



Curiosity Guide #603

Muscular Science

Accompanies Curious Crew, Season 6, Episode 3 (#603)

Licorice Muscle

Investigation #7

Description

Create a muscle model that tastes good, too!

Materials

- Red shoelace licorice
- Plastic wrap

Procedure

- 1) Tear off one 12-inch length of plastic wrap.
- 2) Place the licorice into the center so that the wrap extends on both ends and roll the wrap up.
- 3) Repeat 50 times to make individual bundles.
- 4) Take 5 of the wrapped licorice, center, and wrap them together in a single piece of plastic wrap.
- 5) Repeat 10 times using all the single strands.
- 6) Combine all 10 bundles and wrap the bundles once more in a single piece of plastic.
- 7) Twist the ends of the plastic wrap together.
- 8) How is this like a muscle?

My Results

Explanation

The ends of the muscle are represented by all the plastic wrap that when twisted together resembles the tendon that attaches the muscle to a bone. The outer plastic represents the epimysium, which is a fascia layer over the muscle. When you unroll the outer layer of wrap, the epimysium, you then can see several bundles, called fascicles, that make up the muscle. These bundles have an outer cover as well, the perimysium. Take one fascicle bundle and open the perimysium layer. You can see several individually wrapped licorice. This inner coating layer of plastic represents the endomysium layer. Putting the model back together, you can see that the endomysium layers connect with the perimysium, and eventually epimysium, and are an integrated part of the muscle itself. Each licorice represents a muscle fiber that can contract when the thin actin filaments get pulled in and overlap with the thick myosin filaments. This makes the overall muscle shorter.

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