

**Statistics In Physiology – Lab Questions**  
**CLASS SET – PLEASE RETURN**

**Conclusion:** Complete sentences Please!

1. Were all the values (trials) for your calf measurement obtained by your partner the same? Explain, i.e. discuss reliability and consistency in measurements.

2. List the mean, mode, and median for adjusted calf circumference for guys and girls?

3. Looking at your graphical analysis of adjusted calf circumference vs. height jumped for females and males answer the following:

A) What is the correlation coefficient ( $r^2$ ).

B) Is the correlation positive, negative, or zero (no correlation)?

C) Is there a correlation between a person's calf size and their jumping abilities? Explain.

4A. Using the equation of the line from Graph 3 or 4, ask a non-partner what their adjusted calf circumference is and predict the vertical height that student can jump. Please give the subject's name.

4B. Ask the same subject what their actual height jumped is, and compare the actual height jumped with the predicted height jumped. Explain any discrepancy between the two values if one exists. (i.e. is this data a good model to use as a predictor for one's jumping ability?)

5. Looking at your graphical analysis of body wt. to calf ratio vs. height jumped for females and males answer the following:

A) What is the correlation coefficient ( $r^2$ ).

B) Is the correlation positive, negative, or zero (no correlation)?

C) Is there a correlation between a person's body ratio and their jumping abilities? Explain.

6. Based upon your experimental evidence:

A) Who can jump higher men or women?

B) Can you suggest a physiological explanation for the difference in height jumped within the same gender? For example: two men with identical body ratio that jump at different heights. Suggest a physiological explanation

Hint: muscle mass doesn't appear to be a factor here.

7. What is the vertical jump range for the men? For the women?

A) Is there an overlap between the ranges of the two genders? If not, then this is statistically significant. Can you suggest a physiological explanation for the difference in height jumped between the two genders (between men & women)?

**Sources of Error:** (see Lab Write-up Format)

**Hypothesis Conclusion:** (see Lab Write-up Format)

Restate your hypothesis. State whether or not your hypothesis is accepted or not and why, i.e. refer to the data points and correlation coefficient.