

Isotonic Instructions:

Part 1:

Determine the angle at your elbow when you hold the weight in a curled position. Determine the change of length for the bicep muscle from full extension to the curled position. You will need to use trigonometry and assume that LB is approximately 2.54-cm in females and 3.60-cm in males.

Part 2:

For this part of the lab, you will use your smartphone and a program like Coach My Video app. One student will operate the camera and software, the other will lift the weights while standing against a wall.

0. Focus the camera on student holding the weight.
1. Record a video.
2. Once the video starts, tell the student to lift the weight as fast as they can. Warn them not to use their shoulders or swing their body to help lift the weight. Lift by isolating only the bicep muscle.
3. Stop recording a video.
4. Repeat steps above for more than three weights. **CAUTION:** Only lift a weight that is comfortable for you. DO NOT overstrain yourself.
5. Analyze videos to record the number of frames between initial motion and final motion. A typical camera captures video at 30 frames per second so the interval between each frame is $1/30^{\text{th}}$ of a second (0.033 seconds).