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Ratio Of Height To Arm span Lab

**Background:** Your body is oddly symmetrical. Some examples of this are:

* Total height is equivalent to 7 to 7.5 heads tall
* Nose length is equivalent to first two digits of index/pointer finger
* Head is approximately four to five eyes wide
* Length of face is equal to length of hand
* Eyes are separated by one eye’s width
* Bottom of nose to outside corner of eye is equal to length of ear
* Length of foot is equal to length of forearm
* Waist to neck ratio is 1 to 2 (waist is twice the circumference of the neck)
* Neck to wrist ratio is 1 to 2 (neck is twice the circumference of the wrist

**Purpose:** To investigate the hypothesis that a person’s height can accurately be determined by measuring their arm span. If a person’s height can accurately be determined by their arm span, their Height to Arm span ratio should equal 1.00.

**Materials:** Meter sticks and tape

**Procedure:** 1) Using meter sticks, determine a student’s height in centimeters as accurately as possible. Record the data into a data table.

2) Using the meter sticks, determine the student’s arm span in centimeters as accurately as possible. Record the data into a data table.

3) Complete data table by collecting everyone’s height and arm span.

**Data:** 1) Construct a data table with everyone’s name, height, arm span, and H/A ratio. dividing their heights by their arm spans (H/A ratio).

**Data Processing:** 1) Calculate everyone’s H/A ratio by dividing their heights by their arm spans (H/A ratio). Record your answer to the correct number of significant figures.

2) Calculate the class average H/A ratio by adding up everyone’s heights and dividing by the sum of everyone’s arm span. Record your answer to the correct number of significant figures.

3) Calculate the class average H/A ratio by adding up everyone’s H/A ratio and dividing it by the number of students in the class. Record your answer to the correct number of significant figures.

**Graph:** Using Google sheets, make a graph with people on the X axis and H/A ratio on Y axis

**Conclusion:** If our hypothesis is correct, the average H/A ratios both are 1.00. Is it? Did we prove that height can accurately be determined from arm span? Explain your answer and support your claim with experimental data. Describe any problems encountered in this experiment and explain how they could have skewed your results. How would you correct these problems and how would you improve this lab?