

**ASSIGNMENT 1: POSTLAB FOR TECHNIQUE LAB 1 (PULSE RATE)**

**DUE DATE:** Lab Week 3 (L1: 02/11; L2: 02/08), beginning of lab

**POINT TOTAL:** 1.5% final grade

**FORMAT REQUIRED:** email or hard copy

**ASSIGNMENT DESCRIPTION:**

For this assignment, you should write a Results section in scientific style describing the outcome of our pulse rate experiments. This should include a **brief text section describing the results in paragraph form (probably one to two paragraphs)**, which will include the outcome of **four t-tests**. Also include the **two figures** specified below. Make sure to reference your figures in the text and give them appropriate captions. Refer to the course *Writing guide* on moodle for a detailed refresher on the contents of a Results section, and the *Figure guide #1* and/or *Basic stats guide* for info on making graphs and performing t-tests, if you need them.

PS - I have cleaned up and organized the lab data spreadsheet to facilitate the assignment, and I added data from last year's class, but I didn't change any of the values we collected.

Detailed instructions:

- (1) Comparison of mean heart rate before and immediately after exercise. Include outcome of a statistical comparison (paired/correlated samples t-test), and a bar graph (Figure 1) showing the difference between the two treatments, with error bars (95% confidence intervals or standard errors). **\*NOTE:** this is the comparison we did together in class. Your output should be the following (this is from VassarStats; make sure you actually do it yourself to check and make sure you are using your statistical software correctly!).

Results		t statistic	degrees of freedom	P	one-tailed	<.0001
Mean <sub>a</sub> —Mean <sub>b</sub>		t	df		two-tailed	<.0001
	-33.2385	-9.99	46			

  

	Observed	Confidence Intervals	
		0.95	0.99
Mean <sub>a</sub>	77.569	± 4.6705	± 6.2505
Mean <sub>b</sub>	110.8074	± 7.7964	± 10.434
Mean <sub>a</sub> —Mean <sub>b</sub> [Assuming equal sample variances.]	-33.2385	± 6.6897	± 8.9528
Mean <sub>a</sub> —Mean <sub>b</sub> [Assuming unequal sample variances.]	---	± ---	± ---

Correlated Samples

- (1a) Describe in words how the mean heart rate changed over time from immediately after exercise to 120 s post-exercise. You do not need to perform any stats or make any graphs for this.
- (2) Comparison between men and women of the mean proportional increase in heart rate after exercise. I have added a column to the class data sheet with this variable (labeled “proportional increase” – this is just immediate post-exercise heart rate / pre-exercise heart rate). Include the outcome of statistical comparison (independent samples t-test).
- (3) Comparison of mean resting heart rate before simulated dive and during simulated dives. Include the outcome of statistical comparison (paired/correlated t-test), and a bar graph (figure 2) showing the difference between the two treatments, with error bars (95% confidence intervals).
- (4) Comparison of mean resting heart rate before breath holding and during breath holding. Include the outcome of statistical comparison (paired/correlated t-test).

**GRADING RUBRIC FOR THIS ASSIGNMENT:**

**Content (1%)**

Results are described clearly and in appropriate detail in paragraph form (0.5%)

All required statistical tests are clearly reported in the text (0.25%)

All required figures are included and are readable, informative, properly captioned, and referenced in the text (0.25%)

**Presentation (0.5%)**

Text is written in scientific style (0.25%)

Grammar and spelling are correct (0.25%)