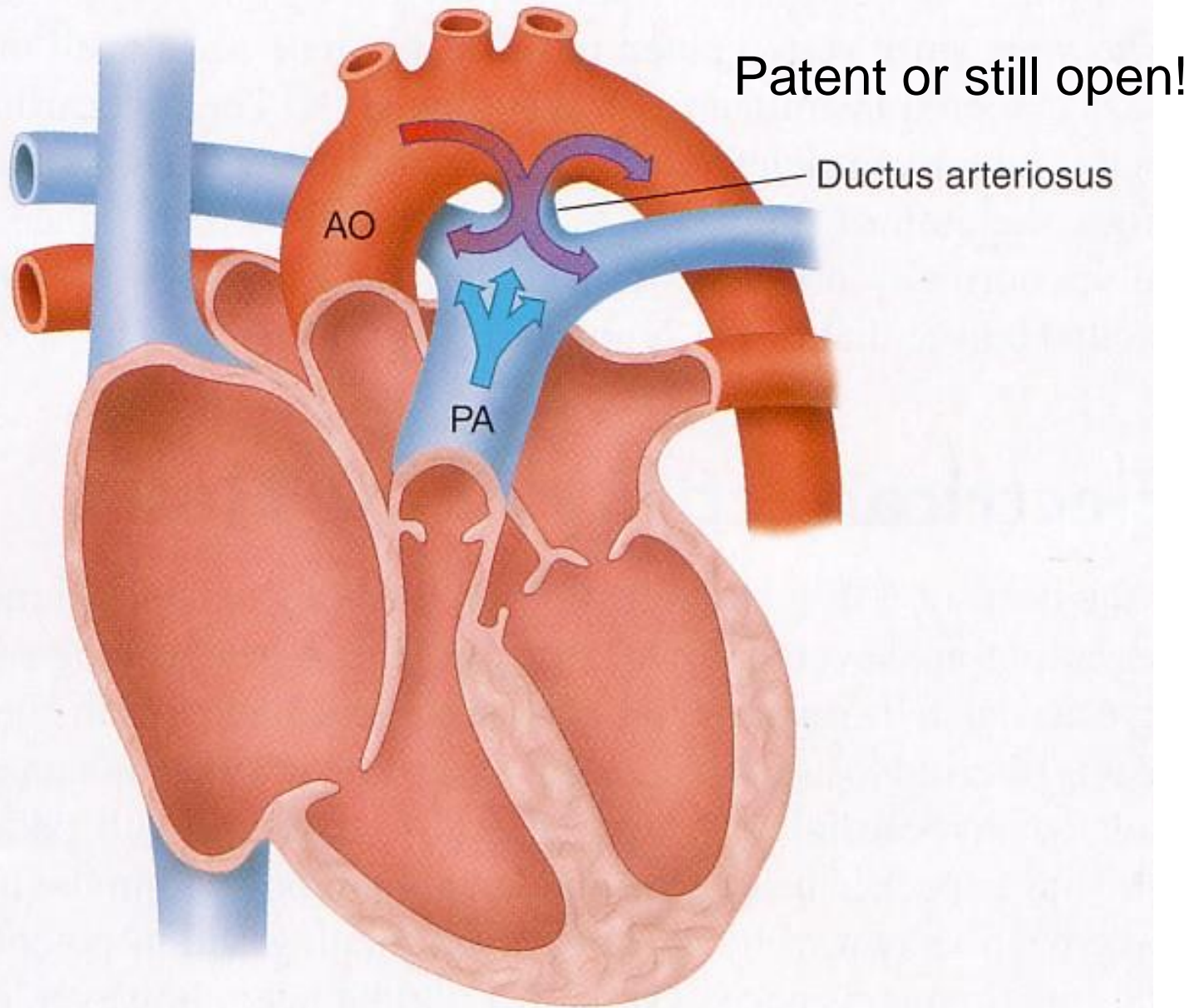


<http://www.nhlbi.nih.gov/health/health-topics/topics/hhw/contraction.html>



SI Fox 2009 fig 13.16 p 419

Septal defect
in atria



American Heart Association (AHA) & National Heart, Lung & Blood Institute

<http://www.heart.org/>



<http://www.nhlbi.nih.gov/health/>

Department of Health and Human Services · National Institutes of Health

National Heart Lung and Blood Institute

People Science Health





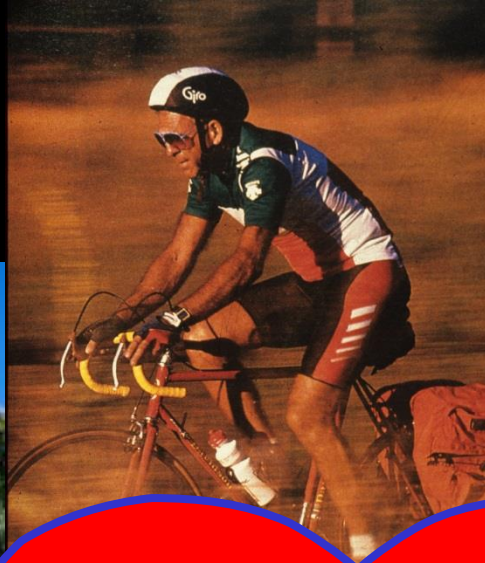
We all have multimillion-dollar bodies!!

Can you believe that's Nicole?

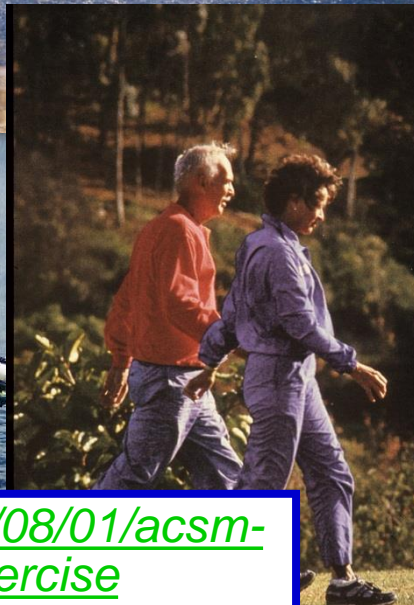
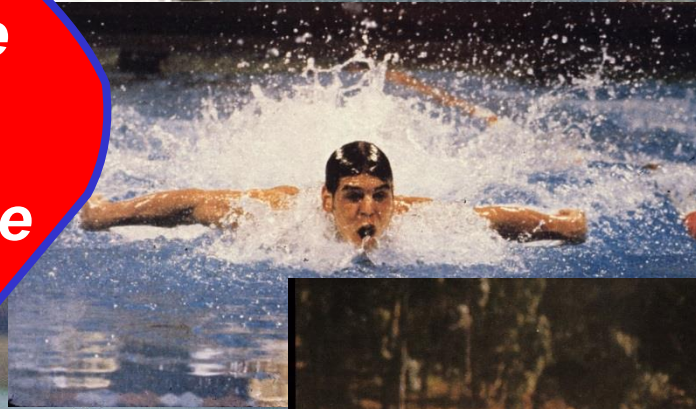
Hollywood glamour queen Nicole Kidman likes to swim to keep that multimillion-dollar body in shape. But the down-to-earth superstar doesn't need a fancy spa — she does her laps at the local YMCA! Nice goggles, Nic!



How much aerobic?



Continuous exercise
≥ 50% muscle mass
≥ Conversational pace
20-60 min/session
3-5 days/wk



<http://www.acsm.org/about-acsm/media-room/news-releases/2011/08/01/acsm-issues-new-recommendations-on-quantity-and-quality-of-exercise>



AMERICAN COLLEGE
of **SPORTS MEDICINE**

Guidelines: Healthy Adults < 65 yr



**Do moderately intense aerobic exercise
30 min/d, 5 d/wk**

OR

**Do vigorously intense aerobic exercise
20 min/d, 3 d/wk**

AND

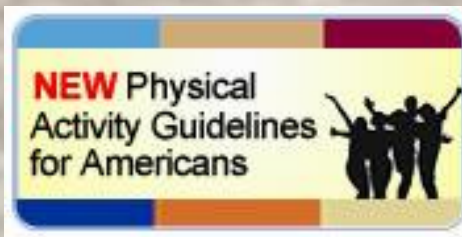
**Do 8-10 strength-training exercises
8-12 repetitions/each exercise, 2 d/wk**

How much strength?

- ✓ 2-3 days/wk
- ✓ 8-10 exercises for major muscle groups
- ✓ ≥ 1 set/exercise
- ✓ 8-12 (most) or 10-15 (frail/ $> 50-60$ yr) repetitions/set



Federal exercise guidelines include strength training for all
<http://www.health.gov/paguidelines/guidelines/default.aspx>



Adults: Moderate to Vigorous Exercise \geq 30 min, 5 d/wk

Children: Moderate to Vigorous Exercise \geq 60 min, 5 d/wk

CVDs

AMI

CVA



TIA

HTN

PVD

Did you know?

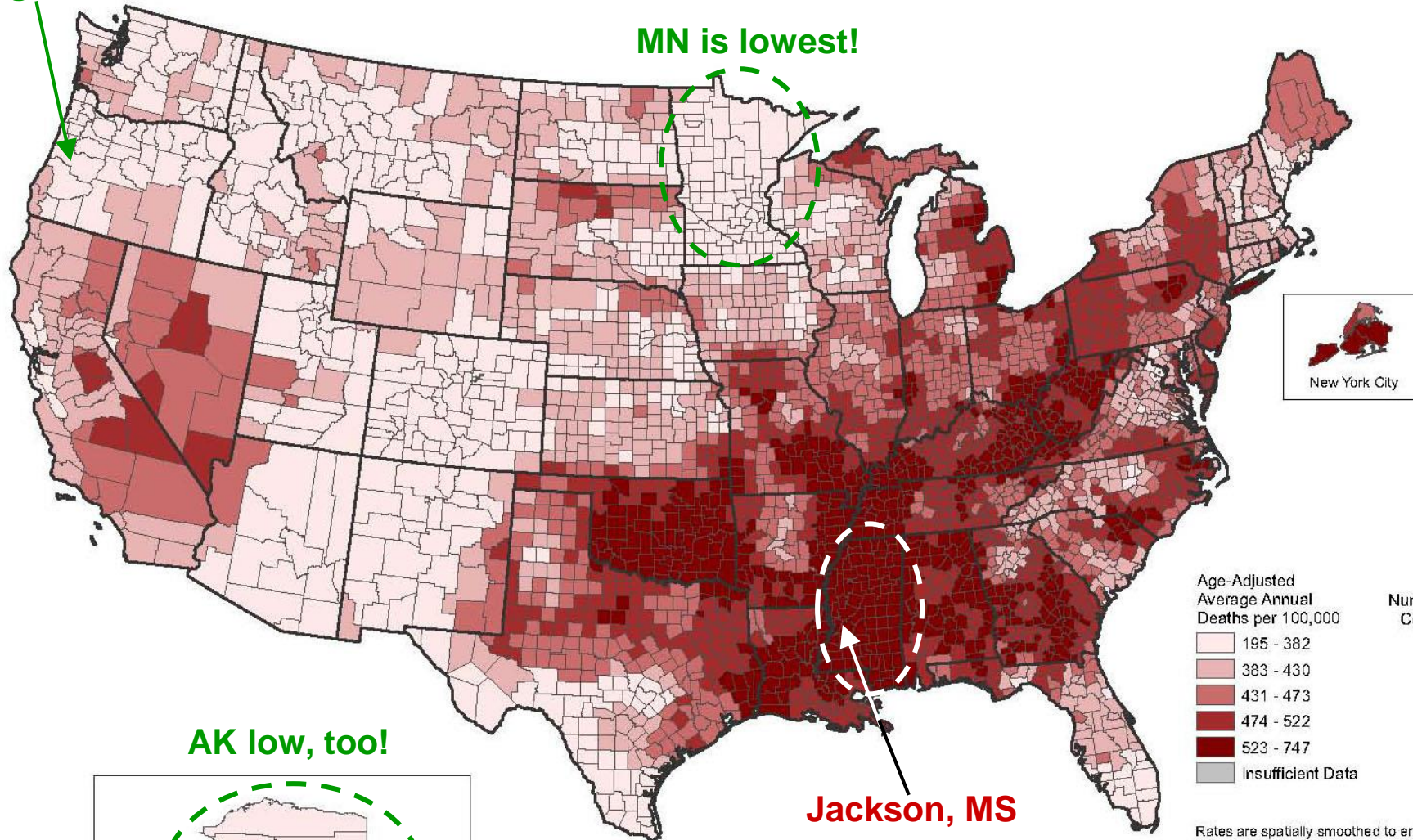
- **Every year ~785,000 Americans have a first heart attack. Another 470,000 who've had ≥ 1 have another attack.**
- **In 2008, > 616,000 people died of heart disease. Heart disease caused almost 25% of deaths in the US.**
- **In 2010, coronary heart disease US costs ~\$108.9 billion including health care, medications & lost productivity.**

SOURCE: Heart Disease Facts, Centers for Disease Control, 2012

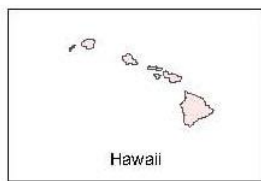
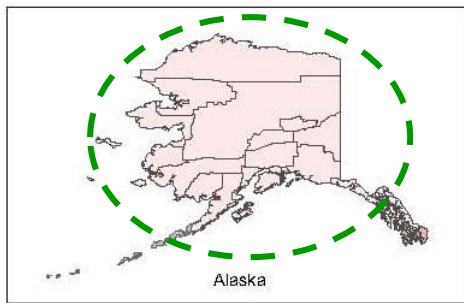
Heart Disease Death Rates, 2000-2006 Adults Ages 35+, by County

Eugene, OR

MN is lowest!



AK low, too!



Jackson, MS

Age-Adjusted Average Annual Deaths per 100,000	Number of Counties
195 - 382	632
383 - 430	648
431 - 473	629
474 - 522	624
523 - 747	606
Insufficient Data	2

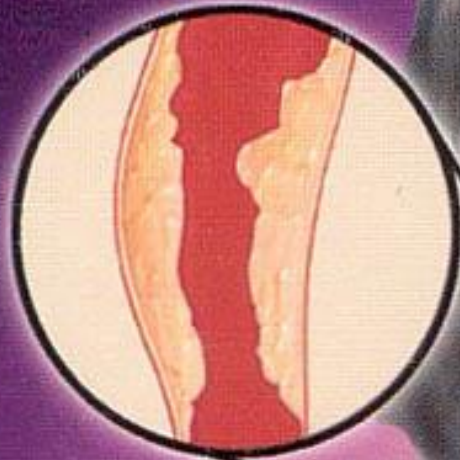
Rates are spatially smoothed to enhance the stability of rates in counties with small populations.

ICD-10 codes for heart disease: I00-I09, I11, I13, I20-I51

Data Source: National Vital Statistics System and the U.S. Census Bureau

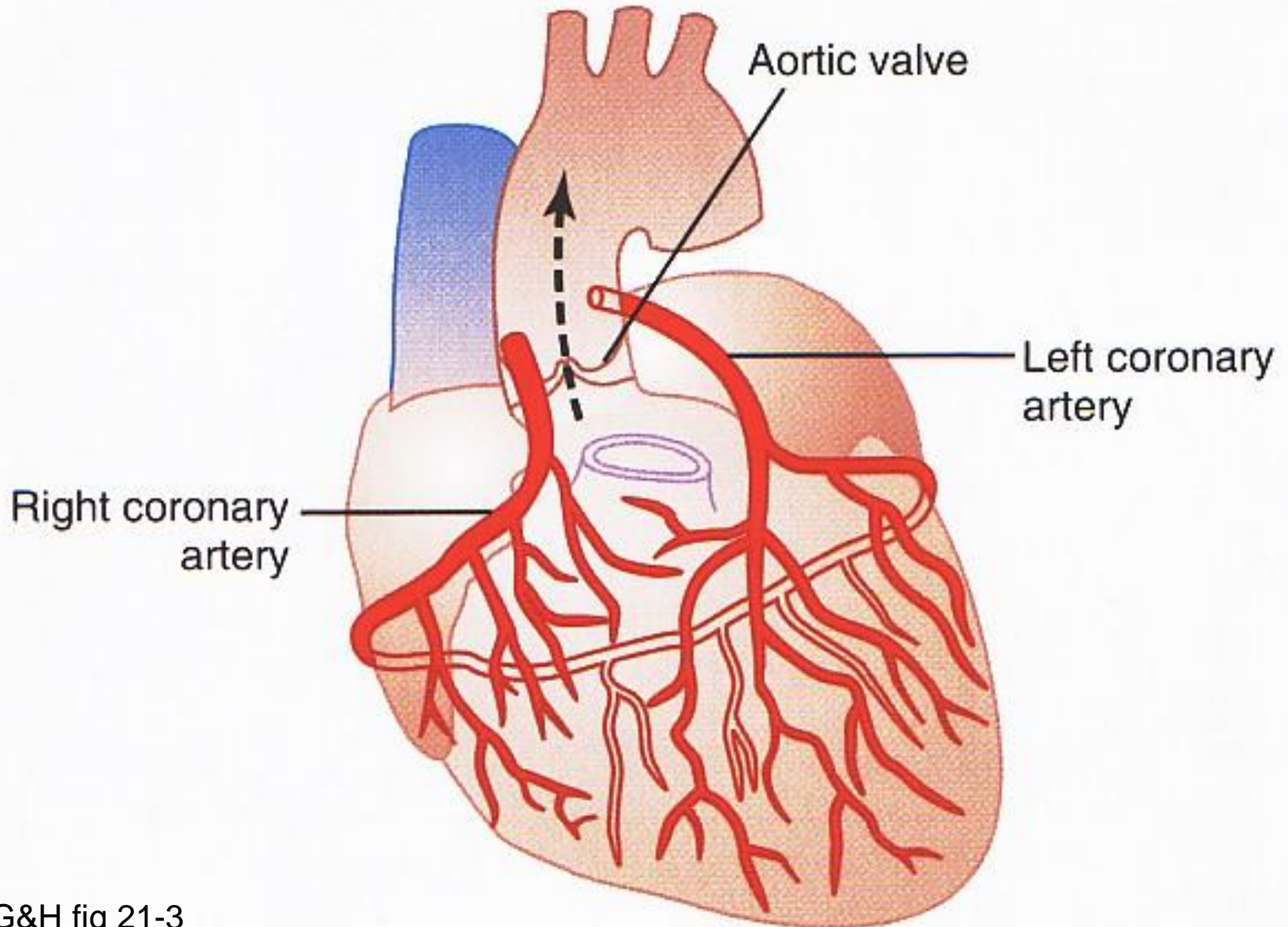


DISEASED CAROTID ARTERY

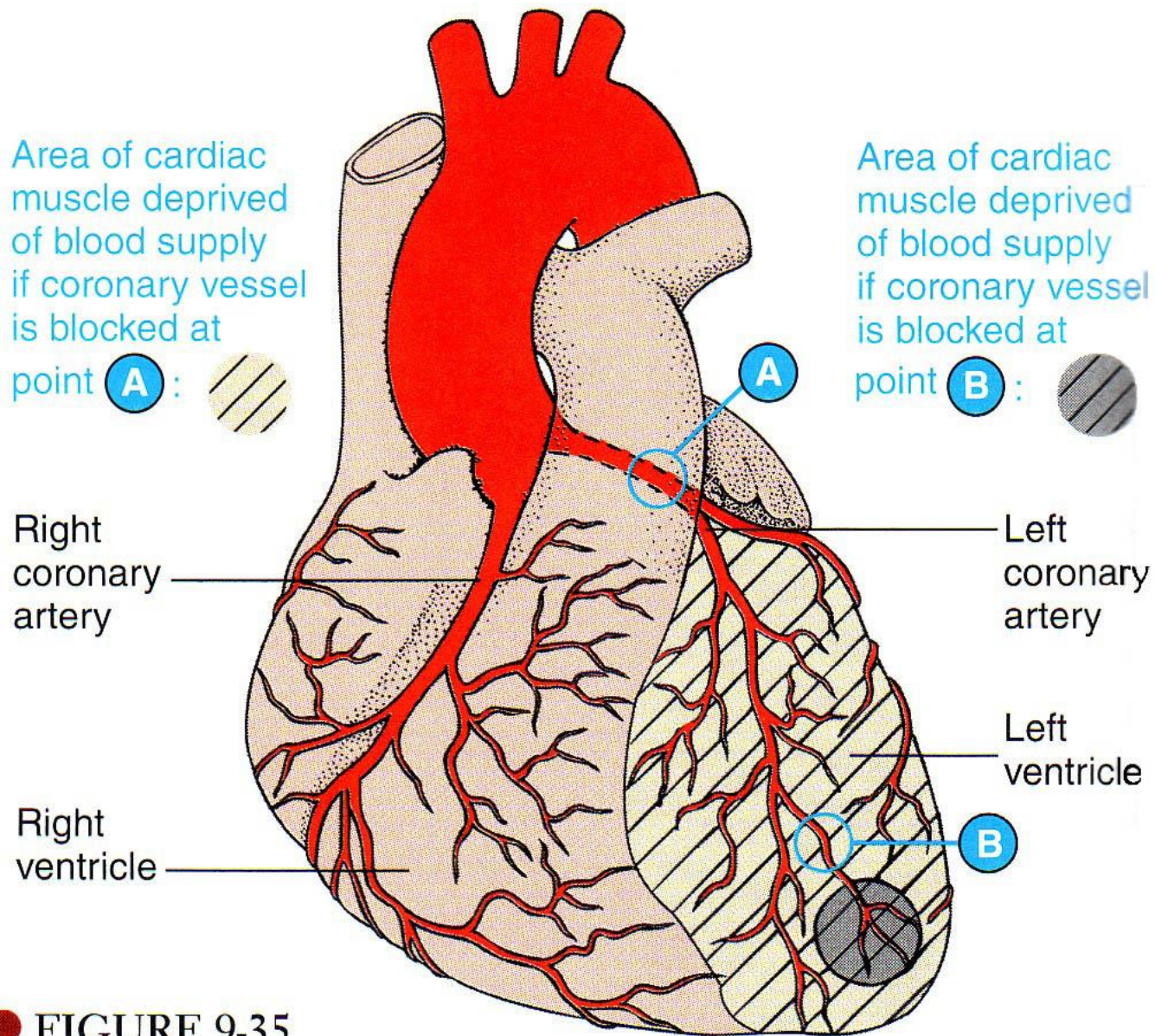


HEALTHY CAROTID ARTERY

Coronary Circulation ≡ Crowns the Heart!

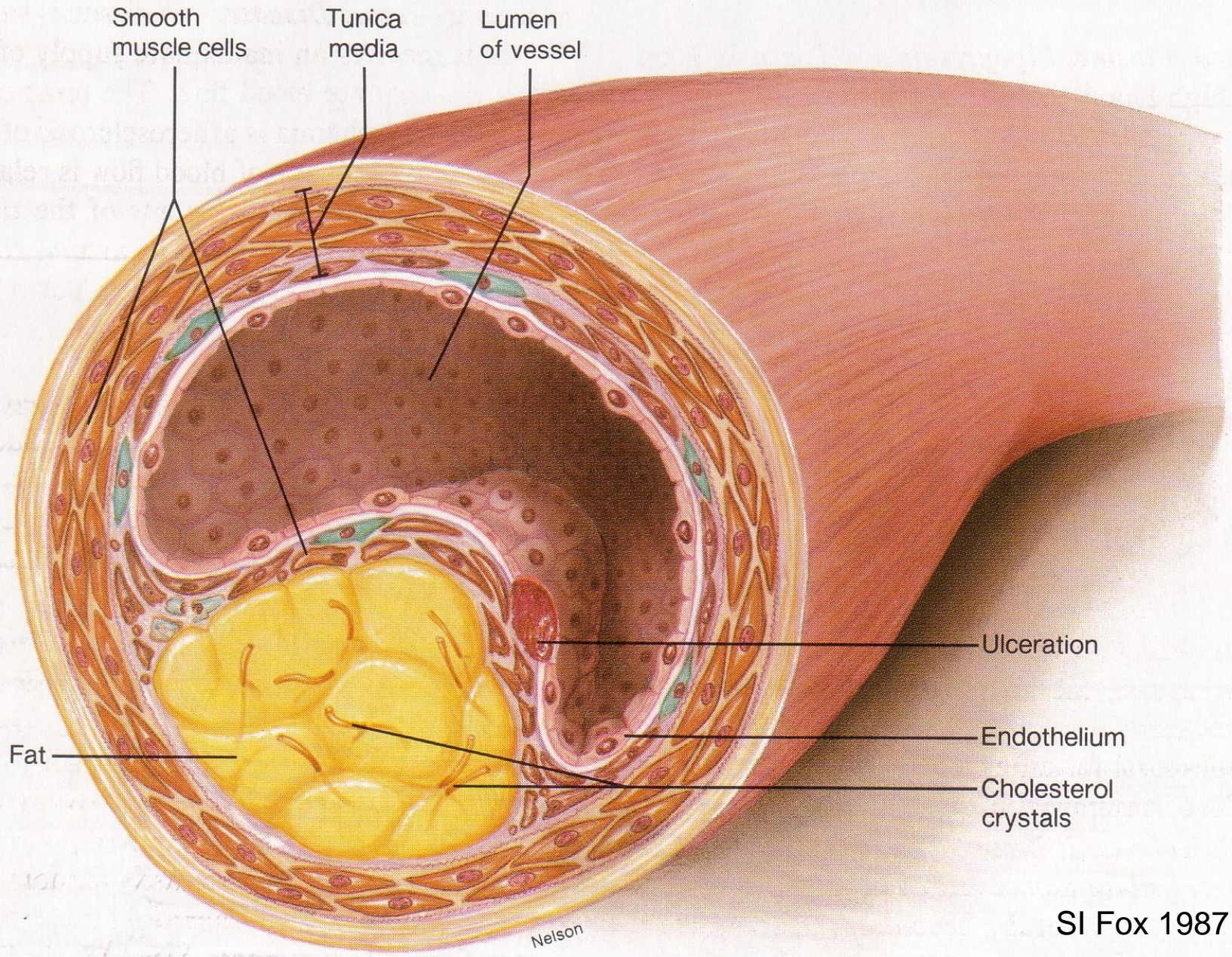






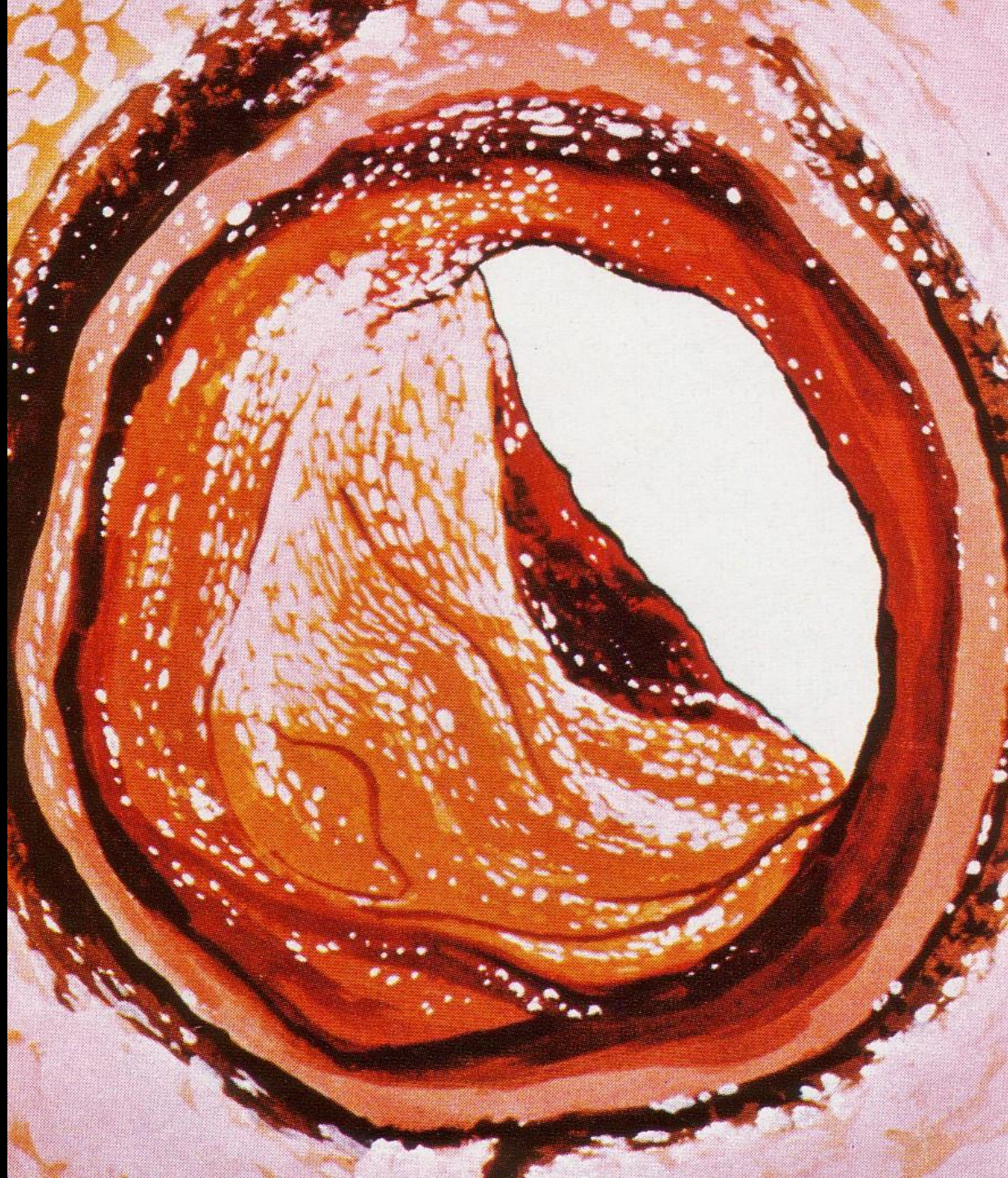
● FIGURE 9-35

Extent of myocardial damage as a function of the size of the occluded vessel

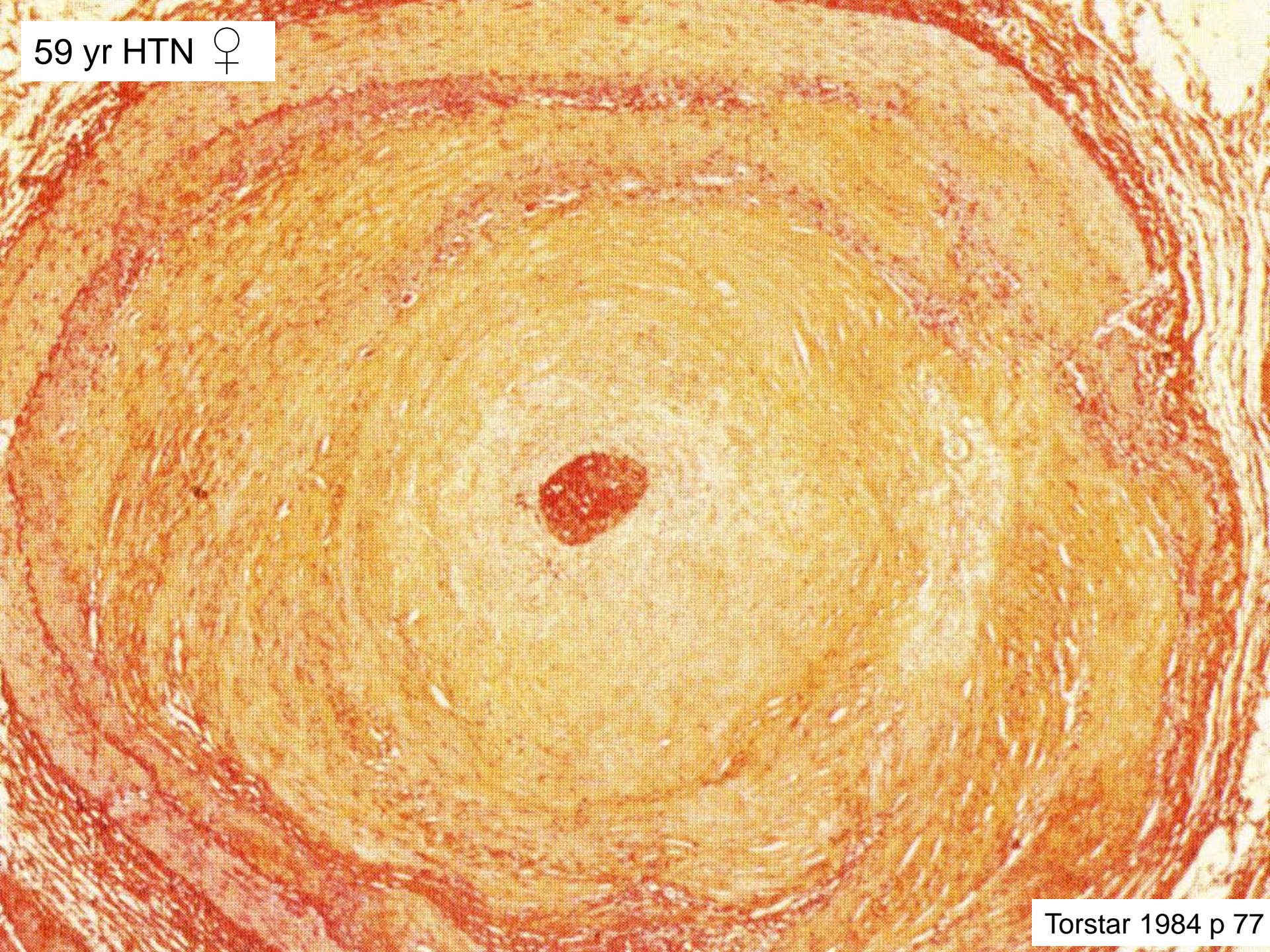


100 yr ♀





59 yr HTN ♀

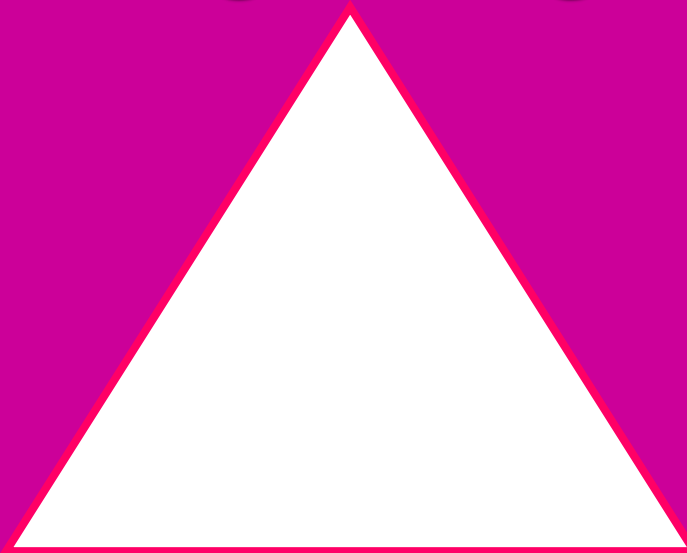


Treatment Triad

NB: Last blasted resort!!



Drugs/Surgery



Exercise

*Dietary
Modification*

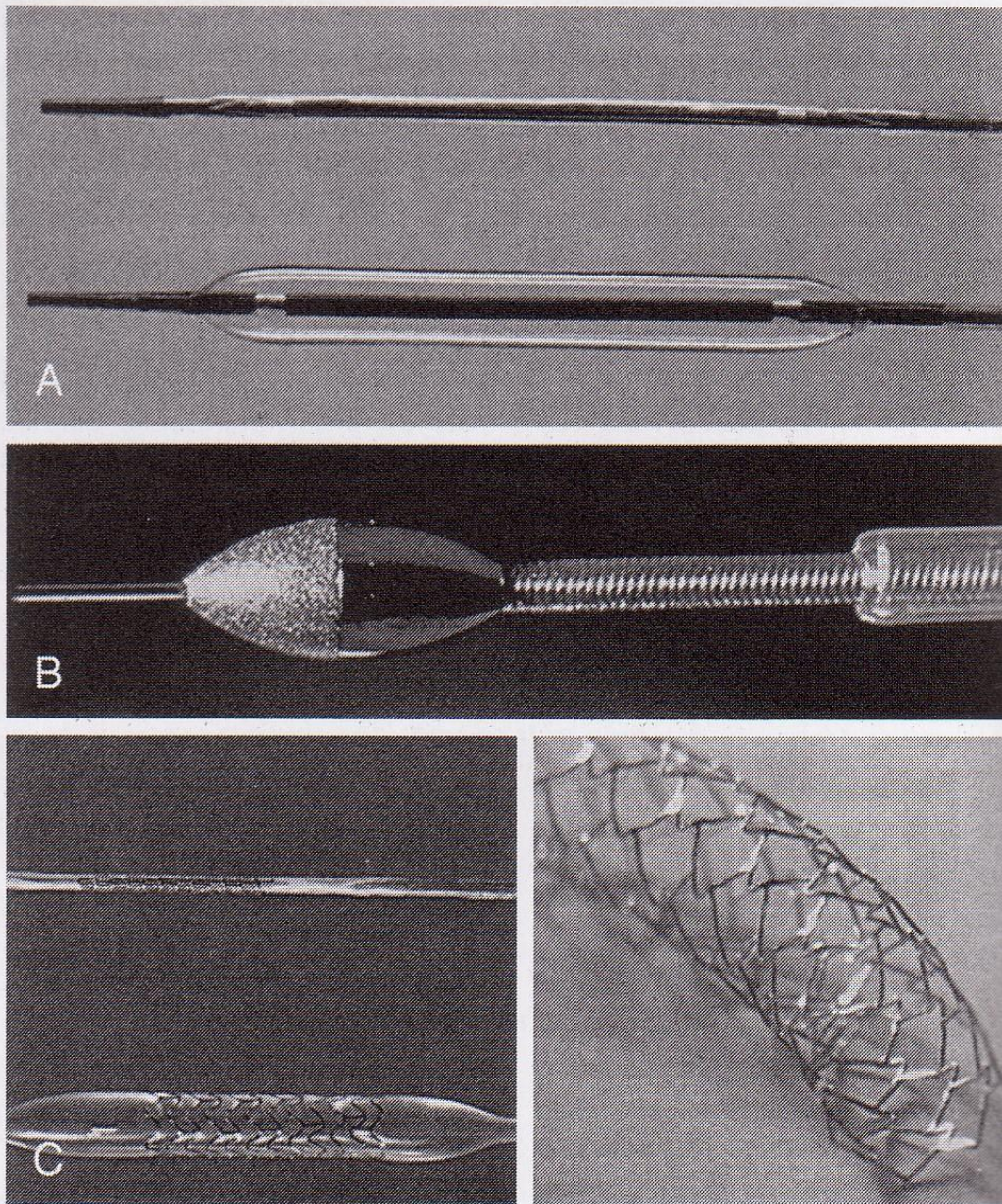
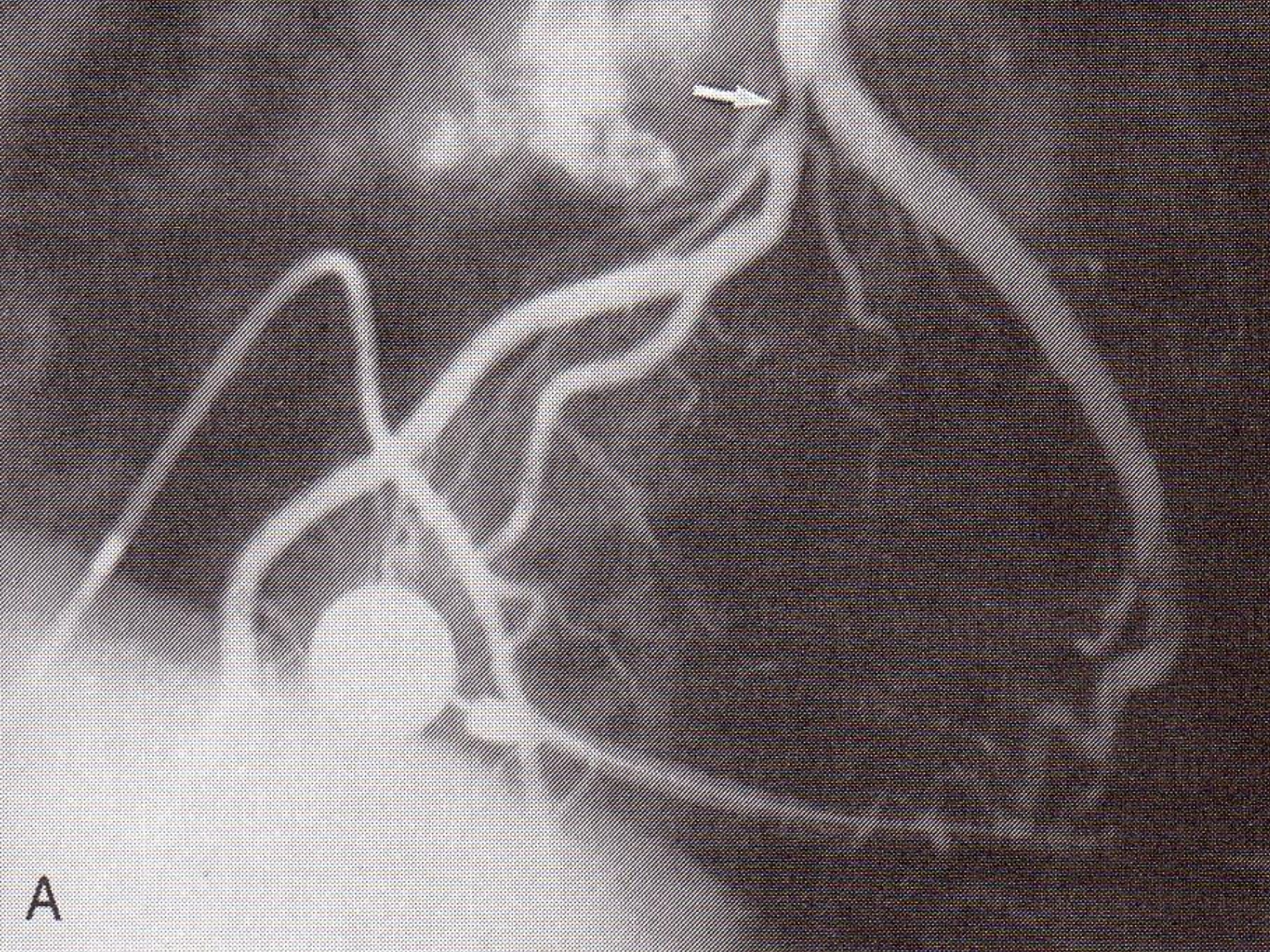
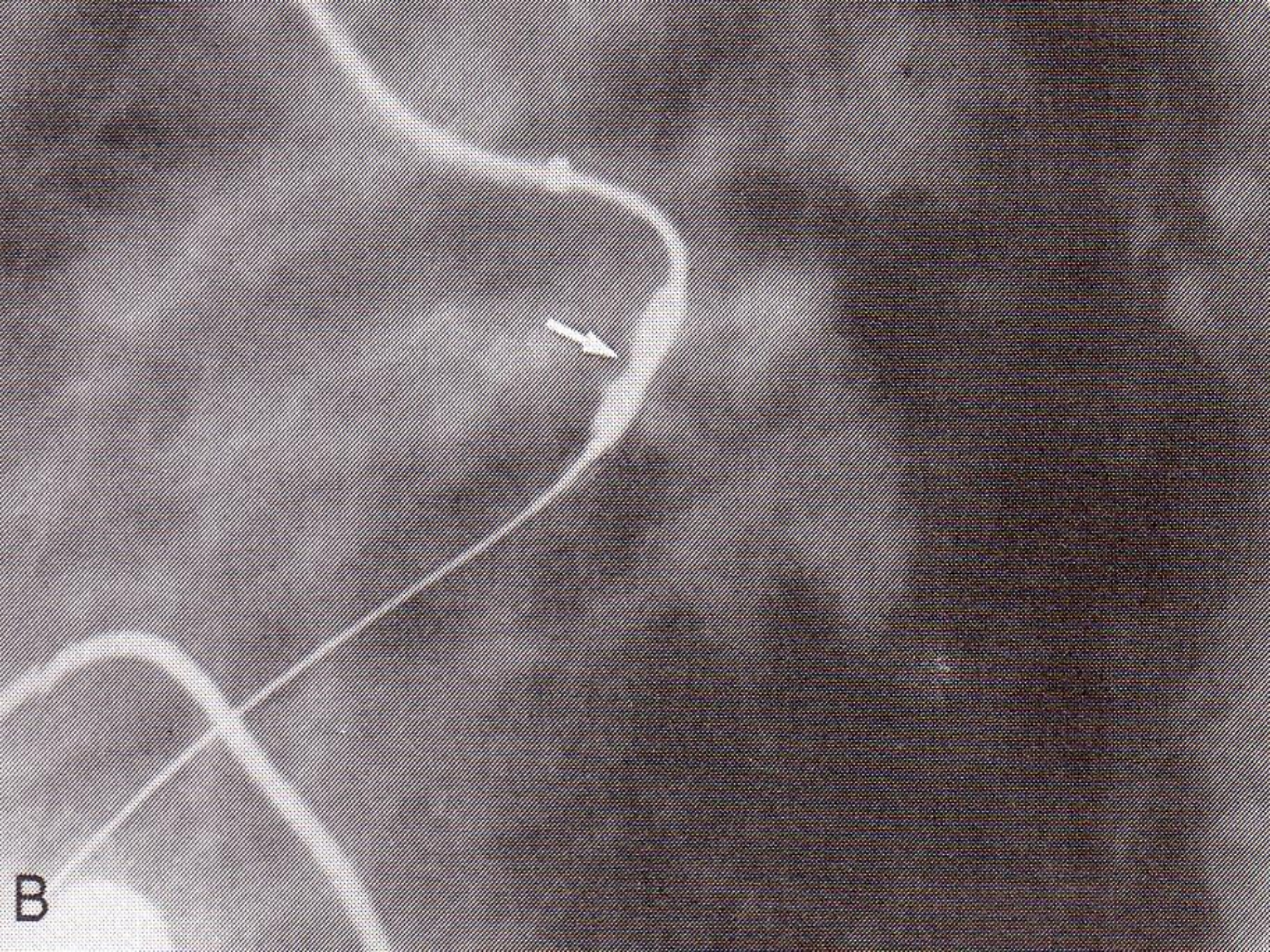


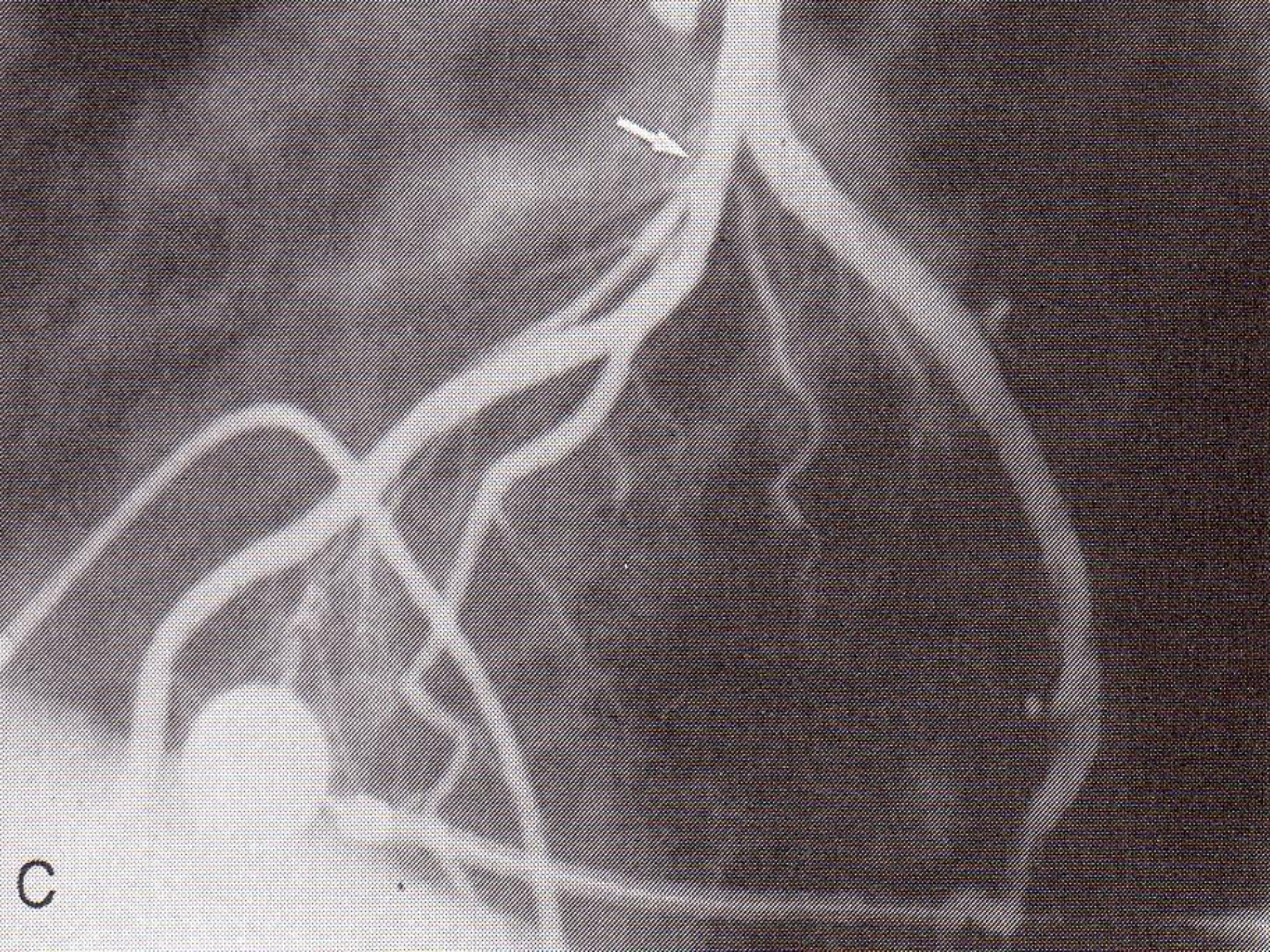
FIGURE 37-1 Devices for percutaneous transluminal coronary interventions. **A**, Coronary balloon. **B**, Rotational atherectomy burr (Rotablator). **C**, Coronary stent.



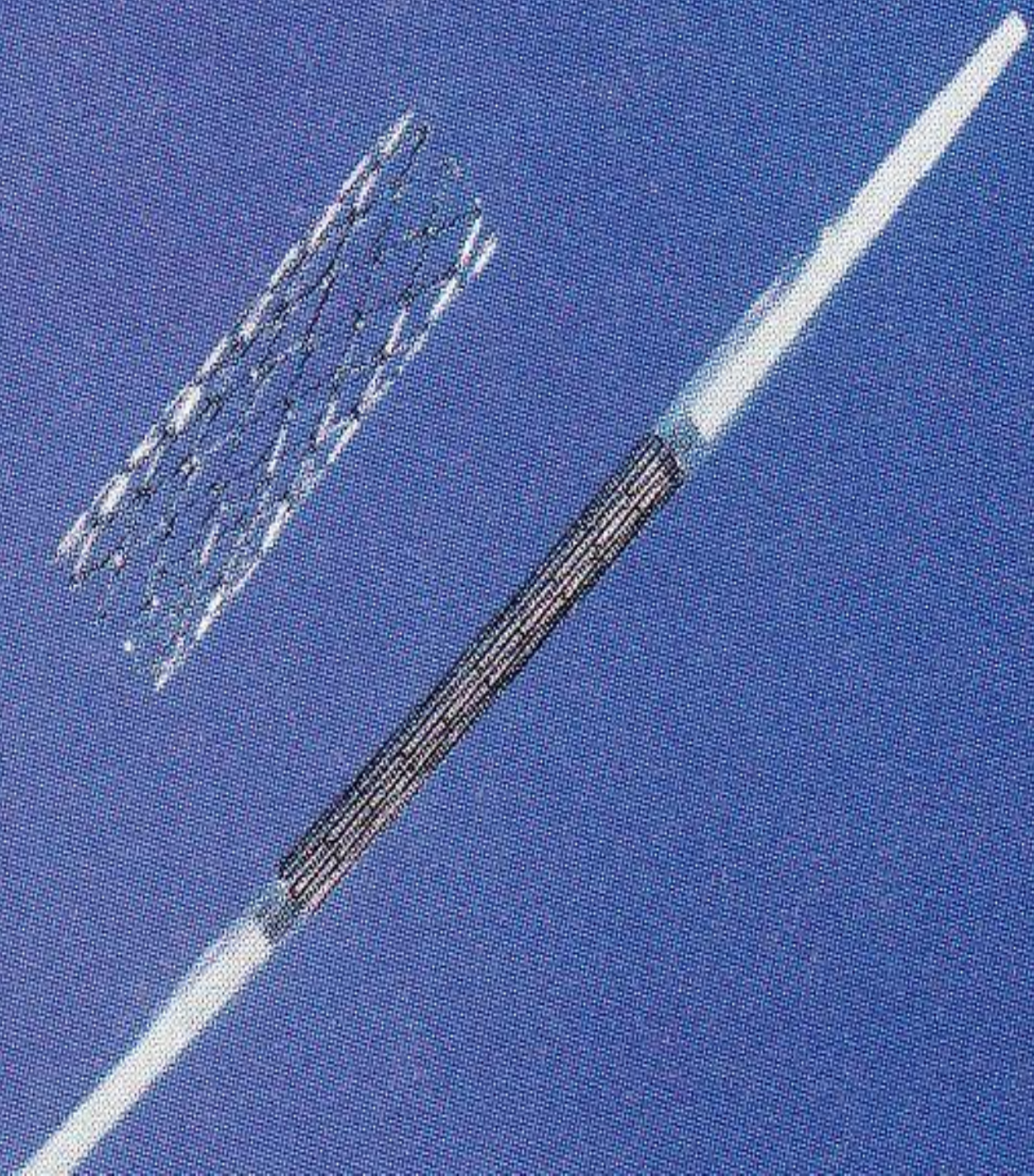
A



B



C



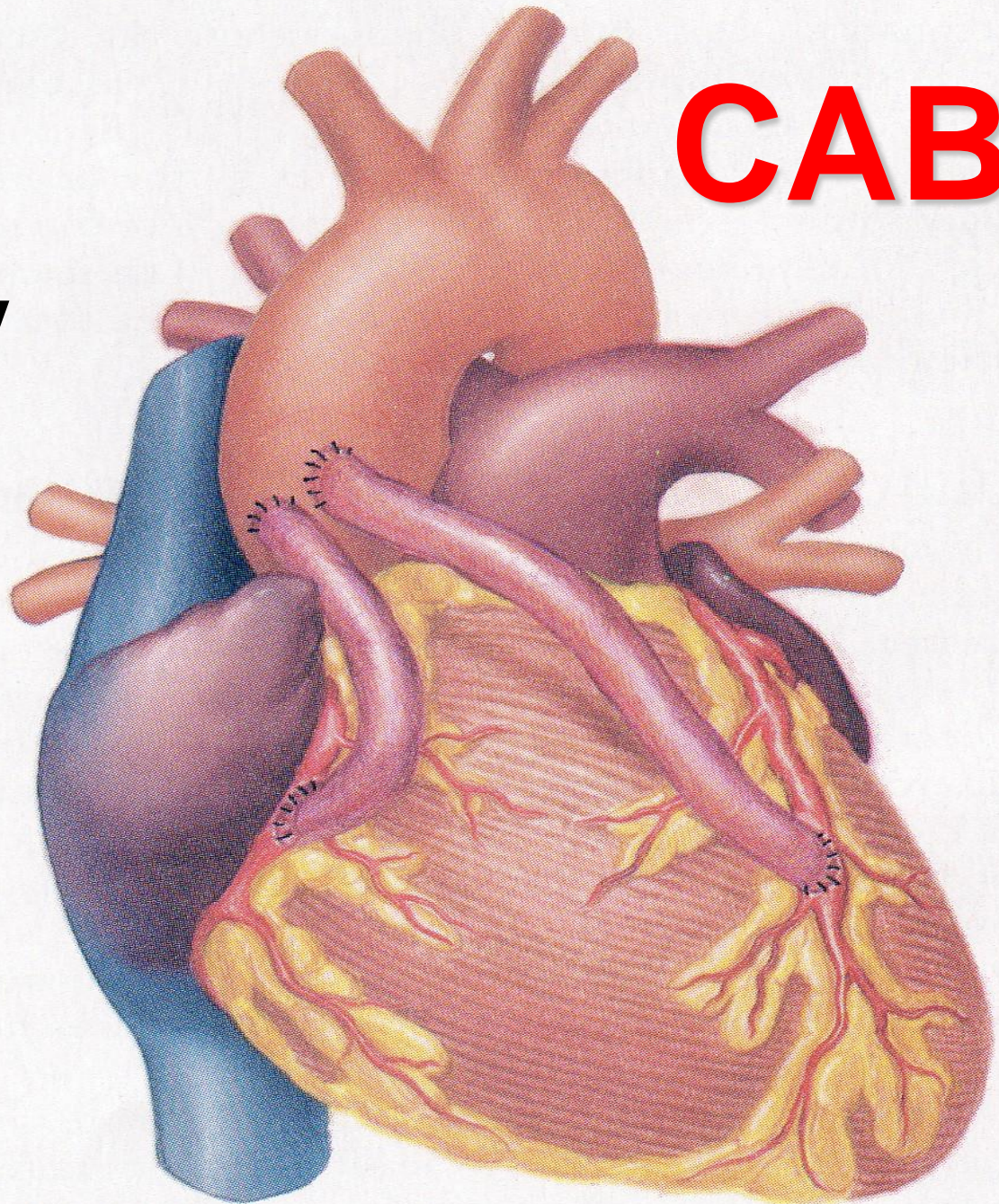
CABG

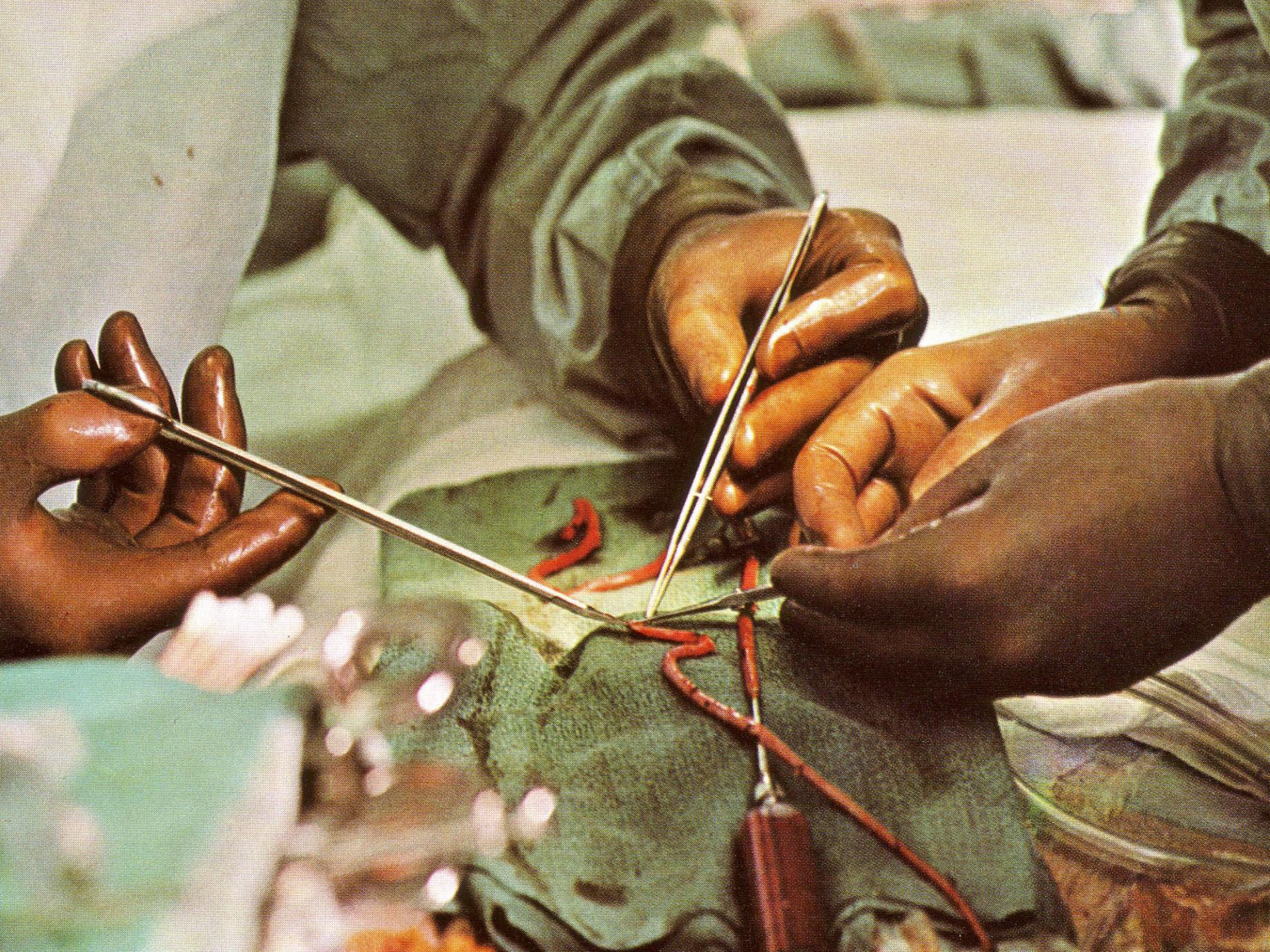
Coronary

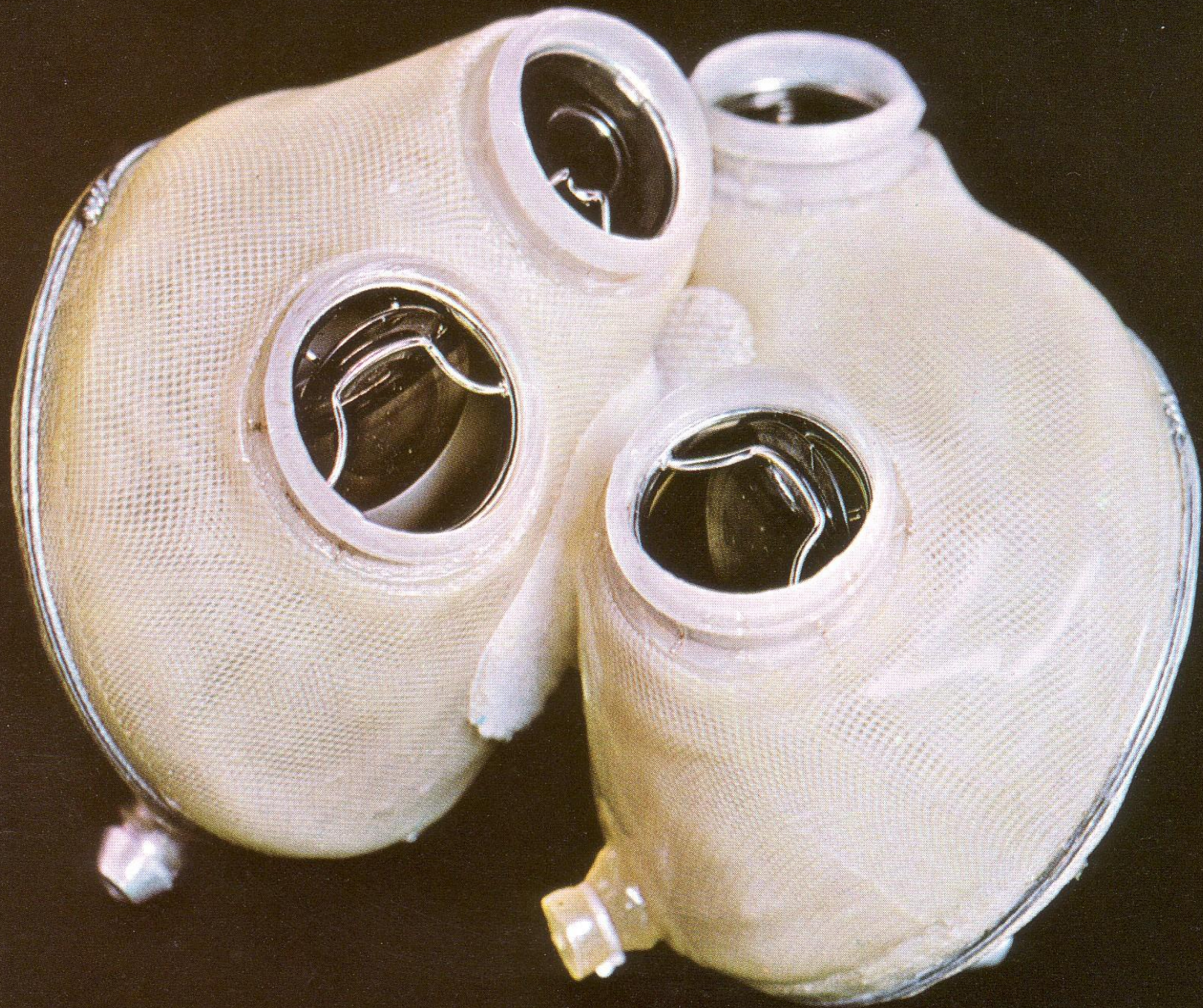
Artery

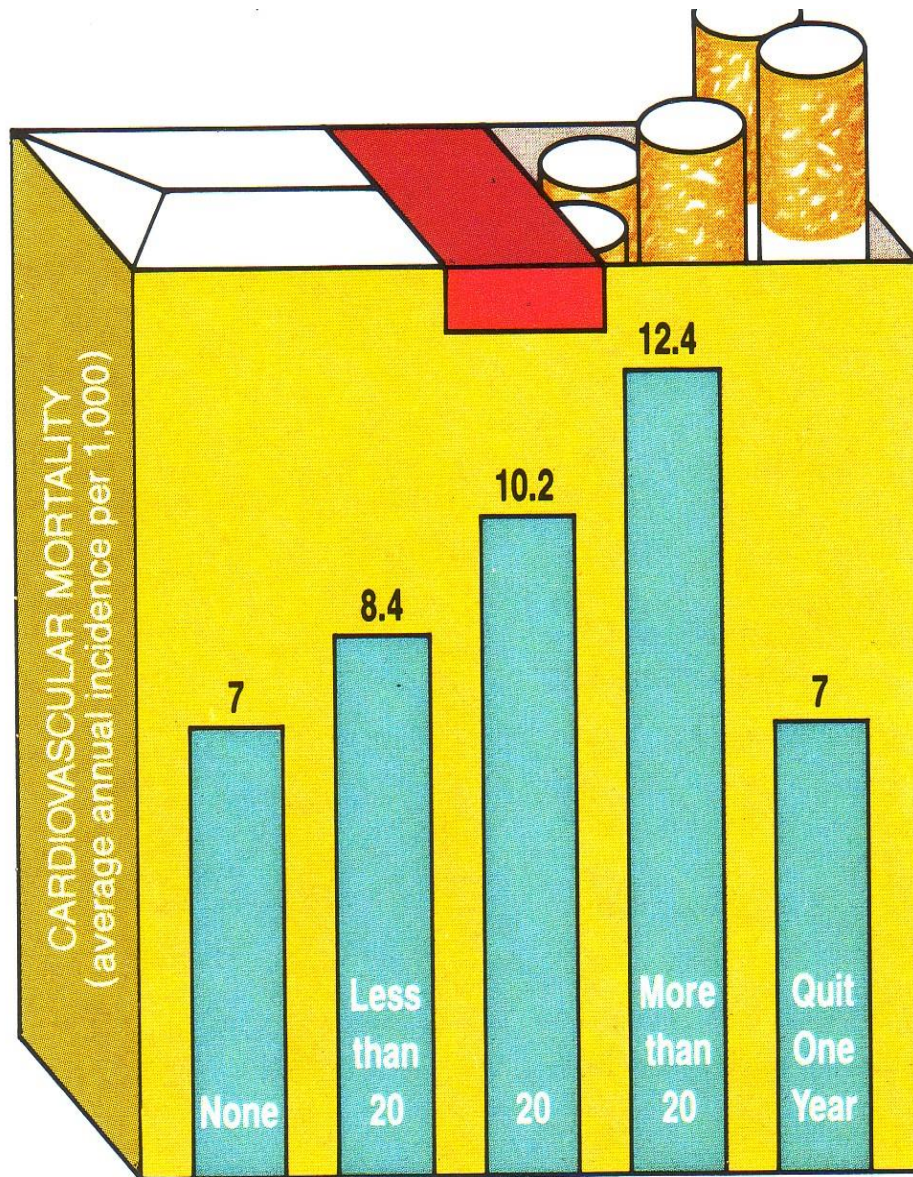
By-pass

Graft









CIGARETTES SMOKED PER DAY

Tobacco-free Campus

For better health,
smoking and use of
tobacco products are
prohibited everywhere
on our property.



UO's Josh Buehler

U.S. Surgeon General
Regina Benjamin

SMOKE AND TOBACCO-FREE UNIVERSITY



September 1, 2012

For a healthier community and cleaner
environment, the University of Oregon
will be smoke and tobacco free



Ready to Quit Tobacco?

Visit tobaccofree.uoregon.edu for free and low cost resources

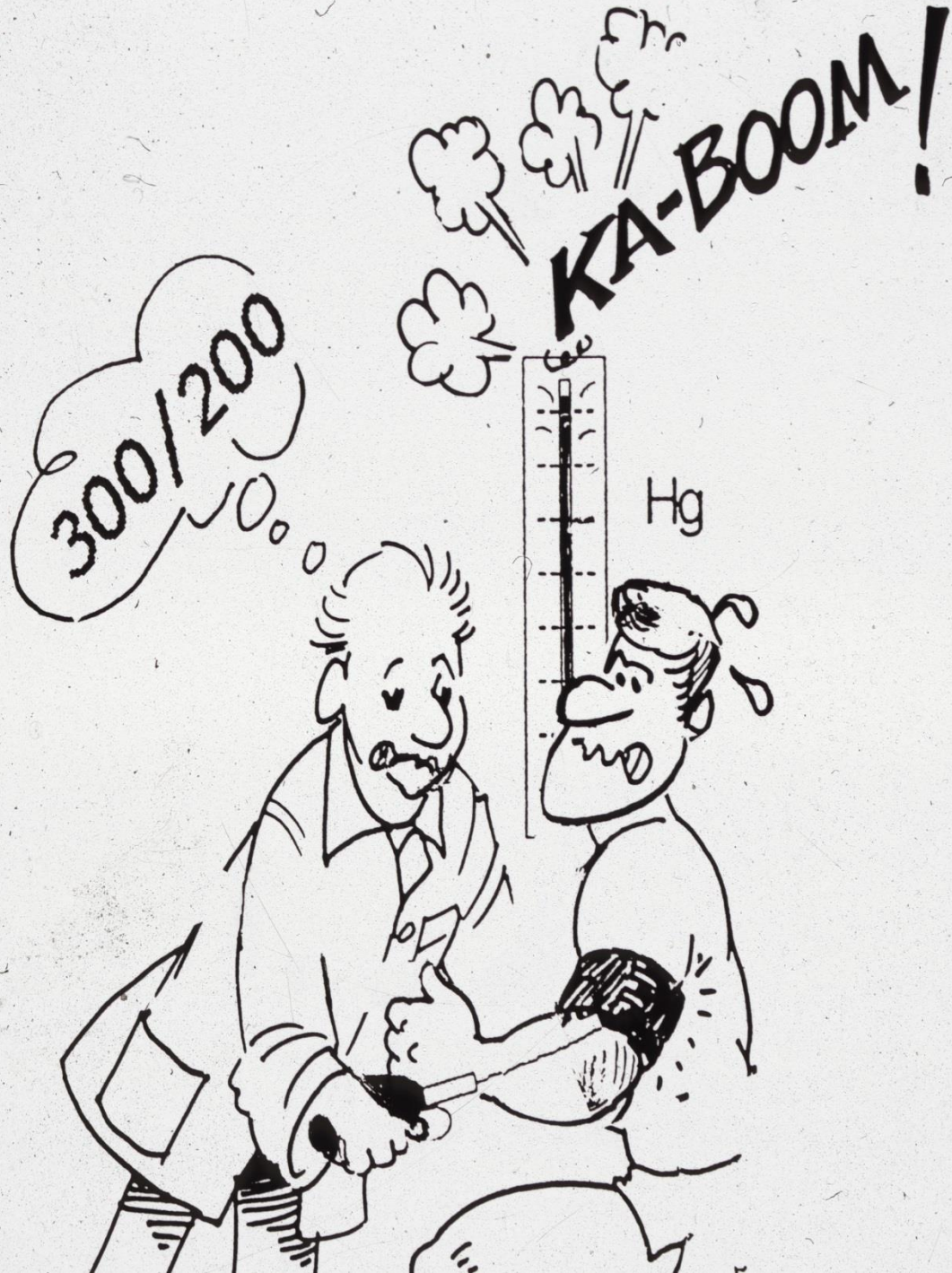


UNIVERSITY OF OREGON

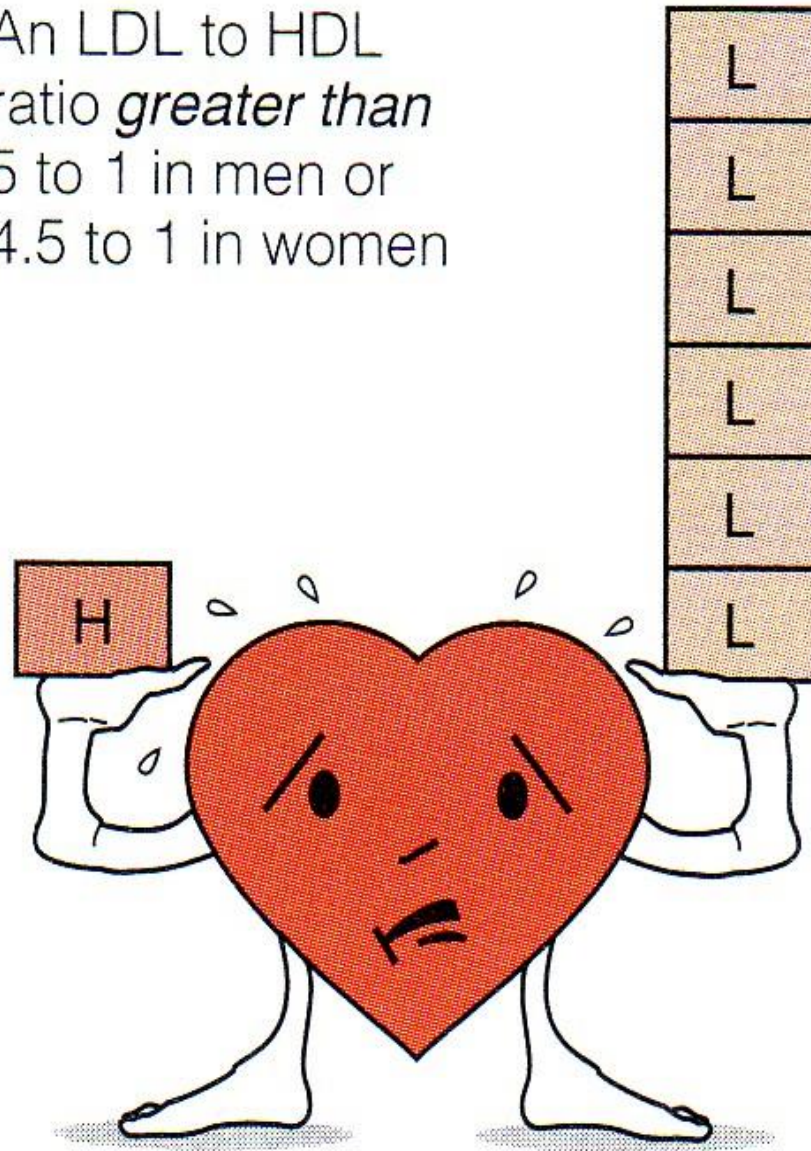
tobaccofree.uoregon.edu



For a healthier community and cleaner
environment, the University of Oregon
is smoke and tobacco-free.

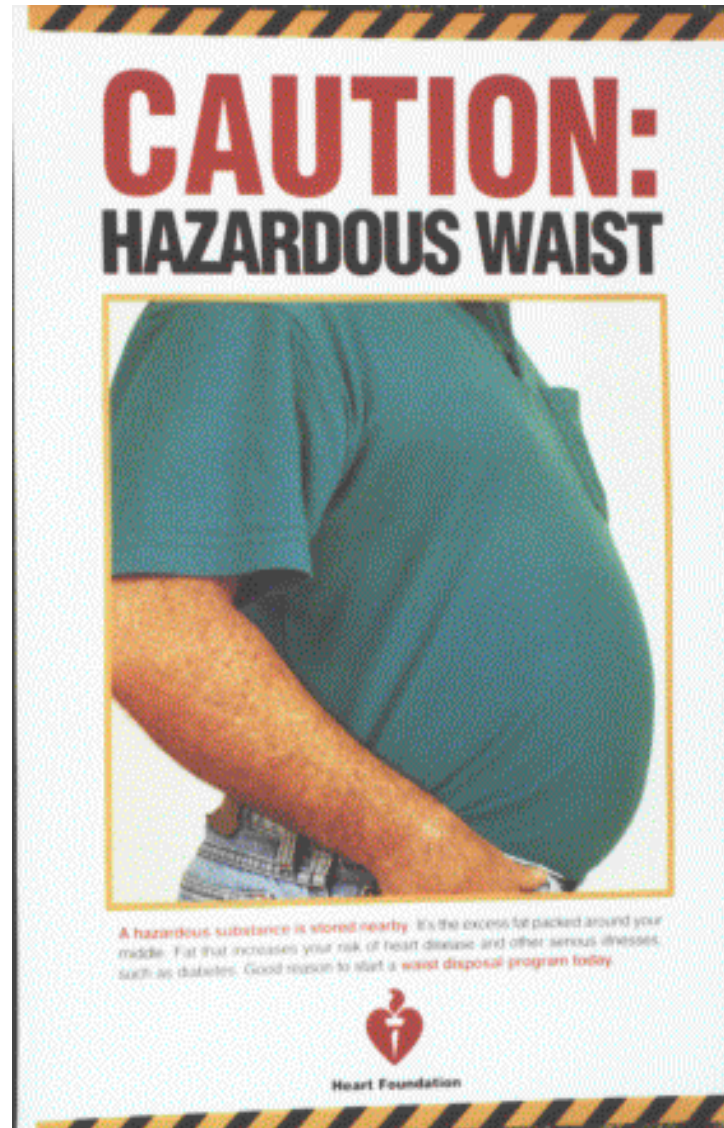


An LDL to HDL
ratio *greater than*
5 to 1 in men or
4.5 to 1 in women




Increased risk of
heart disease

Those with *apple type* of obesity predisposed to CVD!

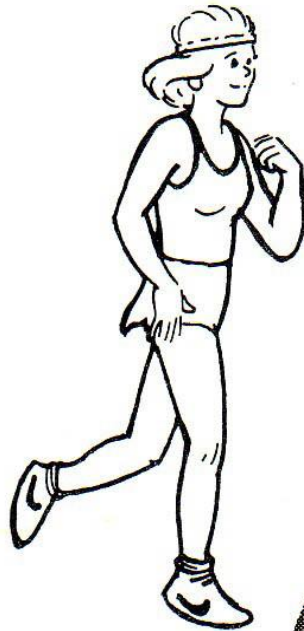


**CAUTION:
HAZARDOUS WAIST**

A hazardous substance is stored nearby. It's the excess fat packed around your middle. Fat that increases your risk of heart disease and other serious illnesses, such as diabetes. Good reason to start a **wast disposal program today.**



Heart Foundation



**Cardiorespiratory
Endurance**



**Muscular
Strength/Endurance**



**HEALTH-RELATED
FITNESS**

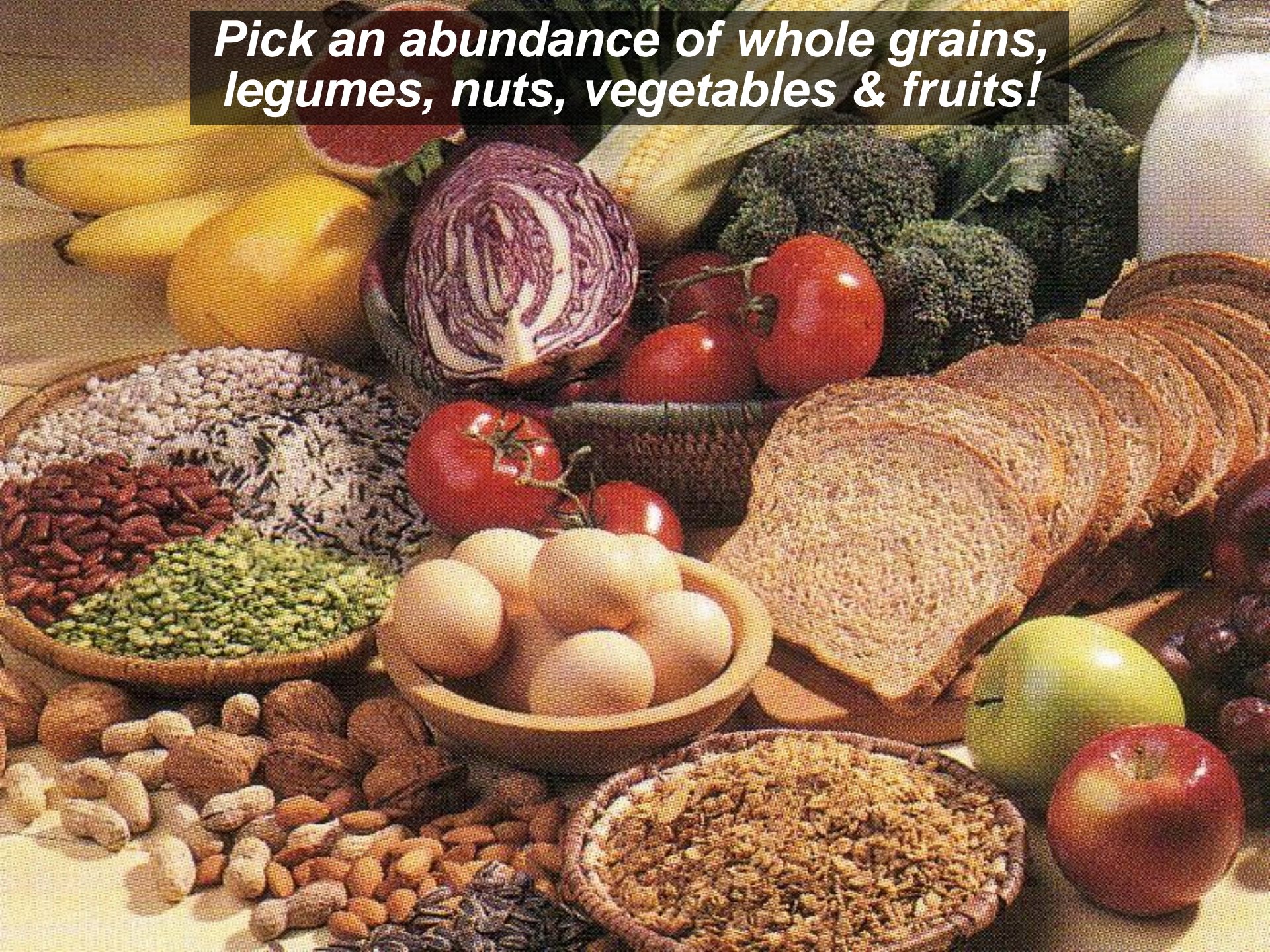


Flexibility

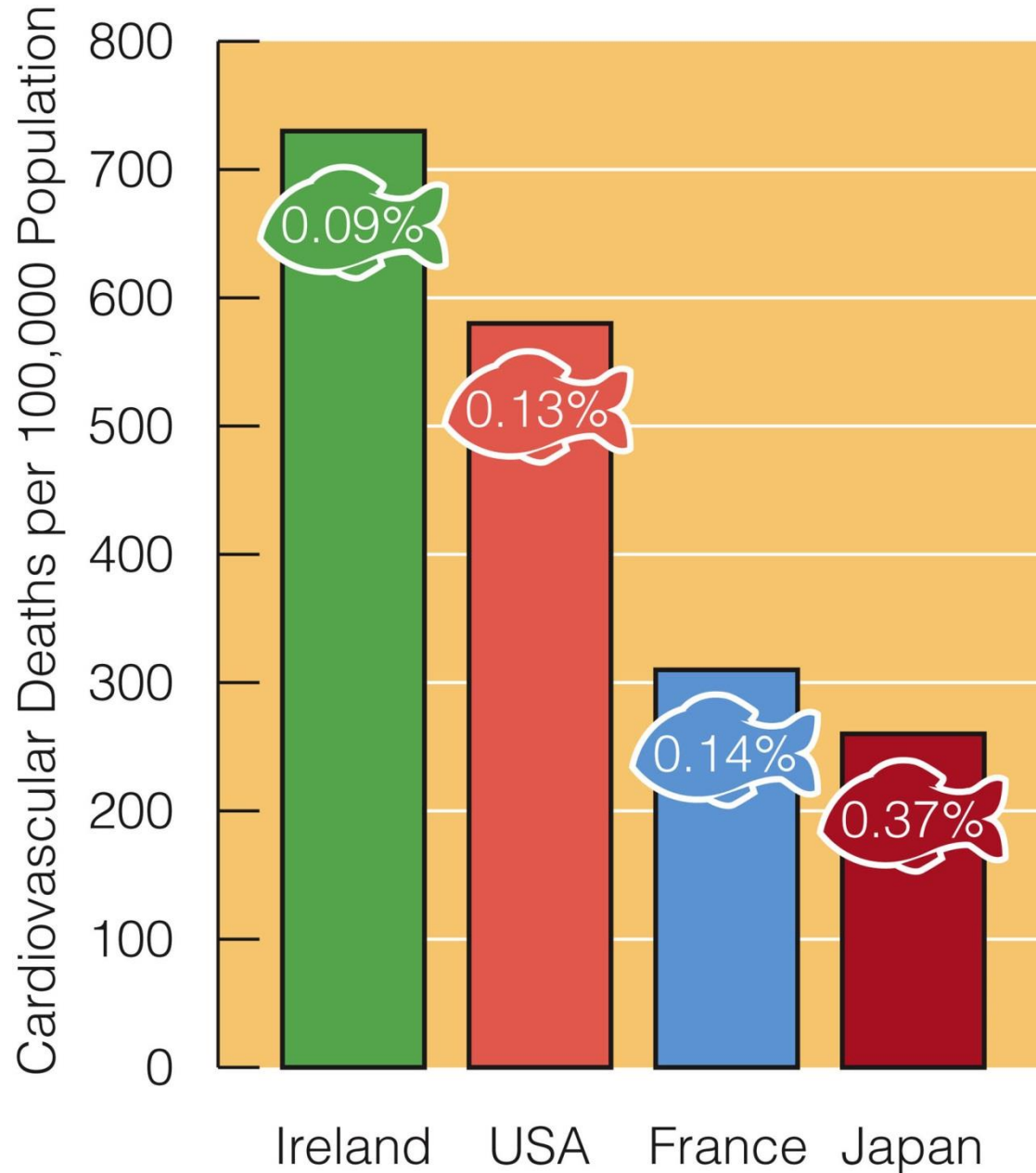


Neuromuscular Relaxation

Pick an abundance of whole grains, legumes, nuts, vegetables & fruits!



Fish Oil Intakes & Cardiovascular Death Rates





Healthy Oils to Minimize Atherosclerosis HAPOC?

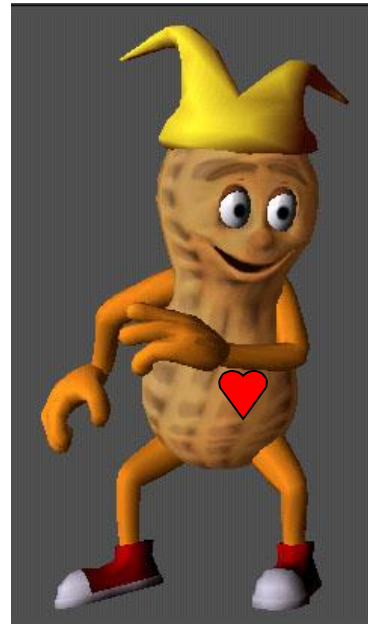
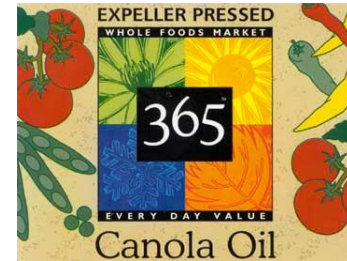
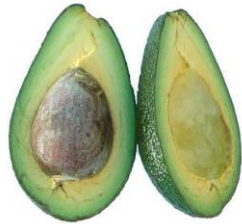
H

A

P

O

C

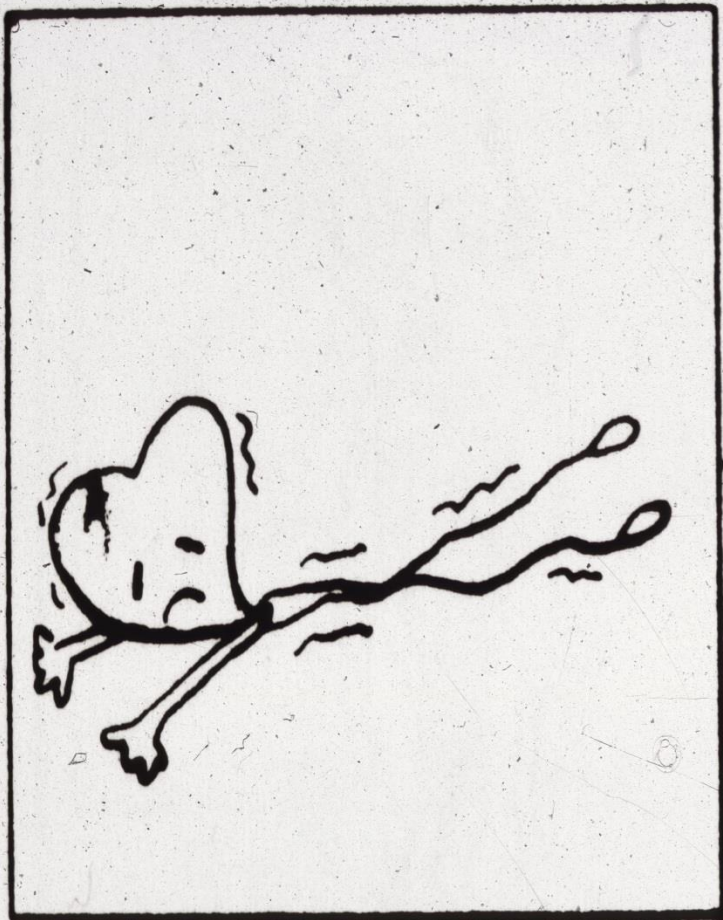


Olive Oil Loves Olive Oil & has some heartfelt advise for Popeye!!

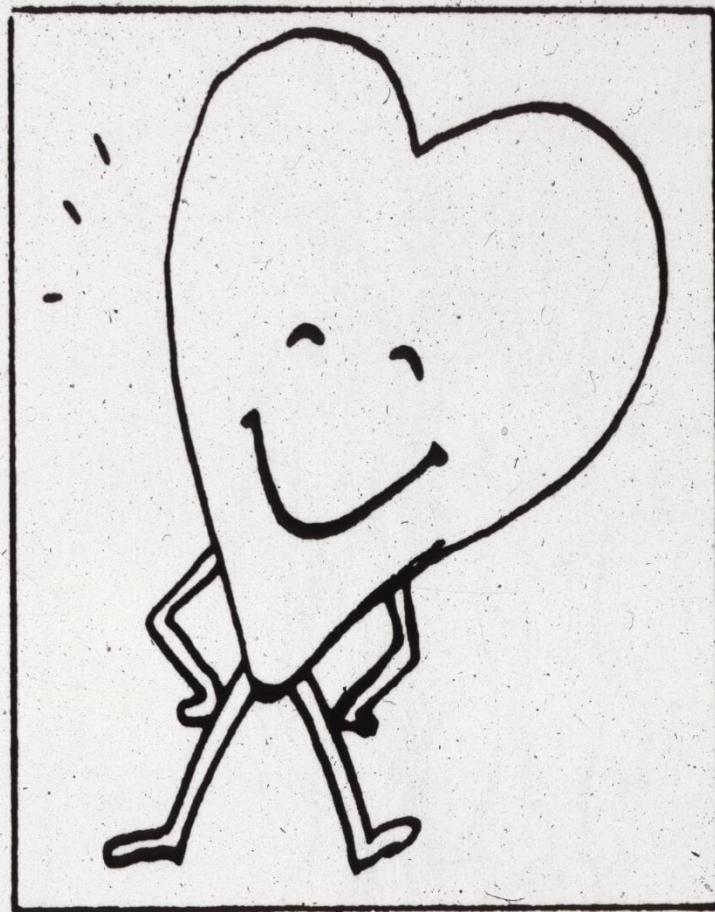


Yes for the
spinach! — but get
rid of the pipe!!



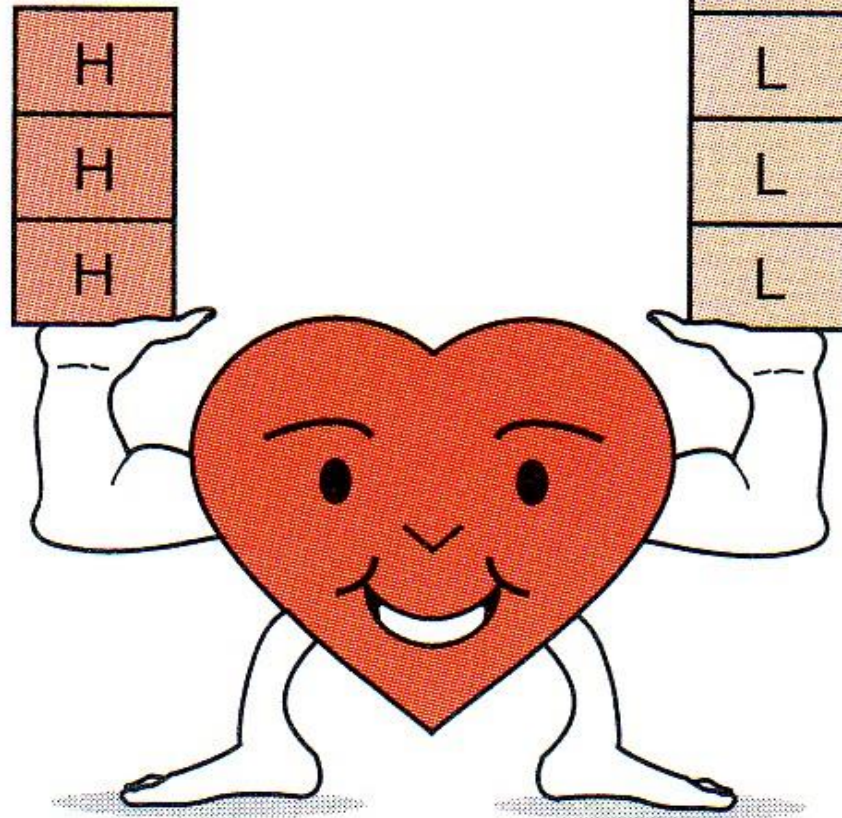


Before



After

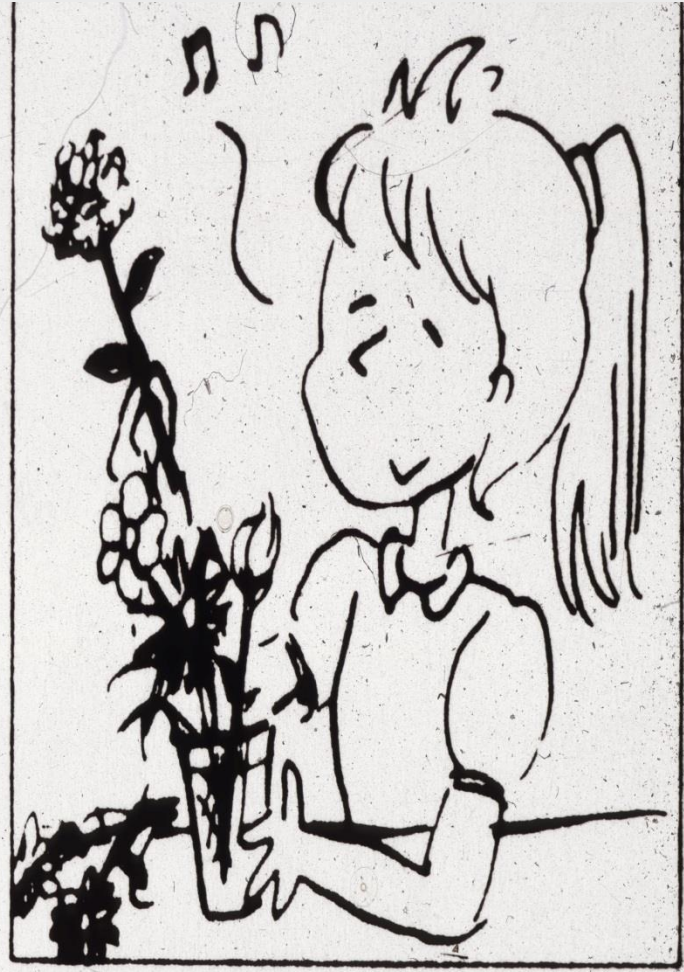
An LDL to HDL
ratio of *less than*
5 to 1 in men or
4.5 to 1 in women



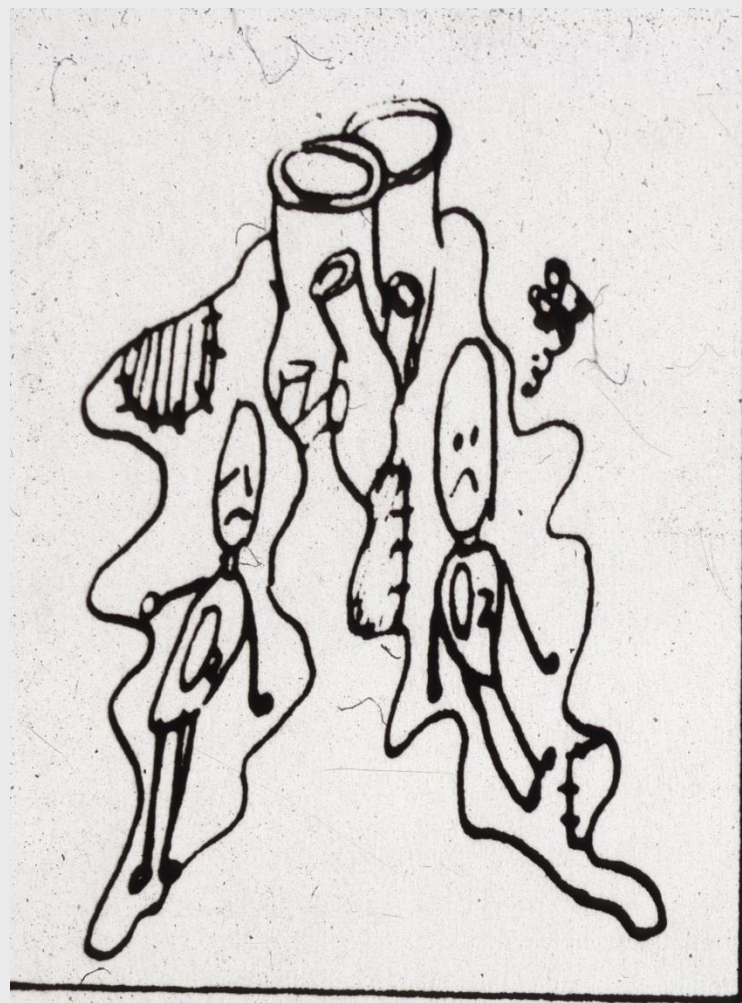
Reduced risk of
heart disease



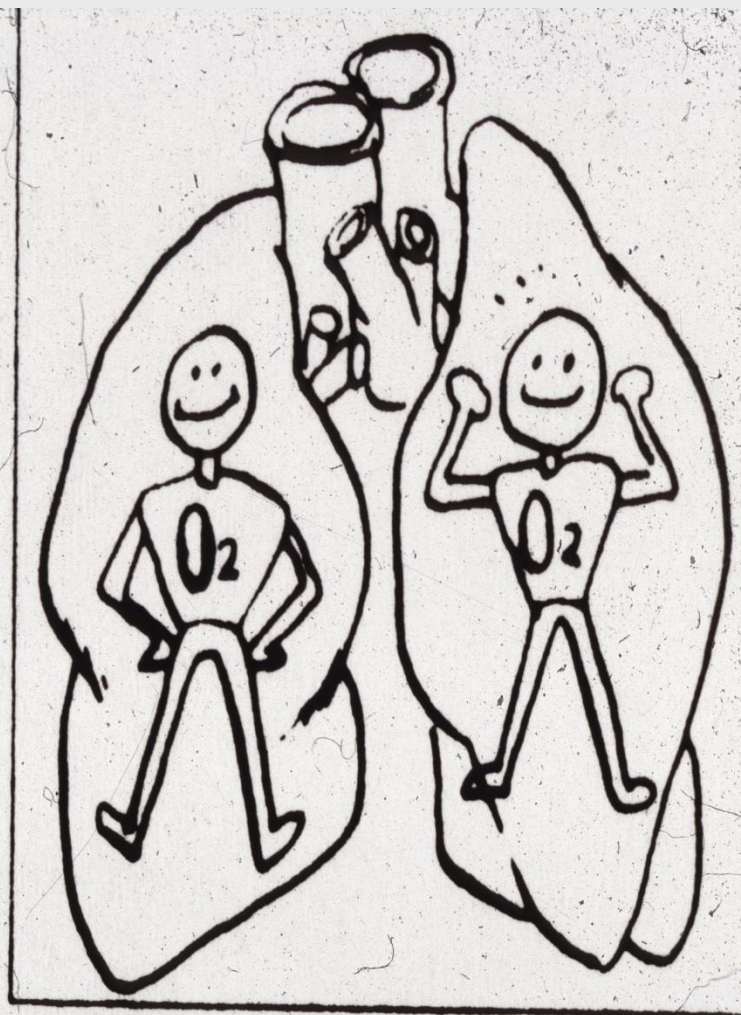
Before



After



Before



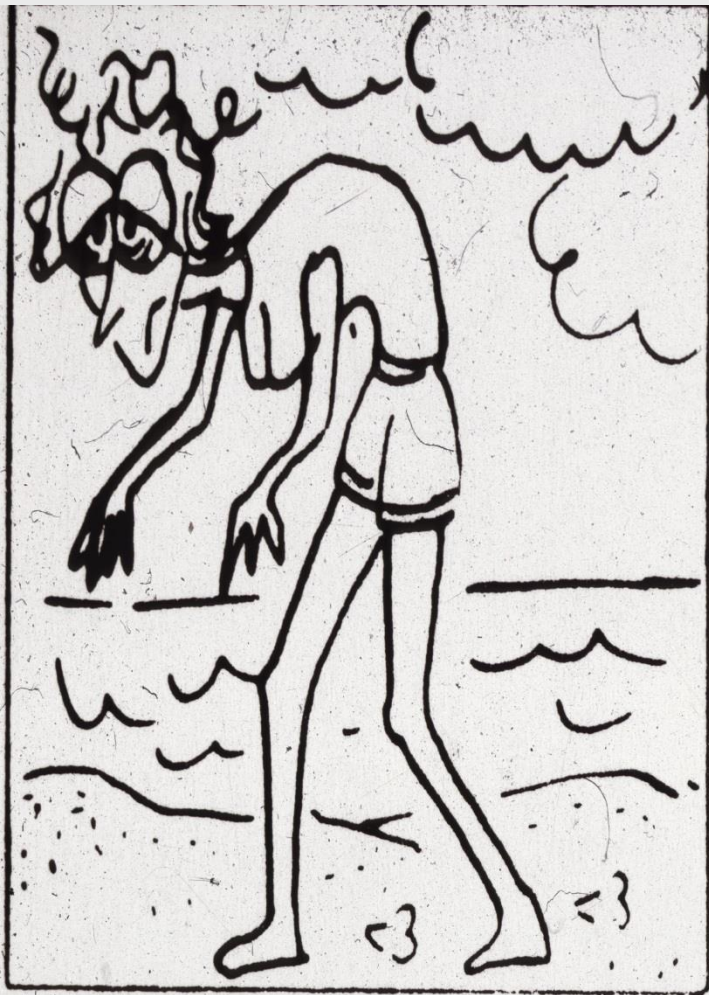
After



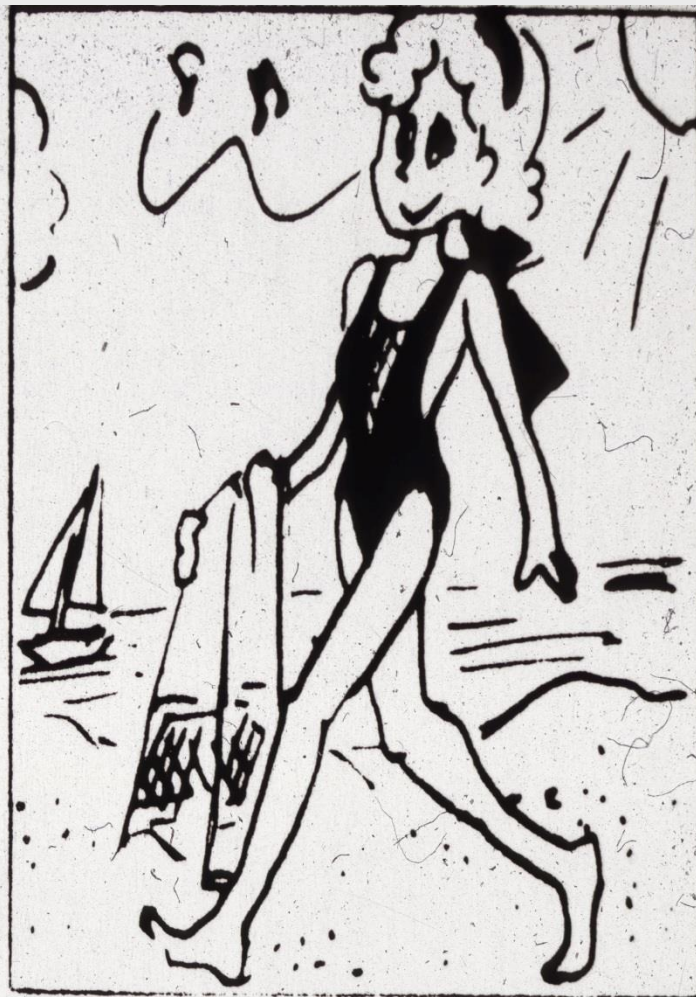
Before



After



Before



After