I. **Announcements** Exam I next session; 12 n & 1 pm lab sections go directly to 112 HUE & 130 HUE. 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?
12 n lab section takes Exam on Tuesday in 112 Huestis (HUE)
1 pm lab section takes Exam on Tuesday in 130 Huestis (HUE)
All others here (100 WIL)!
All 8:30 start time!

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

Superior vena cava (from head)

Left atrium

Right atrium

Inferior vena cava (from body)

Left ventricle

Right ventricle

Endocardium

Myocardium

Pericardium

http://www.nhlbi.nih.gov/health/topics/topics/hhw/contraction.html
Patent or still open! Foramen ovale!
Patent or still open! Ductus arteriosus!
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

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

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

Children: Moderate to Vigorous Exercise
≥ 60 min, 5 d/wk
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!

HI is low!

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

https://www.cdc.gov/dhdsp/data_statistics/fact_sheets/fs_heart_disease.htm
DISEASED CAROTID ARTERY

HEALTHY CAROTID ARTERY

Source: Lifeline Screening, 2007
Coronary Circulation ≡ Crowns the Heart!
**FIGURE 9-35**

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

L Sherwood 2004 p 336
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.
CABG
Coronary Artery By-pass Graft
Tobacco-free Campus
For better health, smoking and use of tobacco products are prohibited everywhere on our property.

September 1, 2012
For a healthier community and cleaner environment, the University of Oregon will be smoke and tobacco-free.

UO's Josh Buehler  U.S. Surgeon General  Regina Benjamin

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!
HEALTH-RELATED FITNESS

Cardiorespiratory Endurance

Muscular Strength/Endurance

Flexibility

Neuromuscular Relaxation
Pick an abundance of whole grains, legumes, nuts, vegetables & fruits!
Fish Oil Intakes & Cardiovascular Death Rates

Cardiovascular Deaths per 100,000 Population

<table>
<thead>
<tr>
<th>Country</th>
<th>Death Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>0.09%</td>
</tr>
<tr>
<td>USA</td>
<td>0.13%</td>
</tr>
<tr>
<td>France</td>
<td>0.14%</td>
</tr>
<tr>
<td>Japan</td>
<td>0.37%</td>
</tr>
</tbody>
</table>

S&W 2011
fig 5-12 p 167
Healthy Oils to Minimize Atherosclerosis

HAPOC?
Olive Oil Loves Olive Oil & has some heartfelt advise for Popeye!!
Yes for the spinach! — but get rid of the pipe!!
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