Name ______________________________

**Variation in the Upper Limb Skeleton & Musculature**

Take-home portion of Human Anatomy Lab Exam II – 10 pts.

Complete this exercise by visiting the on-line text *Illustrated Encyclopedia of Human Anatomic Variation* at [http://www.anatomyatlases.org/AnatomicVariants/AnatomyHP.shtml](http://www.anatomyatlases.org/AnatomicVariants/AnatomyHP.shtml).

I. Scroll down to the “Skeletal System Listed by Region”.

**Scapula**

_____ 1. How often is the acromion falciform (“sickle-shaped”)?

_______ 2. What is the next most common shape of the acromion?

**Humerus**

_____ 3. How frequently is a foramen observed in the olecranon fossa?

Sketch a supracondyloid/supracondylar process:

_____ 4. How often has this been observed?

**Wrist & Hand:**

_____ 5. How many accessory ossicles among the carpals have been described?

_____ 6a. How frequently are sesamoid bones observed at the 1st metacarpophalangeal joint?

_____ b. How frequently at the 5th metacarpophalangeal joint?

_____ 7. Note the many graphics illustrating **polydactyly**, the presence of extra digits – usually a thumb. Visit [http://www.drgreene.com/qa-articles/polydactyly/](http://www.drgreene.com/qa-articles/polydactyly/) for another perspective on polydactyly. According to Dr. Greene, how frequent is this condition?
II. Return to the home page and scroll down to “Muscular System: Muscles listed by groups”. Find the pages dedicated to the muscles listed below to answer the questions posed.

M. Pectoralis major
8. Sketch and label the pectoral anomalies known as sternalis & pectoralis quartus.

____ 9. How frequently is a sternalis observed?

M. Latissimus dorsi
____ 10. According to Mori, how often does the latissimus dorsi arise only from ribs 10, 11, & 12, failing to arise from rib 9?

M. Biceps brachii (Note graphics of 3rd head)
11. Record the frequency of occurrence of a biceps brachii with more than 2 heads in these racial groups:
   _____ Chinese       _____ Black Africans
   _____ White Europeans _____ Japanese

____________________ 12. Which muscle is more likely to exhibit variation: the biceps brachii or the triceps brachii?

View the palmaris longus article on my lab website (you don’t need to waste paper printing it) for a recent research article on the common absence of the palmaris longus, one of the more variable muscles in humans.

______ 13a. According to these authors, how often is the palmaris longus missing bilaterally?
______ b. unilaterally?

14. Let’s conduct our own research study. Recreate the pose shown on Fig. 1 of this article and examine your own forearms for presence of the palmaris longus.
   Is it present on both forearms? __________
   If it is missing on either forearm, see me for confirmation and we’ll see if our data match these authors.