

# Testing Muscle Strength

**Overview:** Did you know that you have over 600 muscles in your body? They help you do everything from lifting, to walking, and even pump blood! Those would be your cardiac muscles, and they're involuntary, which means you can't control them. The ones you *can* control are voluntary, or skeletal muscles. Some groups of voluntary muscles are stronger than others because each group is designed for a different and specific function. It just makes sense that the muscle groups in our legs would need to be stronger than the ones in our toes. For this experiment, you will use a bathroom scale to test the strength of various muscle groups.

## Materials (per lab group)

- bathroom scale
- pencil
- partner

## Experiment

1. Put the scale between your knees. Now squeeze it as hard as you can and have your partner record the scale's reading.
2. Use the technique to test the muscles in the following list. Place the scale between the body parts and squeeze! Be sure to record the readings for data-keeping purposes: thighs, ankles, palms, elbows, elbow and rib cage.

## Testing Muscle Strength Data Table

Muscles	Scale Reading <i>(measure in pounds, kg, etc.)</i>
knees	
thighs	
ankles	
palms	
elbows	

### Reading

Not all muscles need to be big and powerful. Actually, muscles have various functions and uses that vary by their design. There are involuntary muscles, which we don't control. The smooth muscles in our digestive tract are involuntary, as are the thick cardiac muscles in our heart.

Our voluntary skeletal muscles aren't all big and strong, either. The muscles in our fingers are detail-oriented. They need to be fast and perform relatively small, precise movements like the ones used in writing. The design of a specific muscle group will vary depending upon the muscles' ultimate use.

Have you even had a muscle cramp? They occur when a muscle is overworked and fatigued. The muscle simply contracts and stays contracted.

### Exercises

1. What are the two main types of muscles?
2. Give an example of a muscle group that's more specific than your answers above.
3. Why aren't the muscles in our fingers big and strong like those in our arms and legs?

**Answers to Exercises: Testing Muscle Strength**

1. What are the two main types of muscles? (voluntary and involuntary)
2. Give an example of a muscle group that's more specific than your answers above. (example: cardiac muscles, smooth muscles)
3. Why aren't the muscles in our fingers big and strong like those in our arms and legs? (Different muscle groups have different functions – finger muscles need to be small and fast for small, detail-oriented movements.)