

## CAN YOU HANDLE IT?

### Procedure:

#### Wall Sit

1. Instruct students to line up against the wall for a competition.
2. Direct them to do a wall sit for as long as they can.
3. Positioning: Their backs should be flat against the wall with knees bent at a 90-degree angle.
4. Instruct them to stand up whenever they feel their muscles are tired. Once all the students feel their muscles getting a little shaky, have them all sit and discuss what they noticed.
5. Answer analysis Question 1.

#### Student Clothes Pin

1. Instruct students to place the clothes pin between their thumb and pointer finger in the hand that they do not regularly write with. Place the other three fingers of that same hand on their palm.
2. Have them extend arm out in front of them.
3. When you say, "Go," they will have 30 seconds to open and close the pin as many times as they can.
4. Have them record on the table below how many times they were able to open and close the clothes pin after 30 seconds have passed.
5. Instruct them to repeat this activity 4 more times. Give them a 15-second break in between each run.
6. Answer analysis questions.

*Analysis Questions:*

1. What did your muscles feel like after the wall sit?
2. How did your hands feel after the open-close exercise?

Trial	# of times you opened the clothes pin
1	
2	
3	
4	
5	

3. What did your muscles feel like after the clothes pin runs?

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4. Did the results turn out the way you would have expected based on what you know about muscle fatigue? Explain.
5. Explain how the data and graph help show the difference in performance during aerobic versus anaerobic respiration.
6. Approximately how many ATP molecules are produced in aerobic cellular respiration? Anaerobic? Which one is more productive?
7. Why are your muscles forced to use anaerobic respiration to produce ATP during strenuous exercise?
8. What is the byproduct of anaerobic respiration that makes your hand cramp or burn?

9. Write a summary of what was happening to your muscles during the strenuous exercise performed during this experiment. Use the following words your summary: *cramp*, *burn*, *muscles*, *oxygen*, *anaerobic respiration*, *ATP*, and *lactic acid*. Underline these words in your summary.