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

[Diagram showing the transition between systole and diastole]
Veins ➔ Atria ➔ Ventricles ➔ Arteries

Superior vena cava (from head)
Right atrium
Inferior vena cava (from body)
Right ventricle
Endocardium
Myocardium
Pericardium
Left atrium
Left ventricle

https://www.nhlbi.nih.gov/health-topics/how-heart-works
https://www.youtube.com/watch?v=zJXAlh9VDDU
Patent or still open! Foramen ovale!
Patent or still open! Ductus arteriosus!
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
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
Coronary Circulation ≡ Crowns the Heart!
FIGURE 9-35

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

- Exercise
- Dietary Modification
- Drugs/Surgery

NB: Last blasted resort!!
Tobacco-free Campus

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

September 1, 2012

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

<table>
<thead>
<tr>
<th>Country</th>
<th>Cardiovascular Deaths per 100,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>700</td>
</tr>
<tr>
<td>USA</td>
<td>500 (0.13%)</td>
</tr>
<tr>
<td>France</td>
<td>300 (0.14%)</td>
</tr>
<tr>
<td>Japan</td>
<td>100 (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