LAB 4 – STUDY AID
Appendicular Skeleton

i. Know the names, ranges of motion, and which bones form the articulations for the various joint types
   - Ex: the sternoclavicular joint is a saddle joint composed of the sternum / clavicle & allows moderate freedom of movement

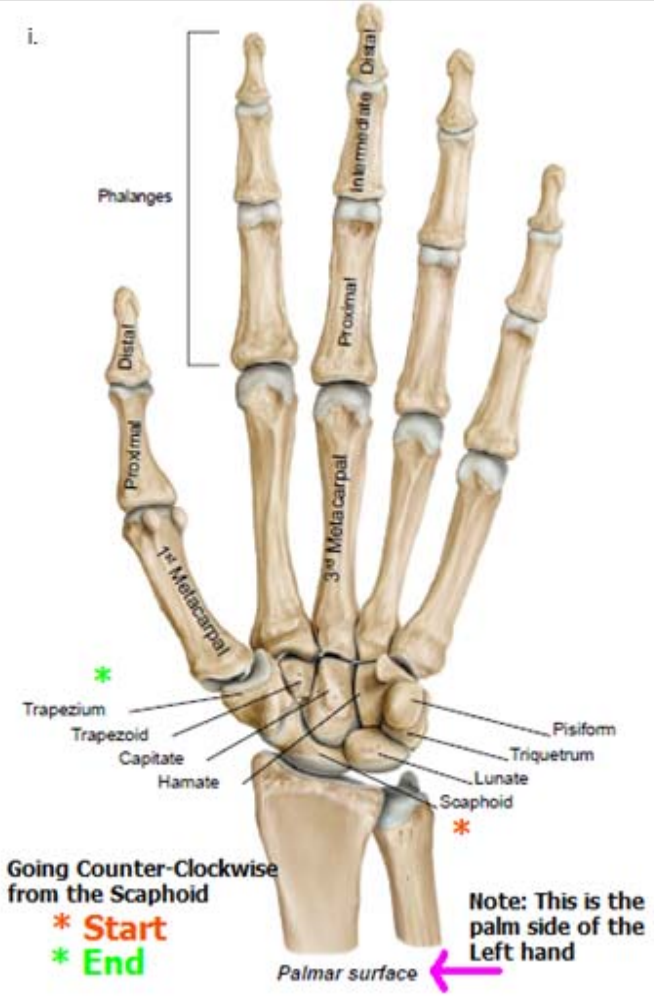
ii. For exam purposes, muscle movements will refer to the JOINT it moves. (For example, the bicep flexes the elbow.)

iii. Make Sure you are always orienting yourself to the proper 'Anatomical Position'
   - Specifically note the palms face anteriorly with the thumbs located laterally (outward)
   - Learn to recognize the difference between the tibia/fibula and the ulna/radius (and where each is positioned)

iv. Recognize the axes in the hand and in the foot (3rd metacarpal/2nd metatarsal)

Carpals: <u>Multiple methods to navigate the carpals → mostly incompatible with each other (find one that works for you!)</u>

i.



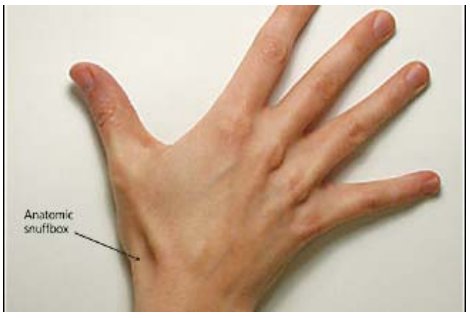
So **L**ong **T**o **P**inky, **H**ere **C**omes **T**he **T**humb

ii. **S**ome **L**overs **T**ry **P**ositions **T**hat **T**hey **C**an't **H**andle

<u>From lateral to medial, in two rows [like a type-writer]:</u>
Scaphoid, Lunate, Triquetrum, Pisiform,
Trapezium, Trapezoid, Capitate, Hamate

iii. Carpals 'CLAP' -> hand ; Tarsals 'TAP' -> foot

iv. Another method to learn to ID carpals: identify one of the carpals you find easiest to recognize and learn the rest relative to it
Ex. **Hamate has a 'spike' on the palm side***
* Good way to orient yourself, regardless of mnemonic method!

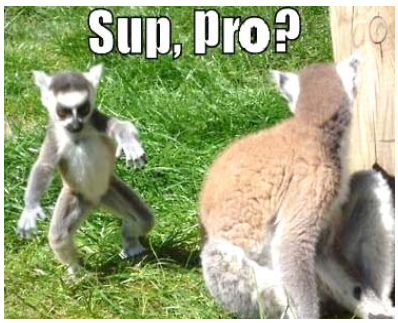


v. Carpals form groove on hand at the **Scaphoid** -- this has been called the anatomical **'Snuffbox'. (guess its use)**

Note: the carpal bones will NOT be separated for exam purposes (students will be given the entire hand and have to identify the starred carpal bone)

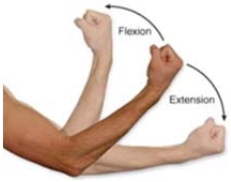
<u>Mnemonics and learning aids:</u>

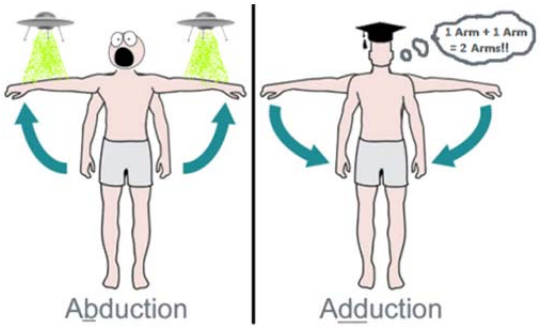
i. Radius: "thumb side" – you turn on the radio using your thumb / radius rotates.
ii. Ulna = 'U' shaped ; looks like a wrench
iii. Olecranon process (on ulna) = elbow point
iv. "Feeble Fibula" (when trying to remember the tibia vs. the fibula -> fibula smaller)
   → Fibula = smaller than tibia -> think about telling a 'little fib'
v. Patella looks 'heart-shaped' when positioned properly
vi. Talus on "top" (when trying to distinguish calcaneus from talus)
vii. Calcaneus = heel (heel develops a lot of **cal**lous)
viii. Movement mnemonics
   1. <u>Sup</u>ination – turn your hands so that you can eat <u>soup</u> out of them
   2. <u>Pro</u>nation – motion you make when you dribble the basketball like an NBA "<u>pro</u>"
      → Also Remember "Sup, Pro?"



Movement mnemonics (cont.)

3. Abduction – movement away from your body (like being abducted by aliens)
4. Adduction – "Adding to" your body; movement toward your body
5. Plantarflexion – "Point"
6. In General:
   a. Flexion = reducing angle of a joint
   b. Extension = increasing angle of a joint





ix. Sound-alikes [CAUTION!]:

7. Coronoid process of ulna vs. coracoid of scapula
8. Epicondyles of humerus vs. medial and lateral condyles of femur
9. Greater & lesser tubercles of humerus vs. greater & lesser trochanter of femur
10. Lateral malleolus of fibula vs. medial malleolus of tibia

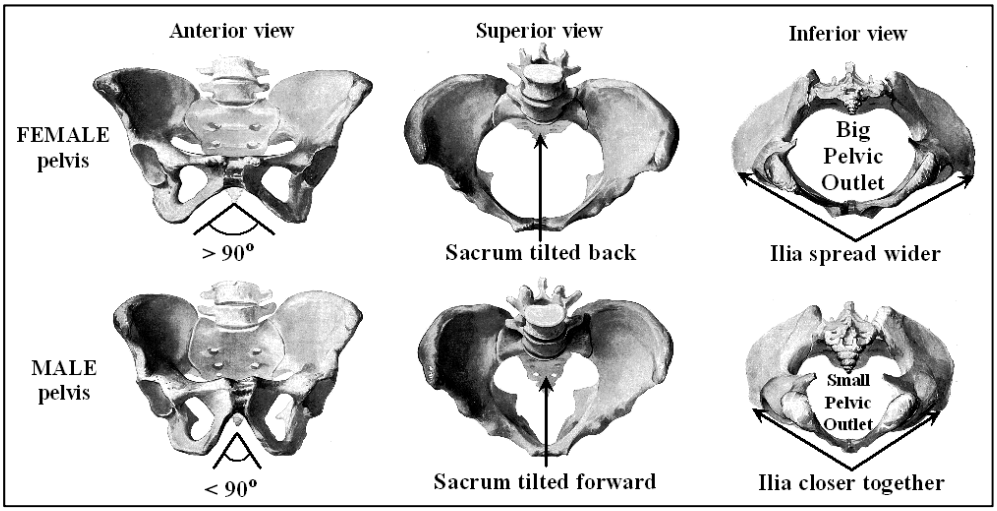
x. Learning the roots:

a. Acromion = 'highest shoulder' [is most superior part]
   i. Think Acropolis = 'highest city' (e.g., Athens)
b. Coracoid & Coronoid = 'crow form'
   i. Because they Look like hooked beaks of a crow

xi. New game show: Would a baby fit through this??

11. Females have a much **wider subpubic angle**, 90+ degrees
    a. Male angle is approximately the angle you make when forming a peace sign with your fingers

12. Females have larger 'hole' for baby head: (Larger **Pelvic inlet** & larger **Pelvic Outlet**)
13. Looking down through pelvis: female's 'hole' shaped like Mickey Mouse
    - More accurately, Males = 'deformed mickey mouse', females = 'beautiful? Mickey mouse'



Muscle structure and contraction (possibly helpful for lecture and lab)

I recall coming across a very useful flash animation when I took anatomy many years ago. Although the original animation does not exist, there is now a newer version accompanied by a boring guy narrating, but it still has all of the useful labels and detail of the original version. I highly recommend this animation to get a good visualization of muscle structure and how the muscle contracts (at a molecular scale):

http://www.physioviva.com/movies/muscle_struc-func/index.html

Click on the 'Scene Menu' option (bottom right corner of animation window) to see a table of contents. Otherwise it starts at the beginning and goes through each section.

Same animation now available as series of Larry Keeley YouTube videos!:
https://www.youtube.com/playlist?list=PL474563250E2EC0B4

Also for a cheesy video explaining things in less detail:
http://www.dnatube.com/video/4810/Structure-of-muscle-and-mechanism-of-contraction

[Note: I don't know if you need to know this detail or not (or even more detail) for lecture, but if you do, this should be a very useful resource]