Lab 6 – Exercise and Wellness Week

Refer to the problems and data on the **nonparametric hypothesis tests PRACTICE** handout.

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R

Problem 1 – Sign Test

Do we have significant evidence that over half of students at BSU would begin exercising regularly if they knew it would improve their grades? (use $\alpha = .05$).

Null and Alternative Hypothesis:

Write a binomial sum that computes the p-value, find it with your calculator, then confirm you get the same value in R.

Conclusion:

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SAS

Problem 2 – Wilcoxon Signed-Rank Test

Does Sylvia have significant evidence that the 90-day exercise program increases a person's ability to do pull-ups? (use $\alpha = .05$)

Null and Alternative Hypothesis:

|diff|											
+ or -											
rank											

$T^+ =$

$T^- =$

p-value bounds and conclusion:

Now write your own SAS program to confirm your results. Recall: SAS reports a test statistic that is half the difference between the values T^+ and T^-.

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SAS

Problem 3 – Mann-Whitney Test

Who can do more push-ups, taller men or shorter men? Is there a significant difference between the two groups? (use $\alpha = .05$)

Null and Alternative Hypothesis:

push-ups	group	rank

$W_T =$

$W_S =$

$U_T =$

$U_S =$

Test stat = U =

p-value bounds and conculsion:

Now write your own SAS program to confirm your results.

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R

Problem 4 – Kruskal-Wallis Test

Is there a significant difference between the four groups? (use α = .05)

Null and Alternative Hypothesis:

minutes	group	rank

$R_1 =$

$R_2 =$

$R_3 =$

$R_4 =$

$H =$

p-value bounds and conculsion:

Now confirm your results in R.

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After you have completed this handout, complete the Canvas quiz titled:

Lab 06 – Exercise and Wellness Week