



Curiosity Guide #603

Muscular Science

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

Clothespin Power

Investigation #1

Description

How many times can you or your friend open and close a clothespin in one minute? Can you go on for a second minute without stopping? Give those fingers a real work-out!

Materials

- Spring-loaded clothespin
- Stopwatch
- A friend

Procedure

- 1) Challenge a friend to hold a clothespin with the thumb and index finger. Tell your friend to open and close the clothespin by squeezing as many times as possible in one minute.
- 2) After one minute, keep the squeezing going, but record how many times your friend could squeeze the clothespin in that first minute.
- 3) Have your friend keep squeezing for a second minute while you count how many times your friend could squeeze the clothespin.
- 4) How did the result from your friend's second minute compare to the first?
- 5) How did your friend's fingers feel afterward?

My Results

Explanation

It seems strange that something so simple not only makes your fingers sore, but the number of times you could squeeze the pin went down in the second minute. This is because your muscles were exercising anaerobically at first, squeezing very quickly. When muscles are used anaerobically, they are running with less oxygen, so they have to get the energy differently. Glycogen is a glucose polymer that comes from eating carbohydrates that are stored in our muscles and liver. When a muscle operates anaerobically with high intensity and little to no oxygen, the muscle can access the glycogen stored right in that muscle and burn it. Eventually, the glycogen is used up, and you can't help but squeeze more slowly and with aching fingers. Your fingers ache because there is lactic acid building up in the muscle from the burning of the glycogen. That lactic acid will eventually get carried to the liver and temporarily contributes to some of the immediate soreness after an intense workout.

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