I. **Announcements** Poster presentation scoring. Q?

II. **American College of Sports Medicine (ACSM)** *American Heart Association (AHA), US Government/Centers for Disease Control (CDC)* Guidelines: *How Much Exercise is Enough?*
   A. Endurance training
   B. Strength training

III. **Anatomy Lab Skulls & Vertebrae Group Work**

IV. **Questions about You!**
The phantom did a beautiful job! I really liked his color choices and the layout of his poster. He also knocked us out in the Q & A session! Fabulous effort!!
How much aerobic?

Continuous exercise
≥ 50% muscle mass
Moderate?
≥ 30 min/d, ≥ 5 d/wk
Vigorous?
≥ 20 min/d, ≥ 3 d/wk
Guidelines: Healthy Adults < 65 yr

Do moderately intense aerobic exercise
\[ \geq 30 \text{ min/d, 5 d/wk} \]

OR

Do vigorously intense aerobic exercise
\[ \geq 20 \text{ min/d, 3 d/wk} \]

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

http://www.acsm.org/access-public-information/position-stands
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
Skull – Anterior view, 25 yr old male

Source: Francis & Martin, 1975. Illustration by Helen Williams.
Skull – Lateral view, 25 yr old male

Source: Francis & Martin, 1975. Illustration by Helen Williams.
Name the colored bones!

Source: Francis & Martin, 1975. Illustration by Helen Williams.
Identify these sutures! Why present?

Source: Francis & Martin, 1975. Illustration by Helen Williams.
Cranial cavity floor, 25 yr old male

Source: Francis & Martin, 1975. Illustration by Helen Williams.
Spenoid – Butterfly! Pat’s favorite!

Source: Francis & Martin, 1975. Illustration by Helen Williams.
Vertebral column numbers!

7 Cervical

12 Thoracic

5 Lumbar

- Breakfast at 7 a.m.
- Lunch at 12 noon
- Dinner at 5 p.m.
Atlas (C-1) & Axis (C-2) support & rotate the world!

"Thoracic giraffe"
In this postero-lateral view, the posterior portion of a lumbar vertebra looks like the head of a giraffe.

"Lumbering moose"
In the lateral view, the posterior portion of a lumbar vertebra looks like the head of a moose.

Feel this bump on the back of your neck!

Where many have problems with disc herniations!

Source: Francis & Martin, 1975.
MRI 061307
Lumbar spine
Lateral view

Disc herniation
Discs bulging

Oregon Imaging
Problems with herniated disc!

Disc compresses nerve!

Illustration Source: http://www.tumblerranch.com/apps/blog/
Comments + Questions about you!!
“I don’t have any answers. I’m a non-prophet.”