Muscle Fatigue Lab

Purpose: To determine how long it takes for your muscles to become tired and full of lactic acid.

Materials:
- A partner
- A tennis ball
- A clock or watch
- Graph paper
- Pen/pencil

Procedure:
You will be assigned a partner. Each person will have one job. After you and your partner have finished, switch jobs with each other.

Jobs: Squeezer

1) Grasp the tennis ball in your non-writing hand.

2) Squeeze the tennis ball **without stopping**. Stop when your partner is finished counting. **NEVER STOP SQUEEZING!!!**

Counter

1) As the squeezer is squeezing the tennis ball, count the number of squeezes in 10 seconds.

2) Write that number in the table below beside number 1.

3) Count the number of squeezes for the next 10 seconds.

4) Write that number in the table besides number 2.

5) Repeat steps 1-2 until the table is complete.

Results:

Table 1. The number of squeezes over time.

Counts	Number of squeezes	Counts	Number of squeezes
1		6	
2		7	
3		8	
4		9	
5		10	

Once the table is completed, graph your results.

Conclusion:

1) What happened to the number of squeezes over time?

2) How did your squeezing hand and arm feel towards the end of your squeezing-time period?

Information:
When you work your muscles a lot in a short amount of time, your muscles cannot get the oxygen they need for aerobic respiration. Instead, your muscles undergo anaerobic respiration and produce lactic acid. When the lactic acid builds up, you get a burning sensation followed by pain in that muscle. With this information, answer the following questions:

3) By looking at your results, pinpoint when you first had a lot of lactic acid build up. How do you know?

4) How long does it take for the burning feeling to disappear?

5) Design a similar experiment that would answer this question: How long does it take for lactic acid to build up in your thigh muscle? Don't forget the test and what you would record as data.