



NAME

DATE

Mammalian Dive Response Laboratory Investigation Student Sheet

PRE-LAB QUESTIONS

- 1. Hypothesize how submerging your face in cold water while holding your breath may impact your resting heart rate.**

- 2. Hypothesize what may happen to your heart rate, blood pressure, and energy levels if you tried to exercise while fully submerged in cold water.**

3. Use your textbook, if needed, to answer this question. **During cellular respiration, what substance builds up in the body when there is a lack of oxygen?** To demonstrate this, perform a wall sit. Stand against the wall, keeping your back flat against the wall. Lower yourself down and walk your feet out until your knees and quads are at a 90-degree angle. Hold that position for several minutes until you feel this substance building up in your quadriceps. This substance is building up due to a lack of free oxygen in your muscles.

4. Marine mammals such as dolphins, whales, and seals can hold their breath for extended periods of time while exerting energy during hunting, mating, or migrating.
a. How does this impact their heart rate?

b. How might the fermentation stage of the Krebs cycle differ in marine mammals compared to humans?

POST-LAB QUESTIONS

1. What happened to your heart rate when you held your breath out of water?

2. Was your result in #1 different when you held your breath underwater?

3. What variable changed and how did that impact your result?

4. On average, did the class data follow the same trend as your individual results? Explain.

5. Why is it better to use class data than just your information?

6. What would the results have been if you were actively swimming while submerged?

7. Hypothesize why the mammalian dive response is present in humans even though we do not live in aquatic environments as adults?
