Name: _____*Key*_____   *Section:* _____

Bio 137 — Human Anatomy & Physiology I   *10 pts*

Muscle Physiology Prelab Assignment
Due at the start of next week's lab

<u>*Instructions:*</u> *View the "Muscular System" module of the InterActive Physiology CD-ROM included with your lecture text. This assignment covers the "Contraction of Motor Units" and "Contraction of Whole Muscle" topics. Click on each of these topics and answer the relevant questions below.* <u>*Note:*</u> *students lacking the CDs will be able to use them in the open labs or in the library.*

Topic: Contraction of Motor Units

1. What is a motor unit?
    A motor neuron and all of the muscle cells it stimulates .

2. What is meant by recruitment?
    The stimulation of additional motor units for increased strength of contraction .

3. Why do some motor units only have a few muscle cells?
    To allow for more precise movements.

4. The constant state of low level tension in a muscle is called ____*Muscle tone*_____.

Topic: Contraction of Whole Muscle

5. A ____*Muscle twitch*____ is a contraction due to a single stimulus.

6. What are the three phases of muscle contraction?
    1. Latent period
    2. Contraction
    3. Relaxation

7. ____*Temporal*____ summation occurs when a second contraction is added to the first before complete relaxation.

8. ____*Complete tetanus*____ occurs when stimulation is so rapid that the contraction is smooth and continuous without any relaxation.

9. What are the three factors that determine the strength of a muscle contraction?
    1. Frequency of stimulation .
    2. Number of motor units recruited .
    3. Degree of muscle stretch .

10. According to the simulation, ~~**unstretched**~~ / **moderately-stretched** / ~~**overstretched**~~ (circle one) muscles have the strongest contractions.