

BI 121 Lecture 8

Fun heart rate & BP lab today! Hooray!!!



- I. Announcements Exam I next session; 1 & 2 pm lab sections go directly to 13 KLA & 21 KLA. All others (except AEC) here (100 WIL)! Review: Sunday, 6 pm 123 PAC! Lab Manuals. Q?**
- II. Cardiovascular Connections LS 2012 ch 9, Torstar Books+...**
- III. CV Physiology in News AHA + ACSM 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:

1. Exercise, 2. Diet, 3. Drugs+Surgery

D. Food choices

make a difference?

Plant-based diet!

What's HAPOC?



**1 pm lab section takes Exam in
13 Klamath (KLA)**

**2 pm lab section takes Exam in
21 Klamath (KLA)**

All others here in 100 WIL!

All on Tuesday, 8:30 start time!

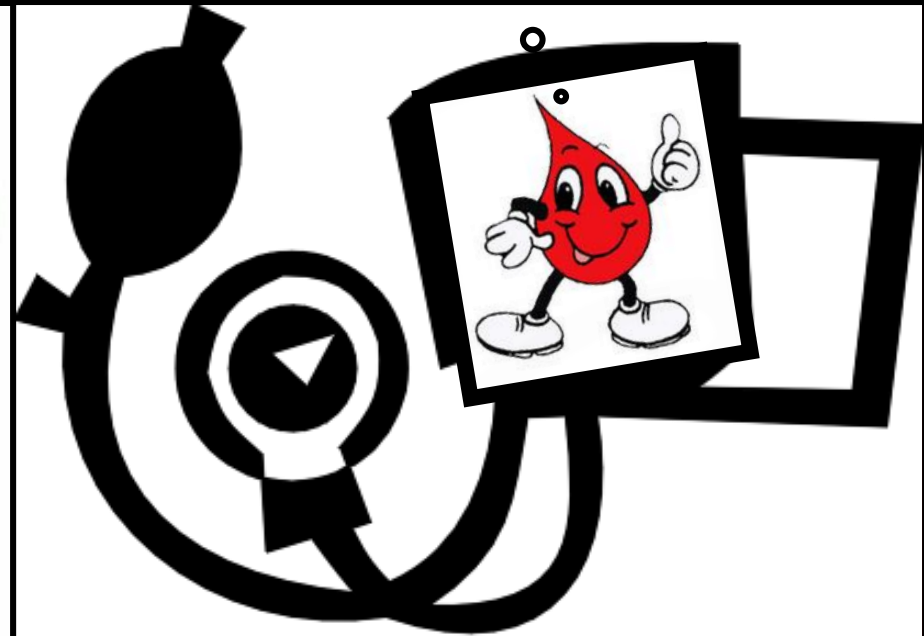


**Study & blast
the exam!**

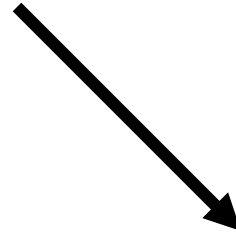
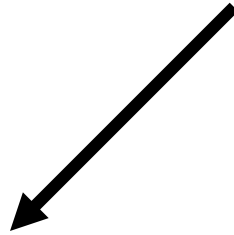
Heart-Blood Pressure Lab Today!

Lub-dup!

I'm cool!



Cardiac Cycle

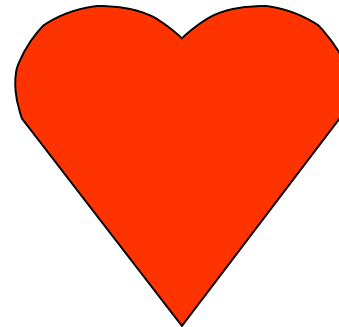
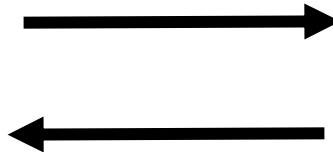
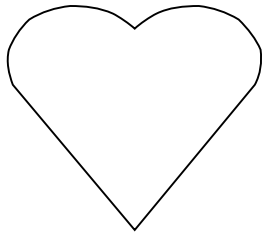


Systole

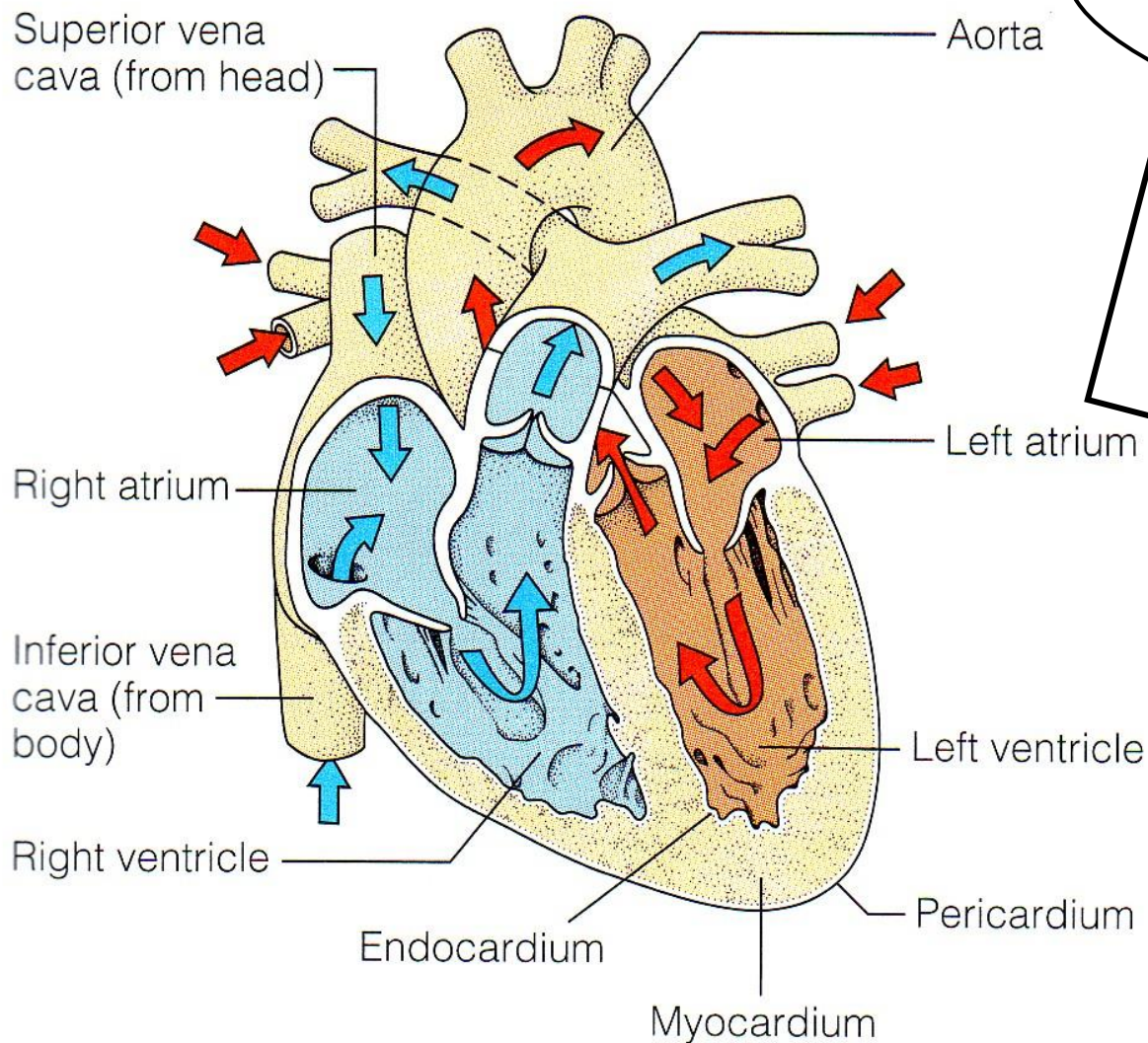
Contract
& Empty

Diastole

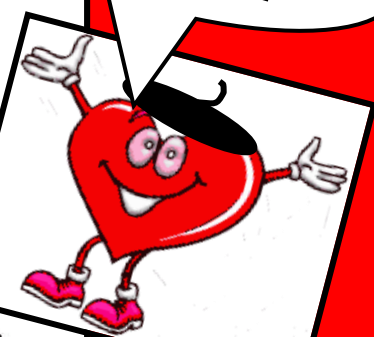
Relax
& Fill



Veins → Atria → Ventricles → Arteries



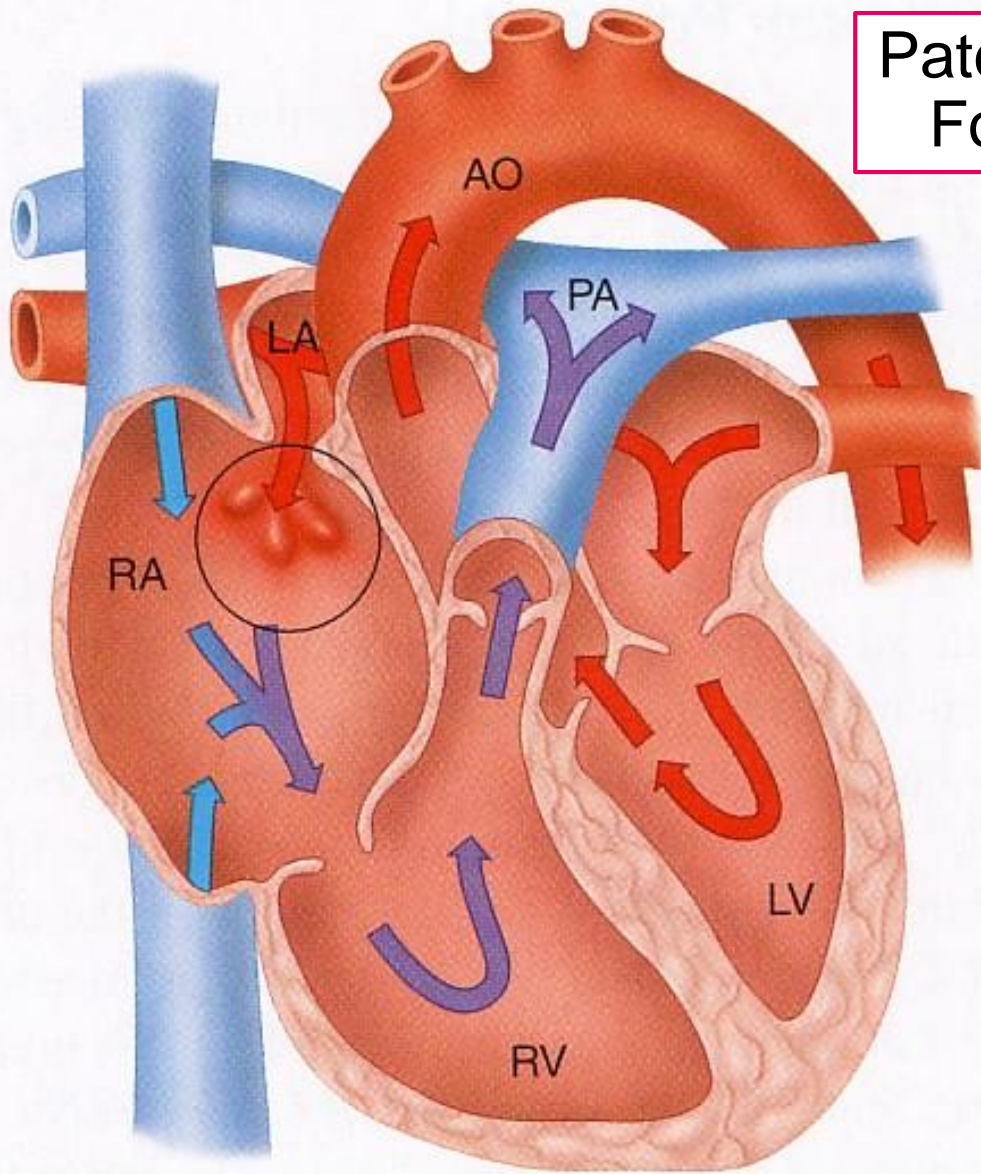
VAVA!



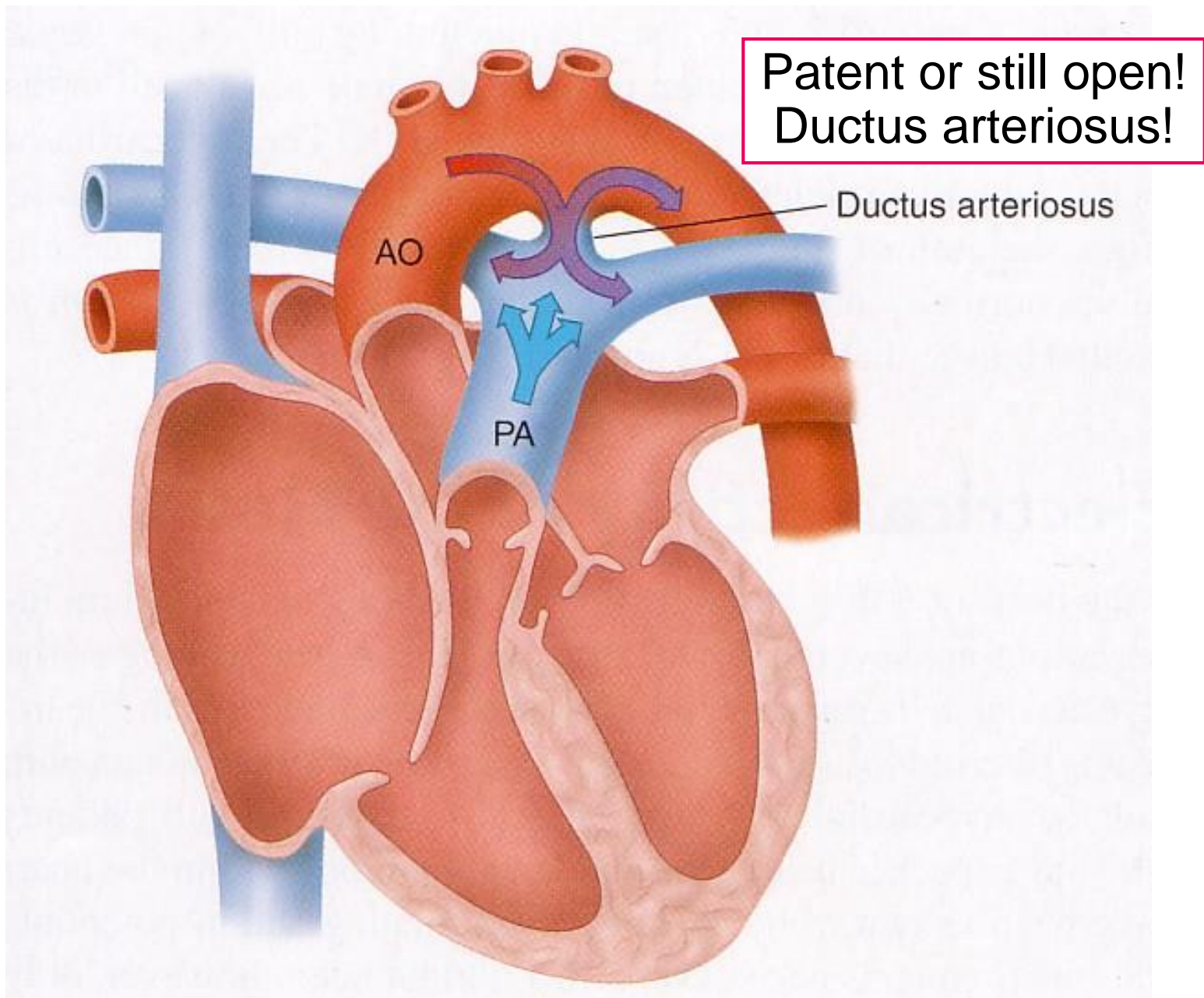
LS2007

<https://www.nhlbi.nih.gov/health-topics/how-heart-works>
<https://www.youtube.com/watch?v=zJXAlh9VDDU>

Patent or still open!
Foramen ovale!



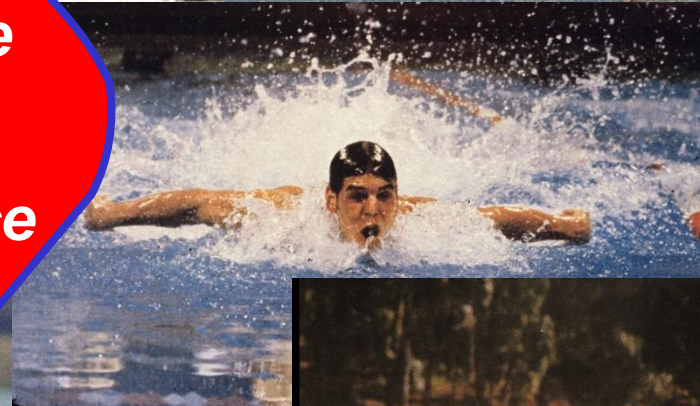
Septal defect
in atria



How much aerobic?



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



<https://www.acsm.org/acsm-positions-policy/official-positions/ACSM-position-stands>
<https://www.ncbi.nlm.nih.gov/pubmed/21694556>



AMERICAN COLLEGE
of **SPORTS MEDICINE**

Guidelines: Healthy Adults < 65 yr

American Heart
Association® 
Learn and Live™

**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



CVDs

AMI

CVA



TIA

HTN

PVD

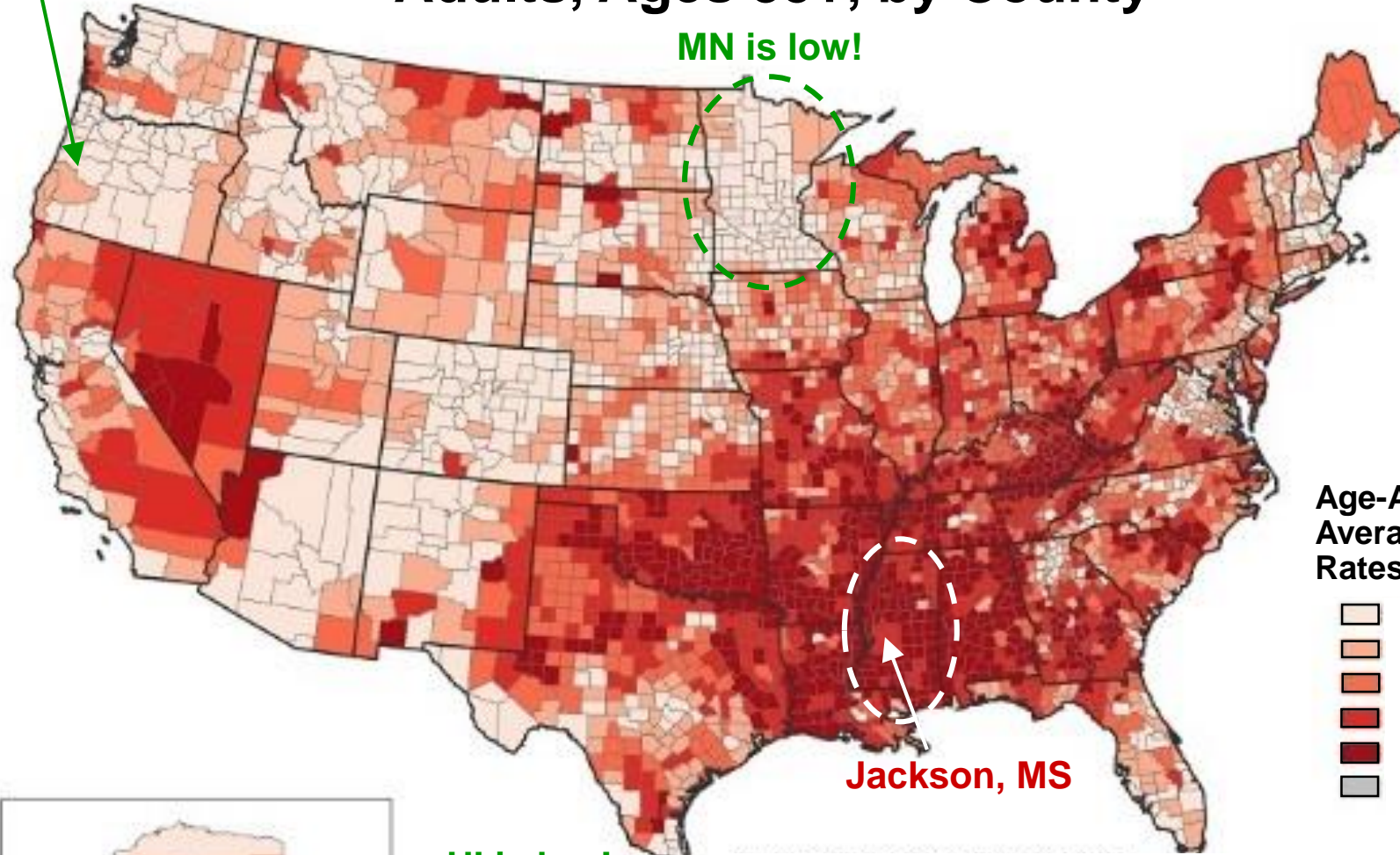
Did you know?

- **Every 40 seconds, someone has a heart attack in the US!**
- **~630,000 Americans die of heart disease each yr – that's 1 in every 4 deaths. Heart disease is the leading cause of death for both men and women.**
- **Heart disease costs the US ~ \$200 billion per yr in health care, medications & lost productivity. By 2035, CVD costs are projected to top \$1 trillion annually.**

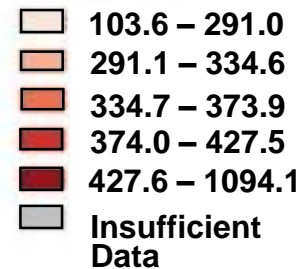
Heart Disease Death Rates, 2011-2013 Adults, Ages 35+, by County

Eugene, OR

MN is low!



Age-Adjusted
Average Annual
Rates per 100,000



Jackson, MS

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

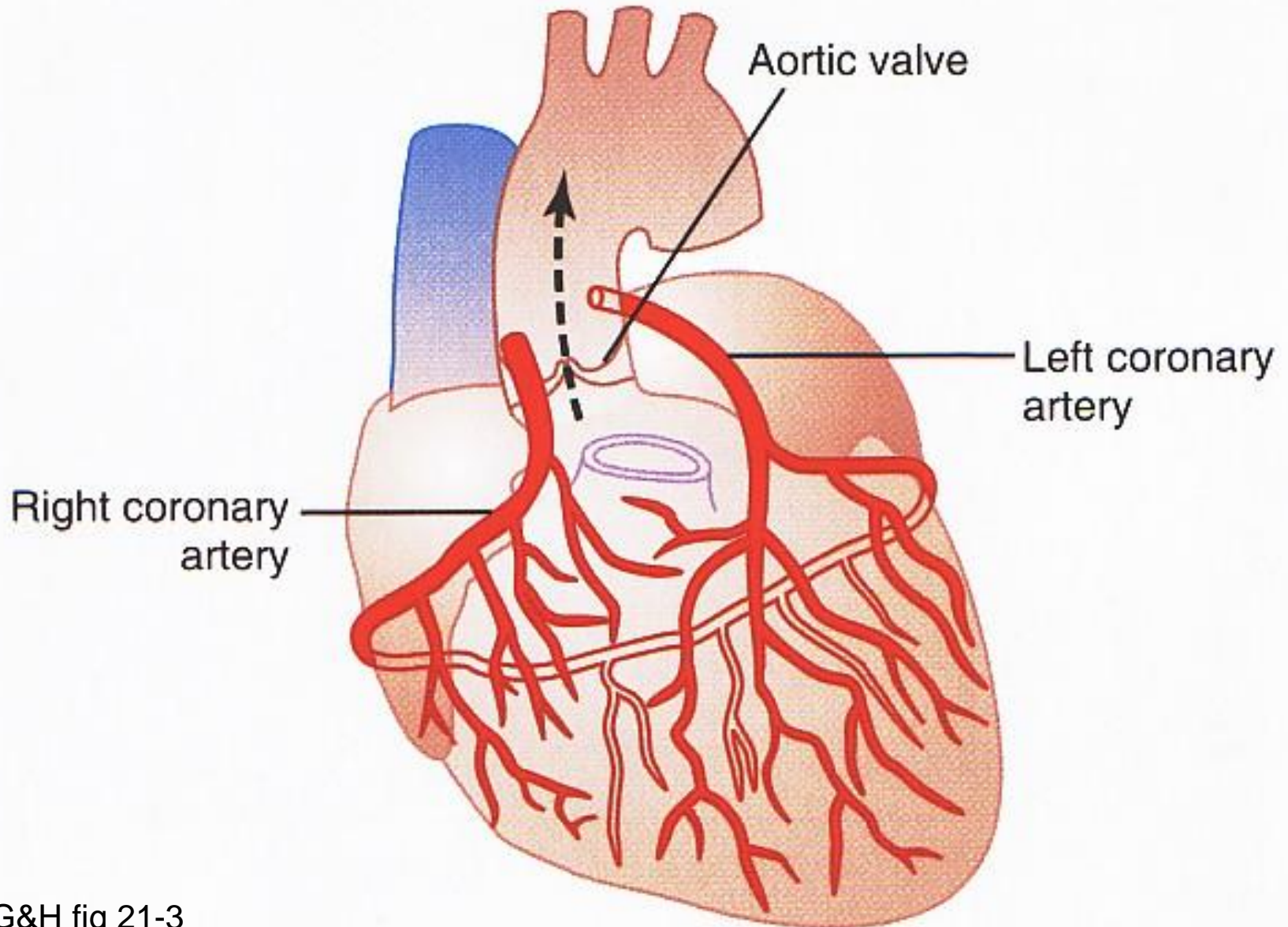
Data Source: National Vital Statistics System
National Center for Health Statistics



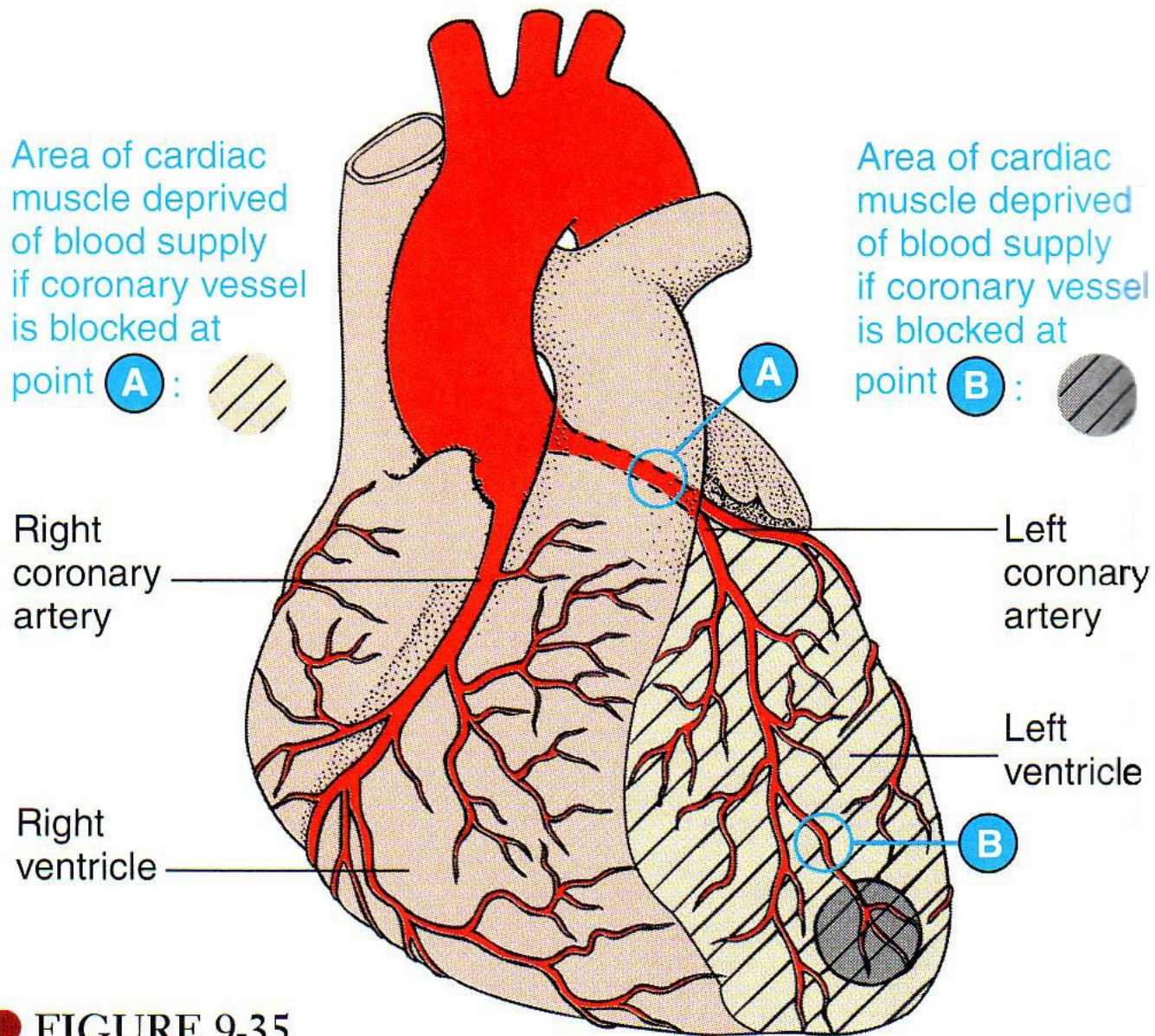
HI is low!



Coronary Circulation ≡ Crowns the Heart!

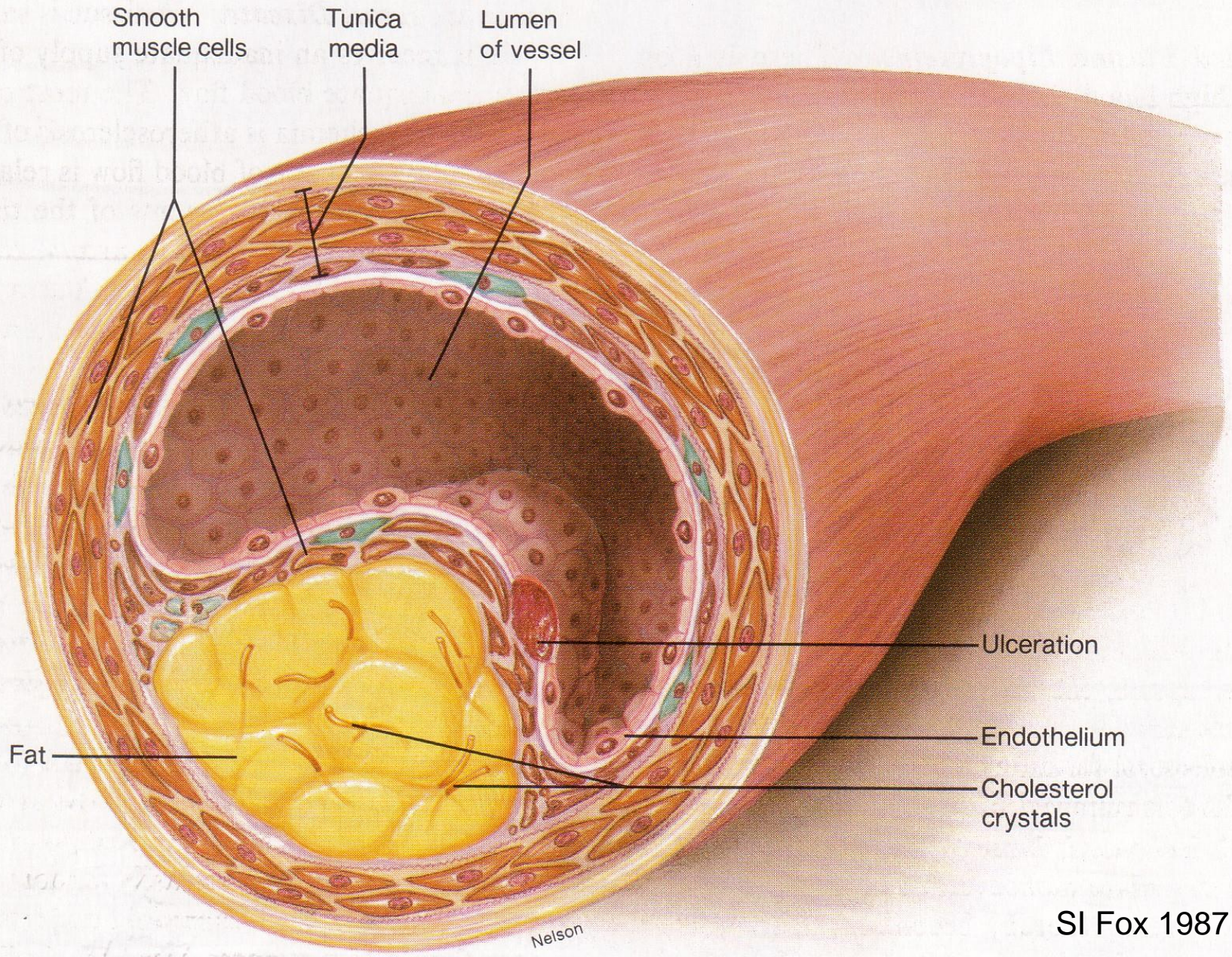






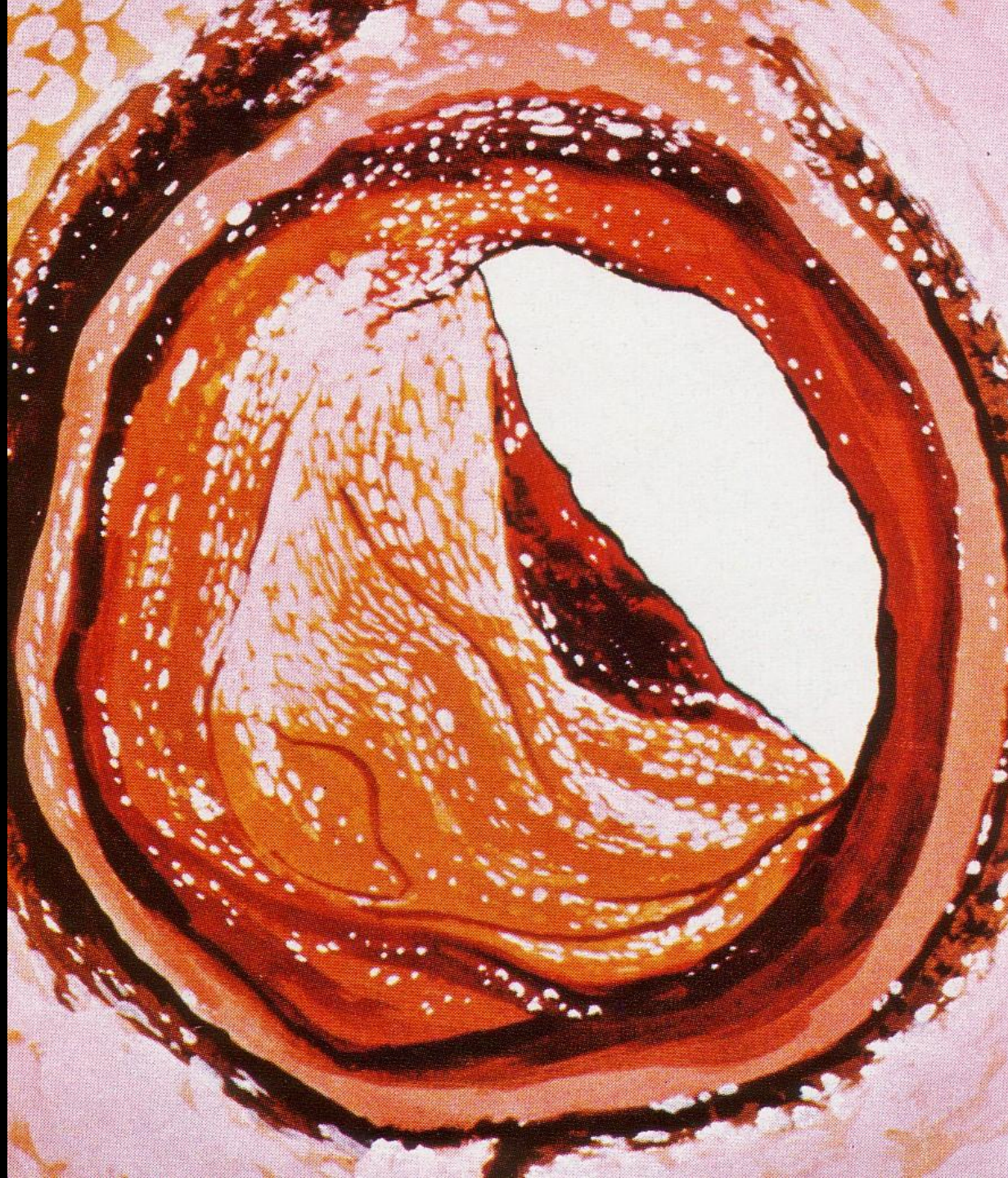
● FIGURE 9-35

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

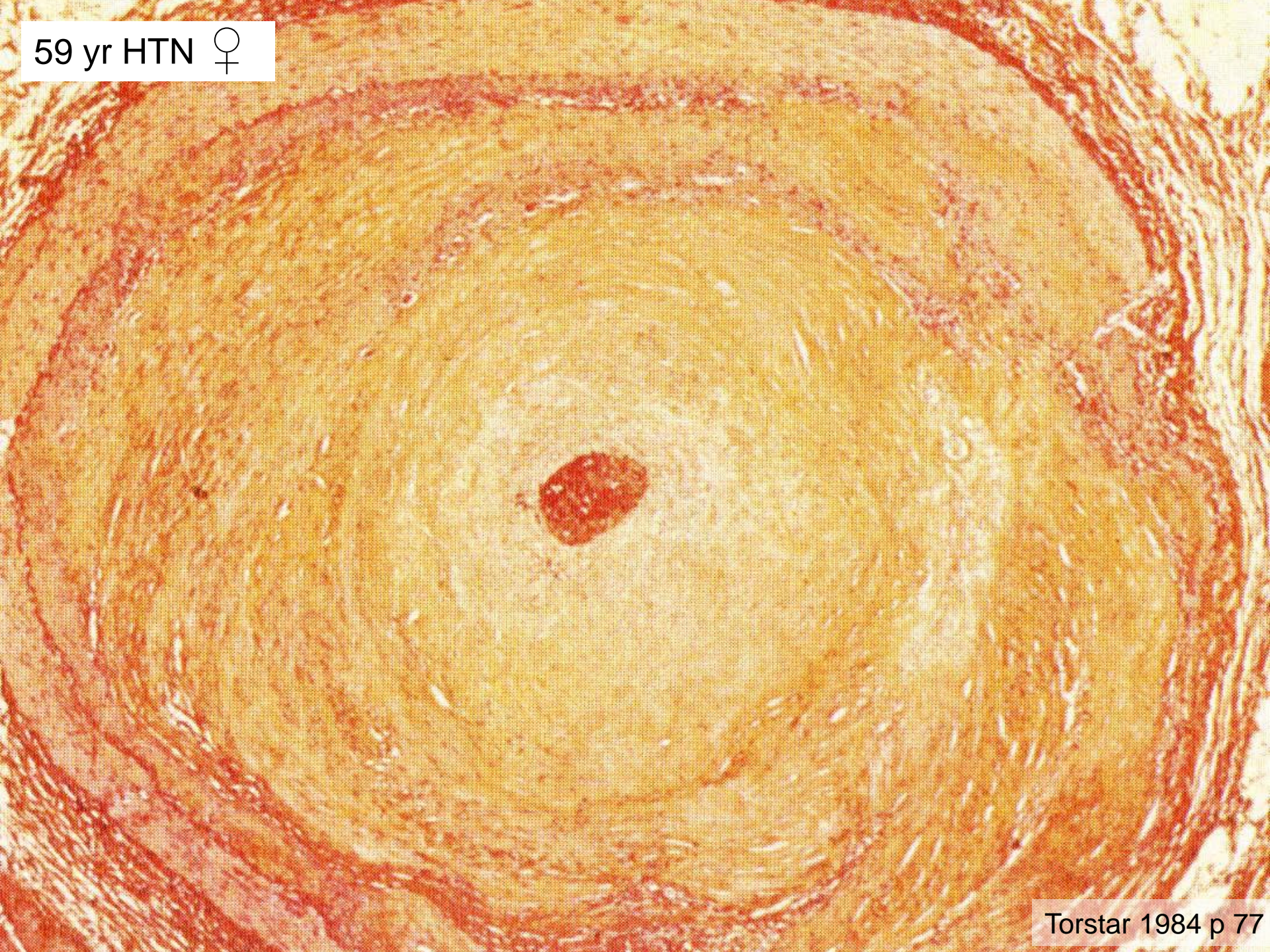


100 yr ♀





59 yr HTN ♀

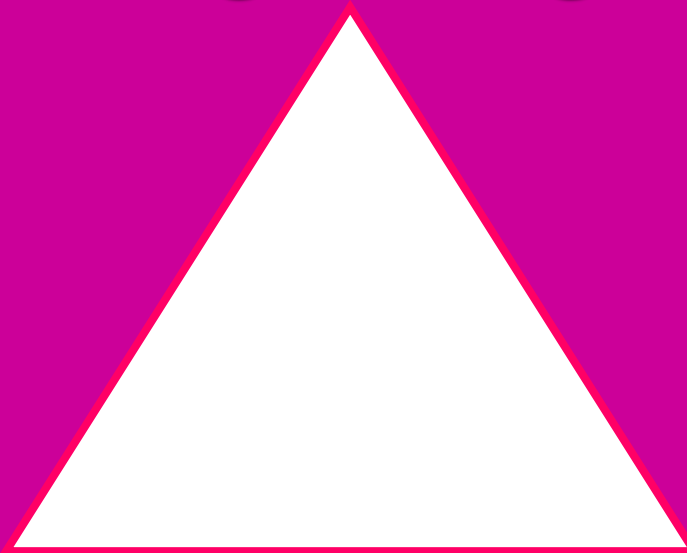


Treatment Triad

NB: Last blasted resort!!

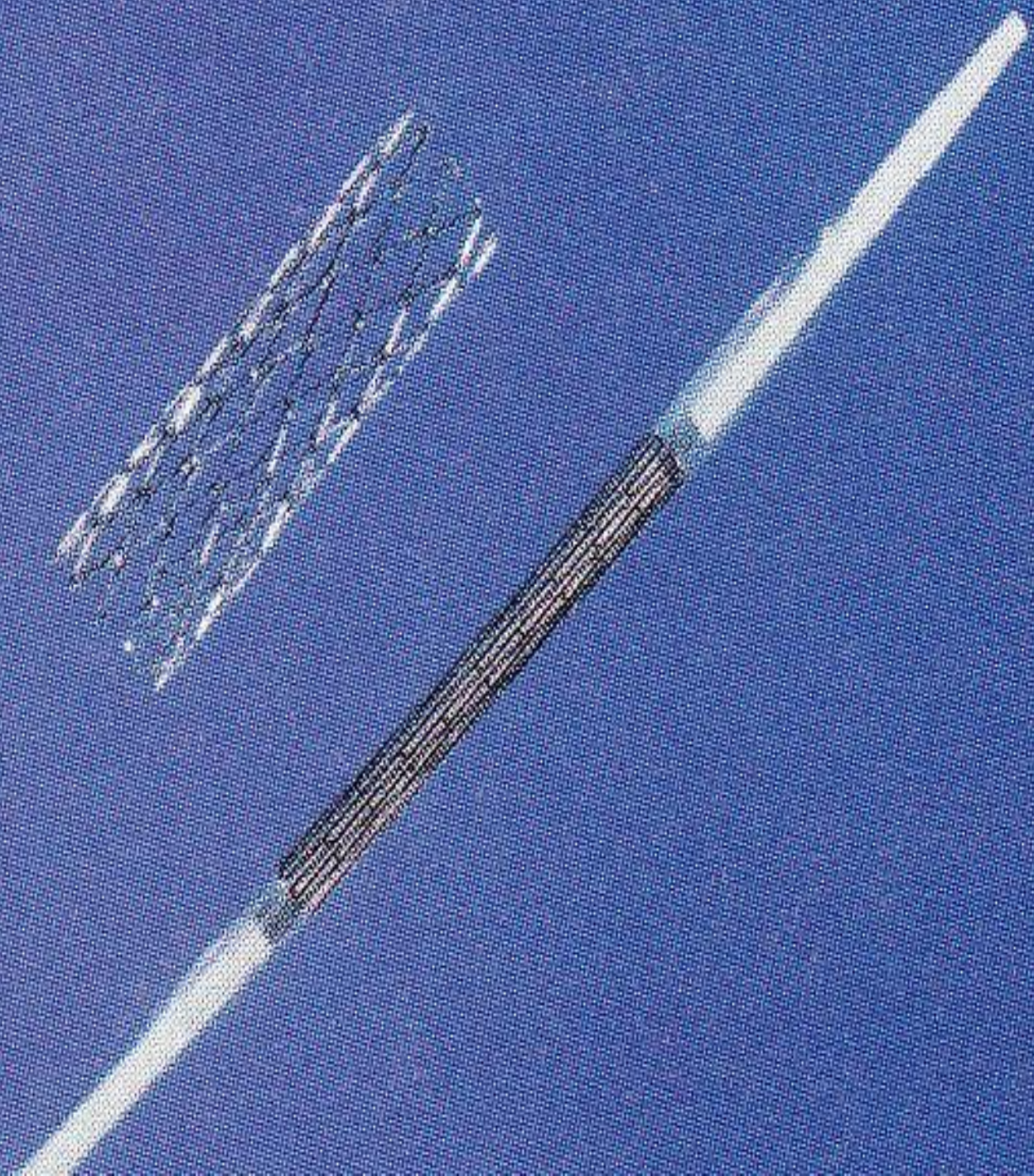


Drugs/Surgery



Exercise

*Dietary
Modification*



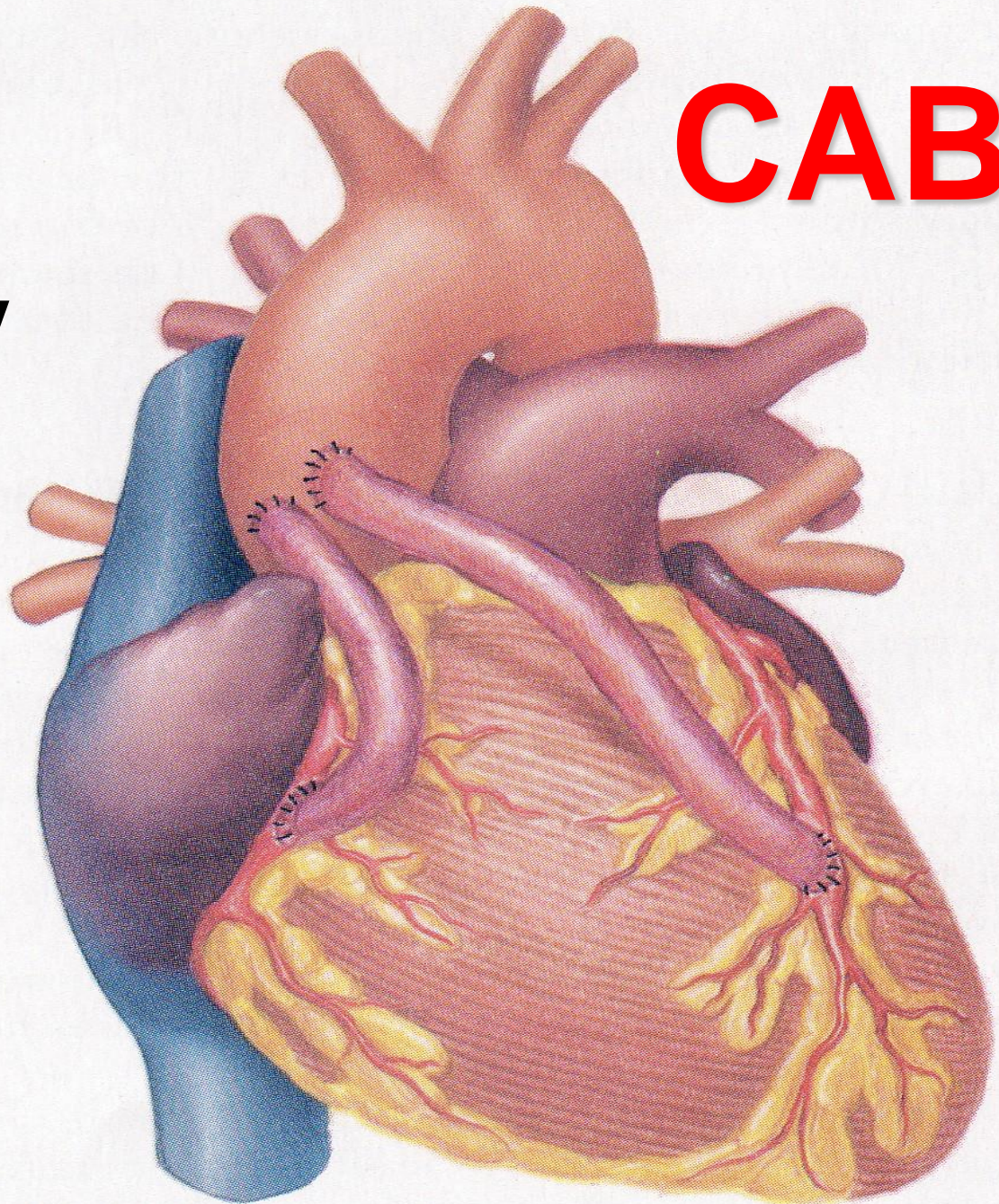
CABG

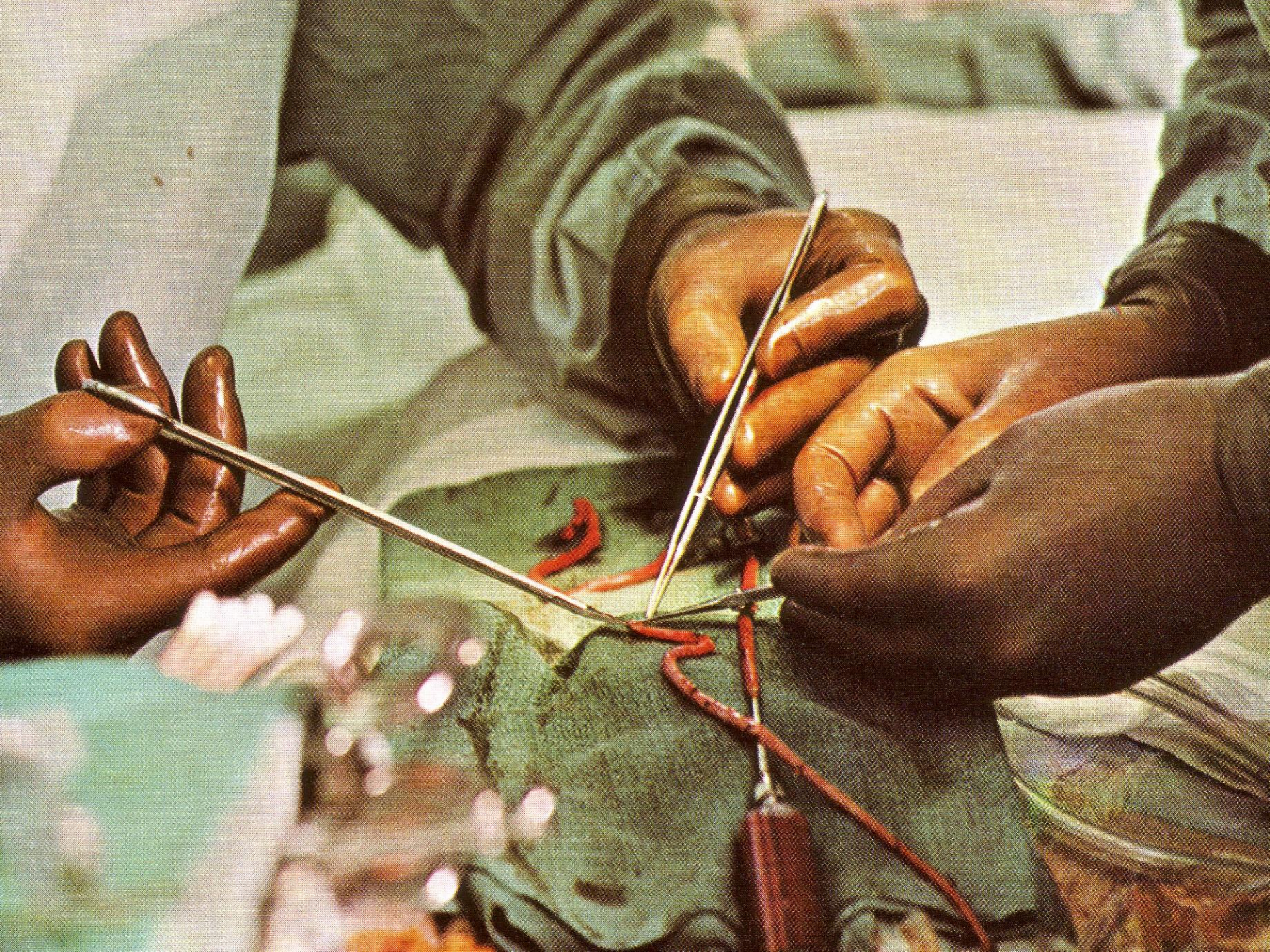
Coronary

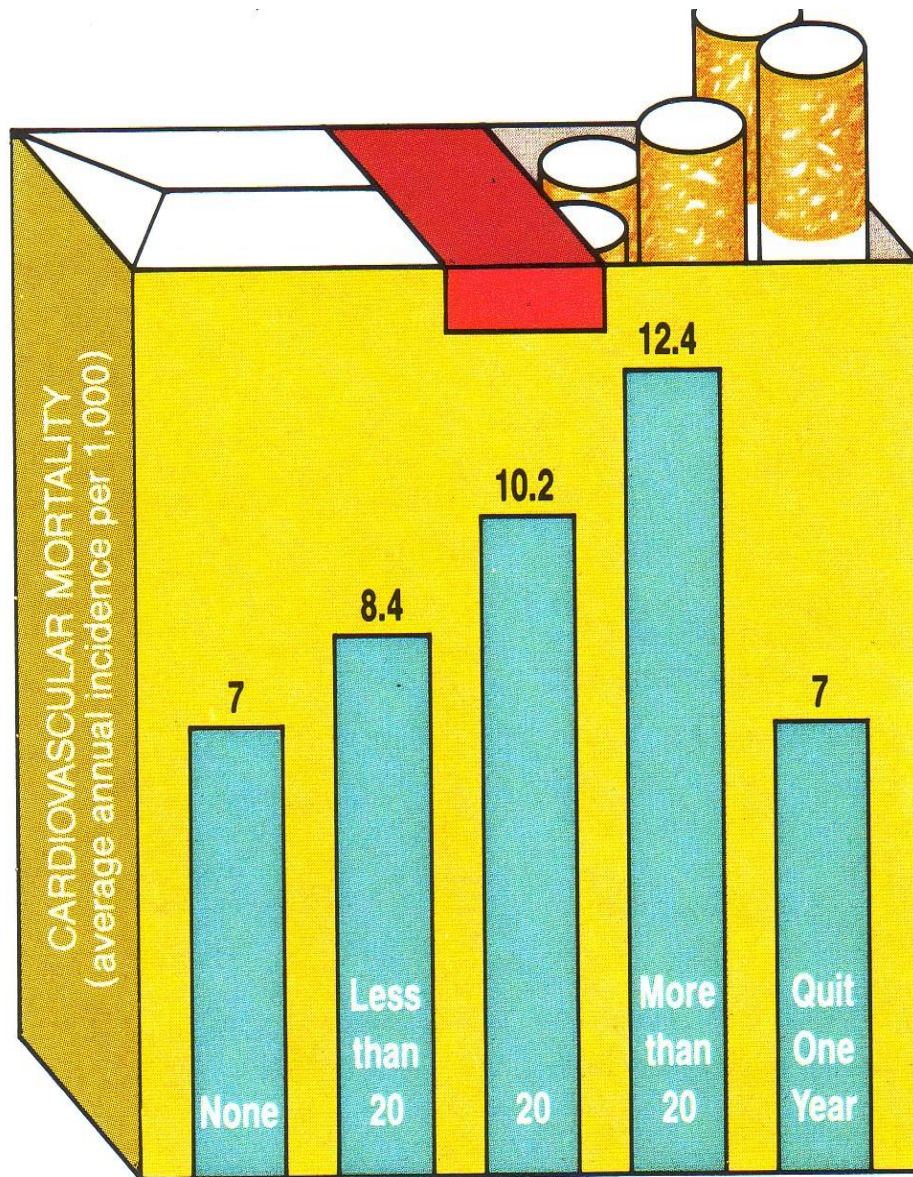
Artery

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

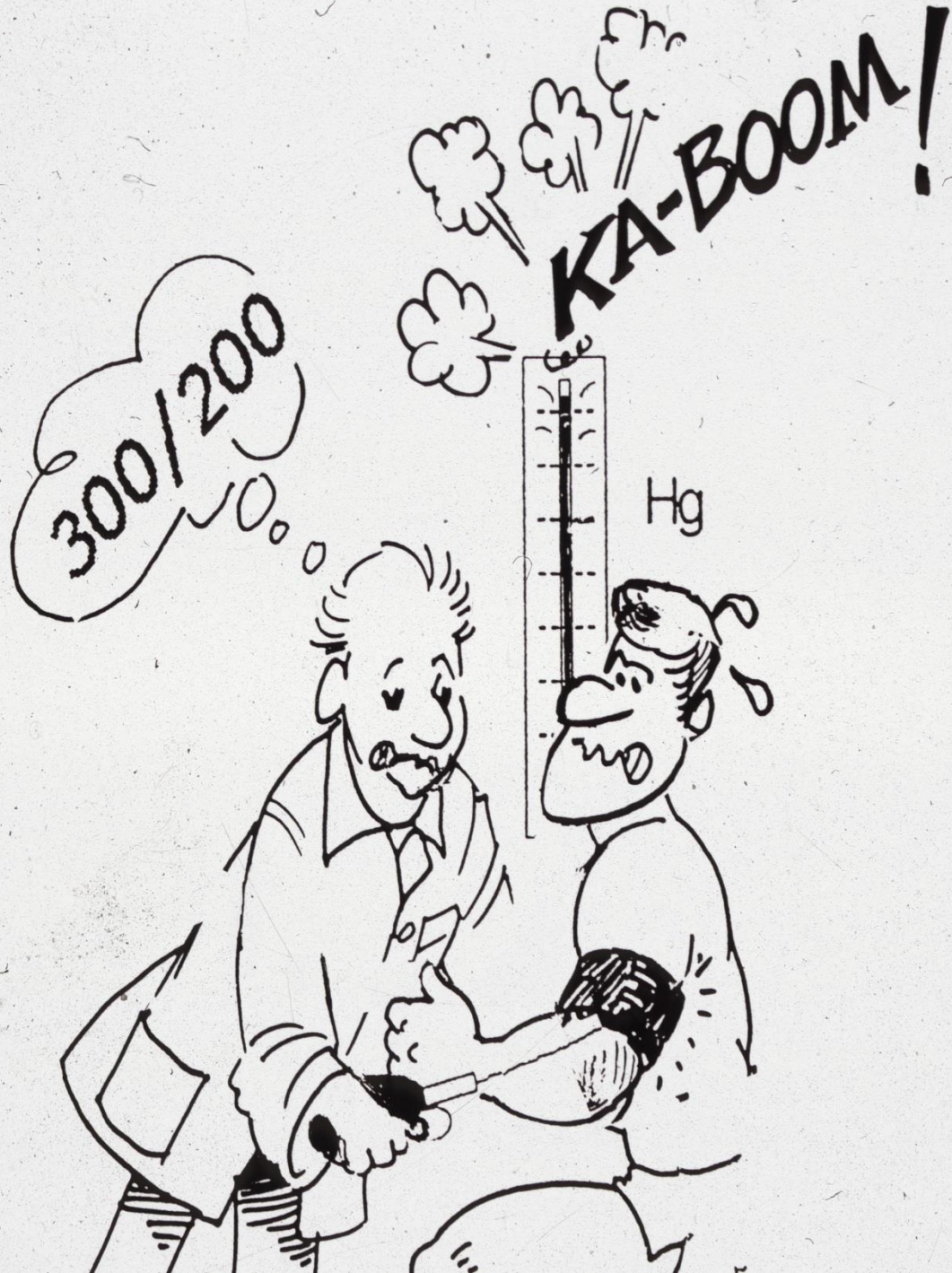


UNIVERSITY OF OREGON

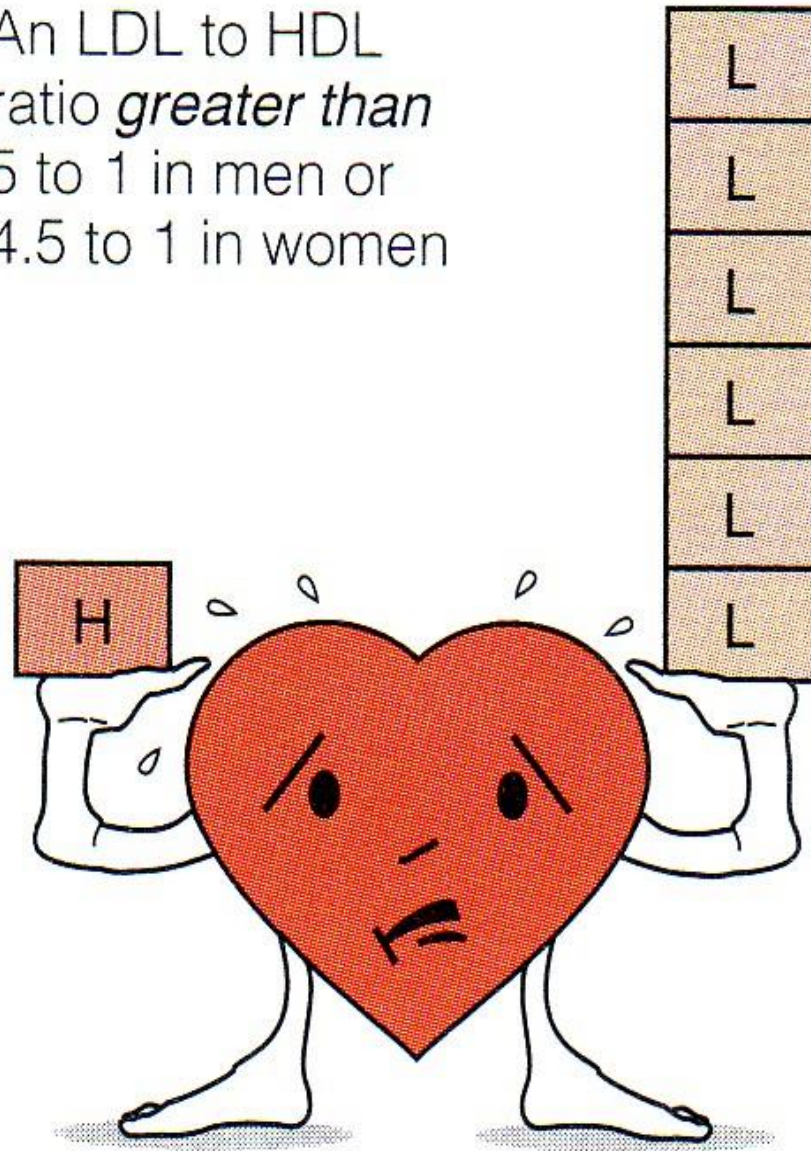
tobaccofree.uoregon.edu



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



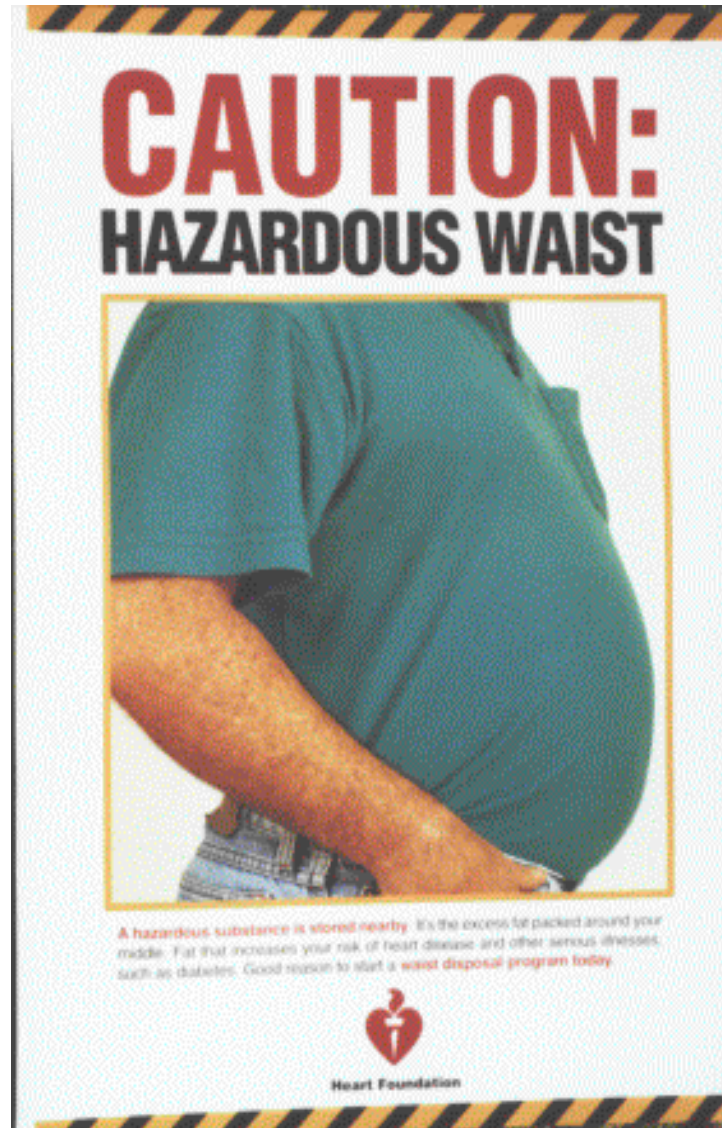
Increased risk of
heart disease

Apple type of obesity predisposed to CVD!

Pear type of fat pattern...



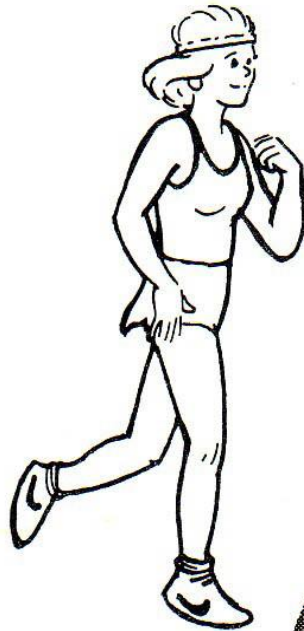
implies lower disease risk!



Eat more apples...



to help prevent the apple type of obesity!



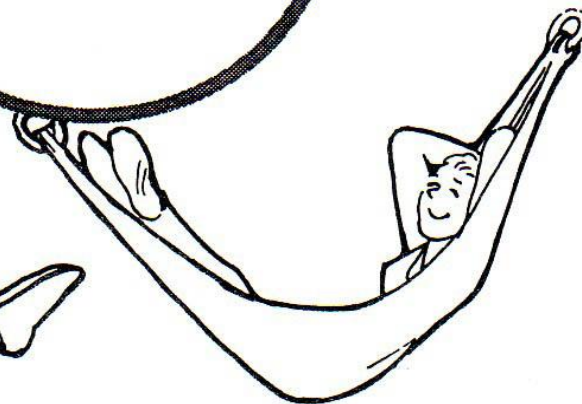
**Cardiorespiratory
Endurance**



**Muscular
Strength/Endurance**

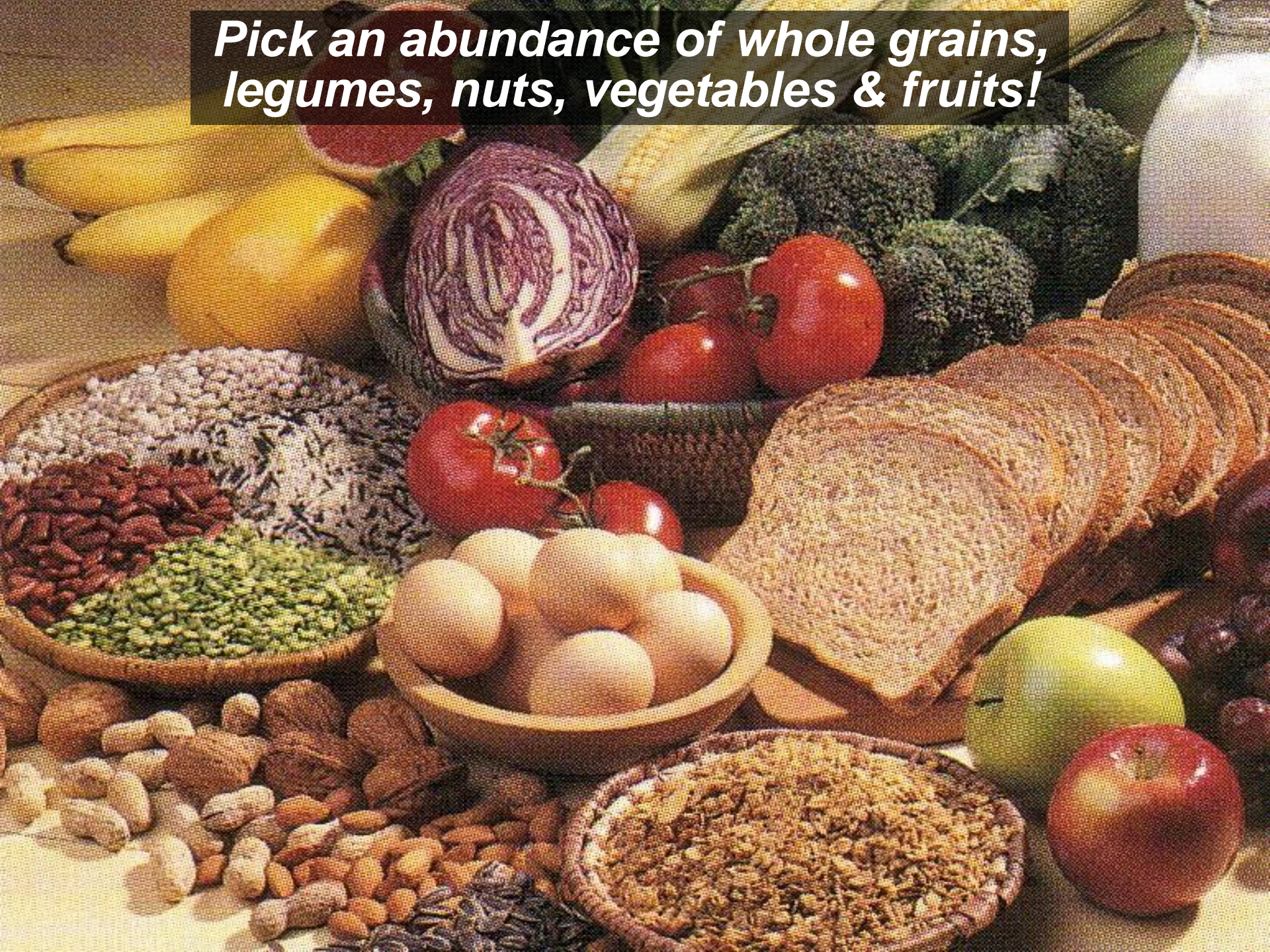


Flexibility

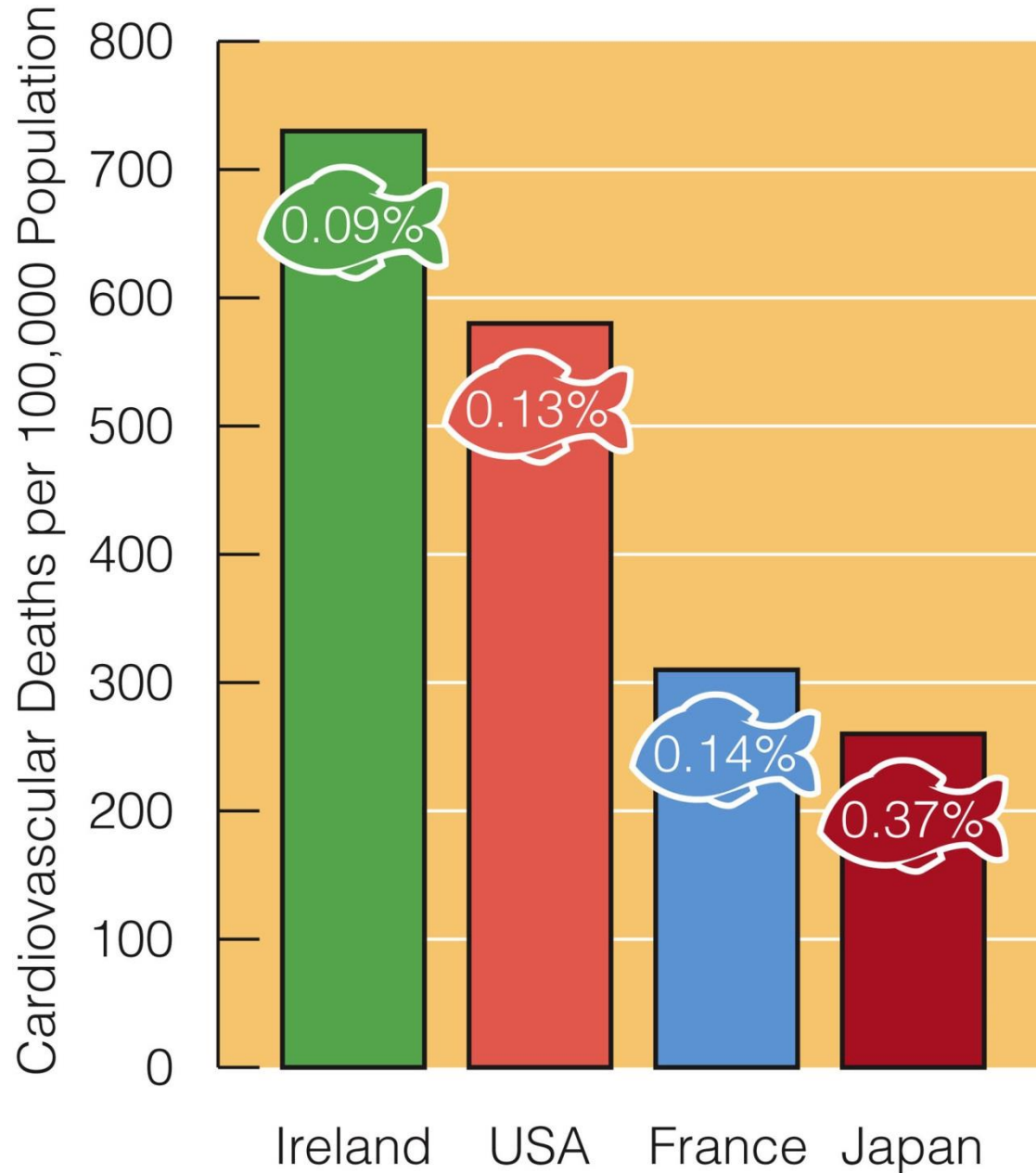


Neuromuscular Relaxation

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



Fish Oil Intakes & Cardiovascular Death Rates





Healthy Oils to Minimize Atherosclerosis HAPOC?

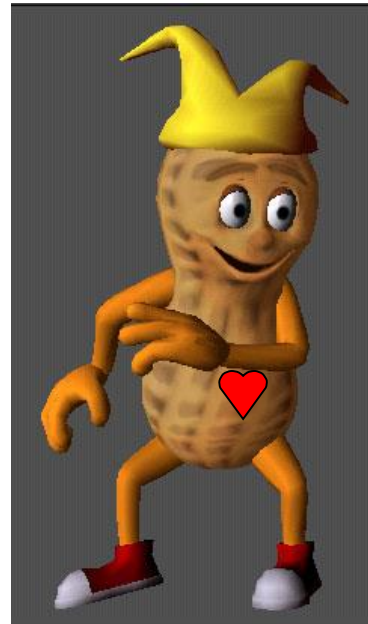
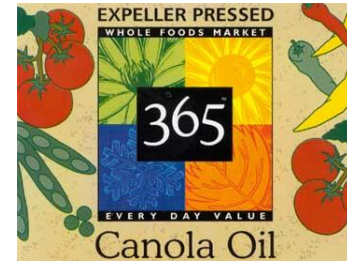
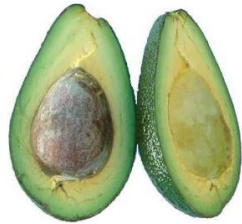
H

A

P

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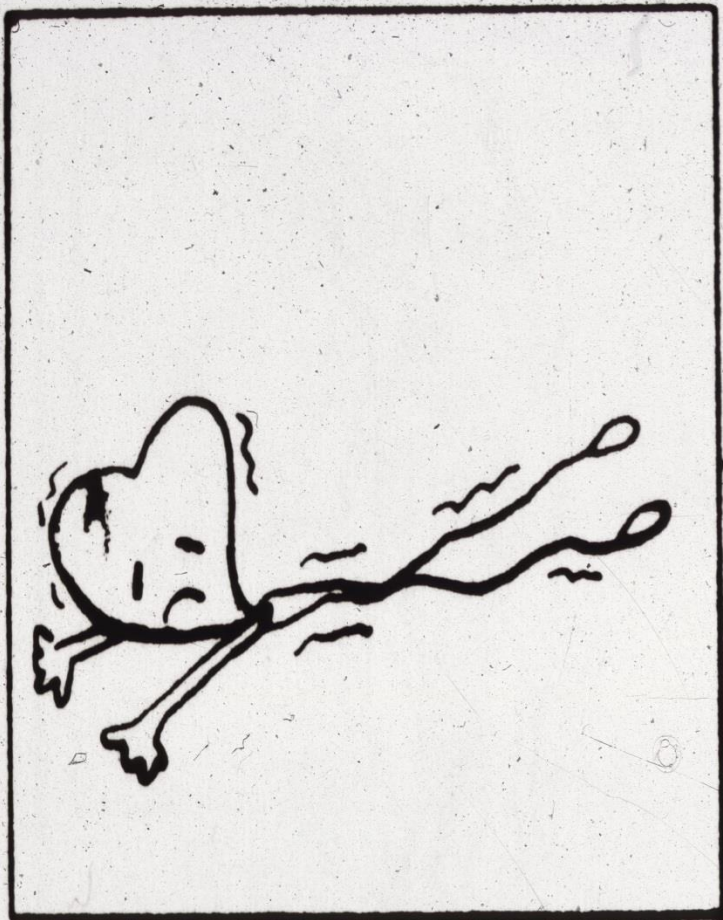


Olive Oil Loves Olive Oil & has some heartfelt advise for Popeye!!

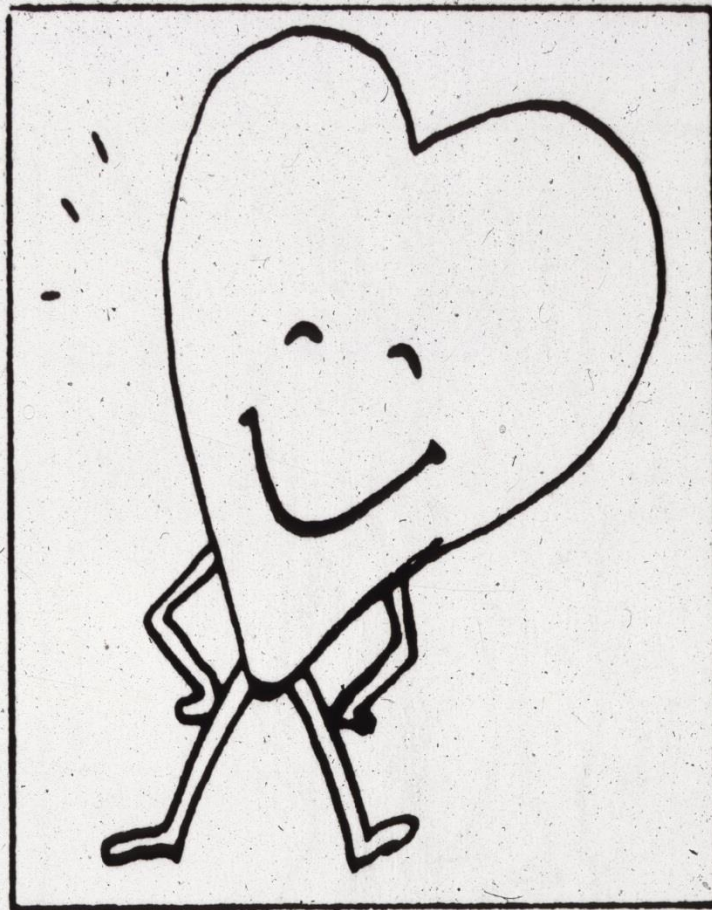


Yes for the
spinach! — but get
rid of the pipe!!



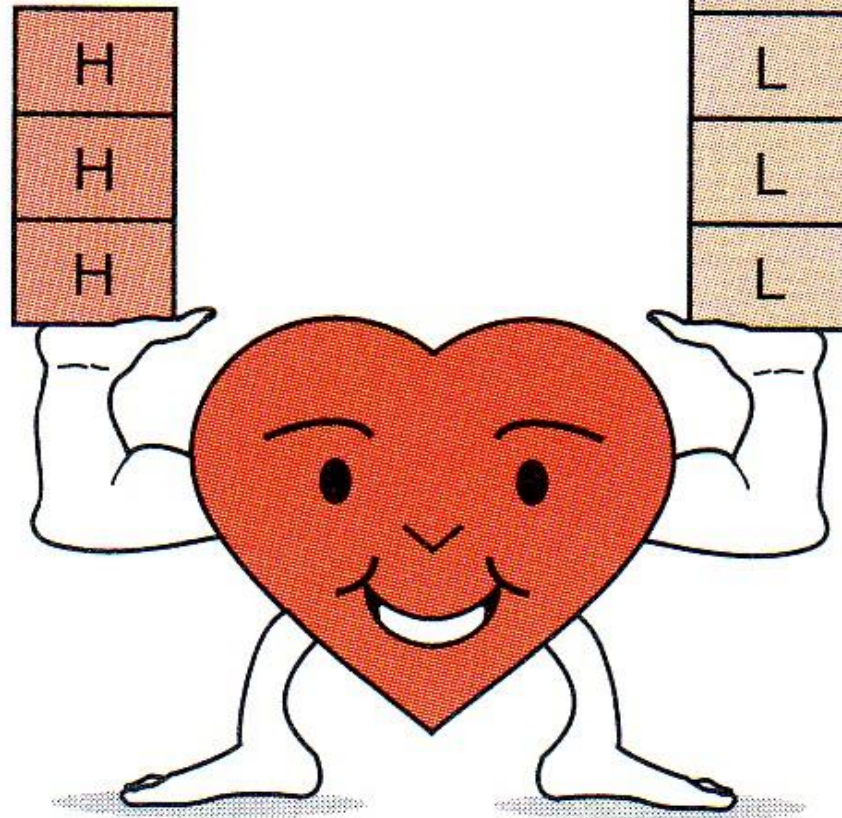


Before



After

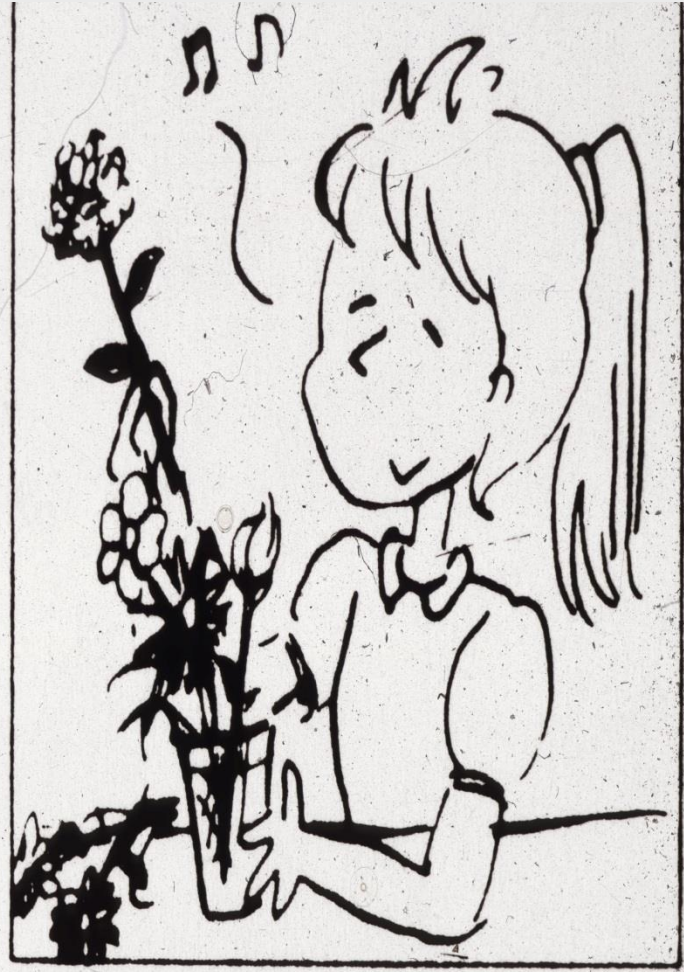
An LDL to HDL
ratio of *less than*
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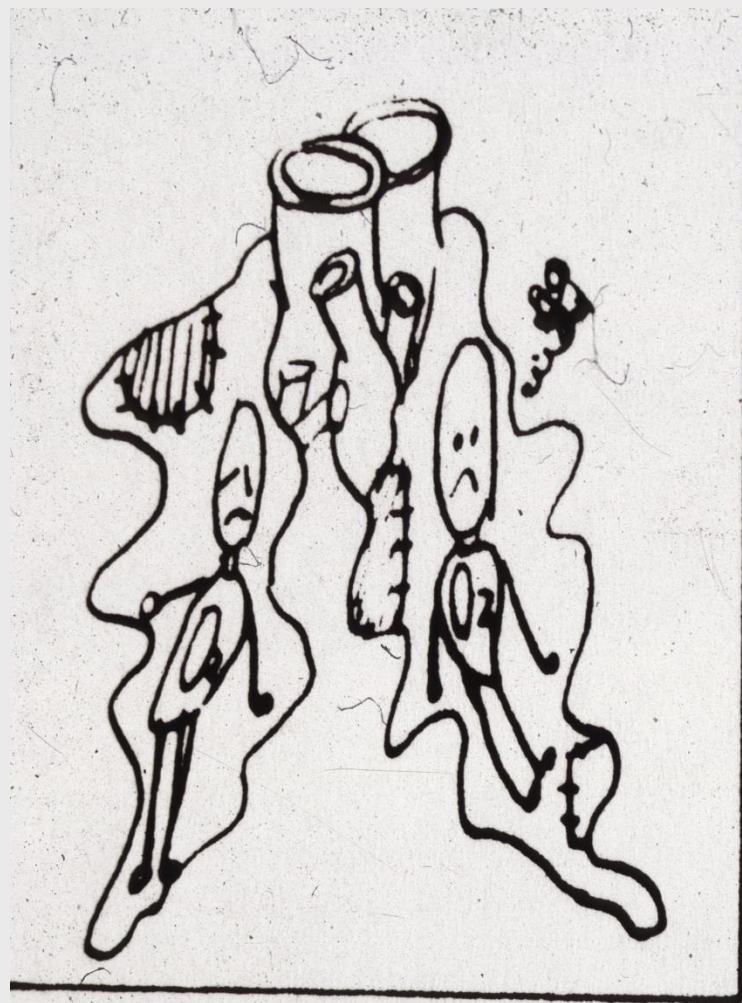
Reduced risk of
heart disease



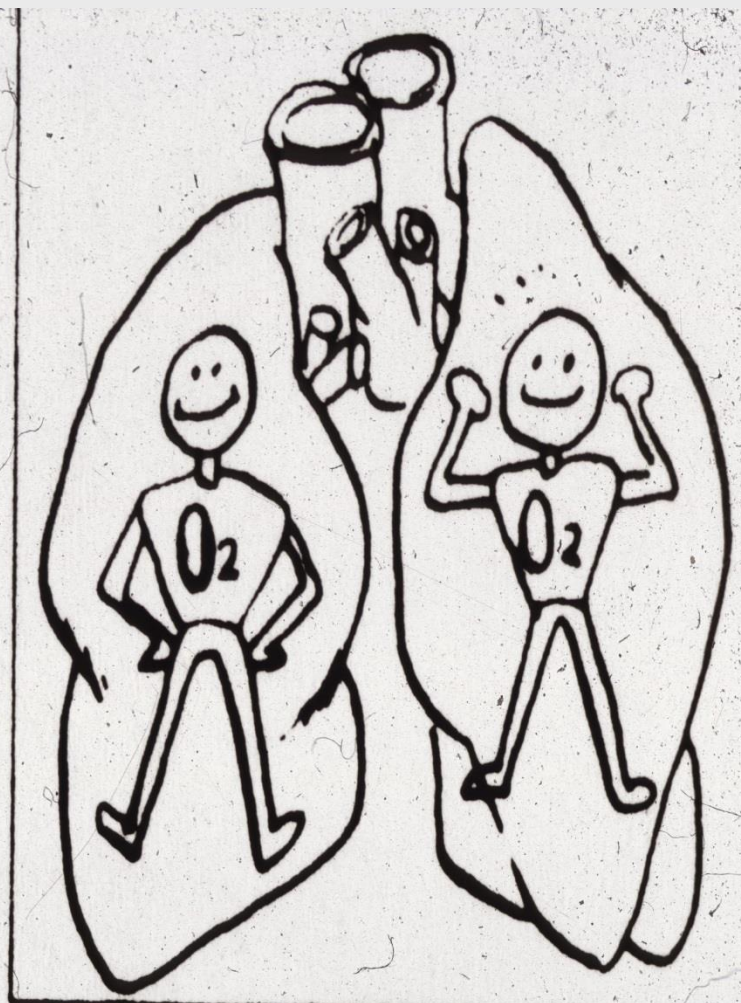
Before



After



Before



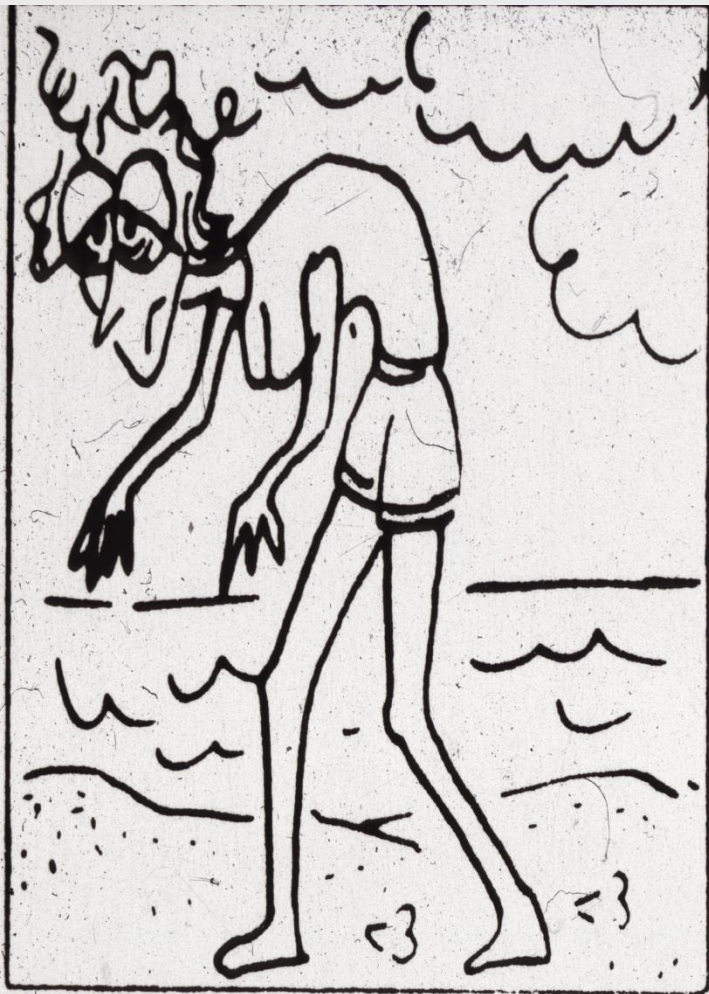
After



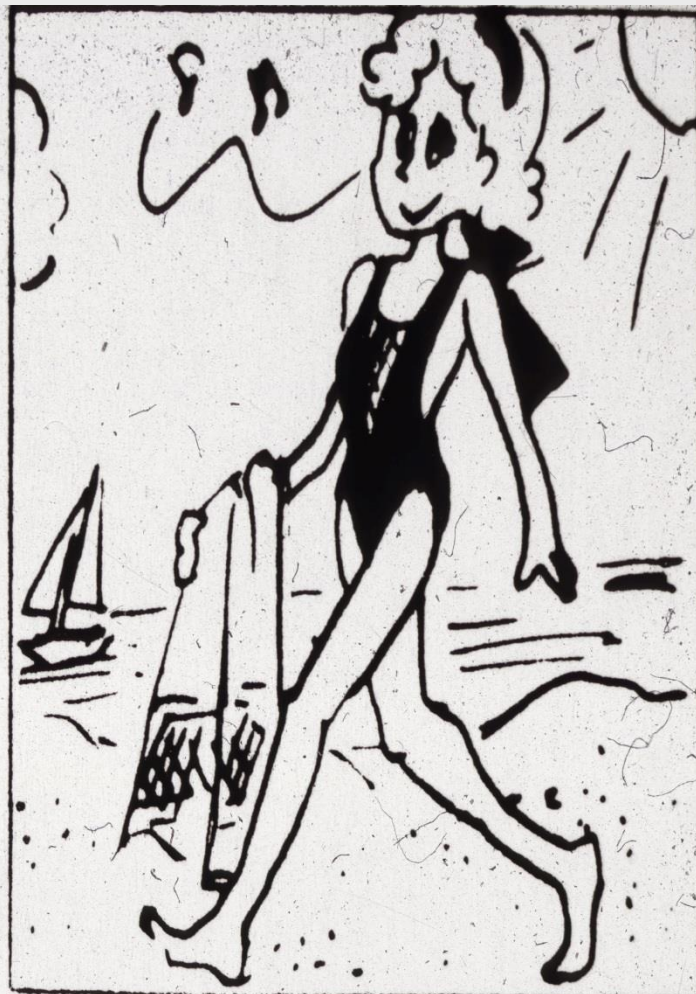
Before



After



Before



After