

# Individual HW 11 - Which Team is Actually Better? Summer 24

Started: Jul 8 at 2:58pm

## Quiz Instructions

This assignment is related to your Chapter 11 (Salkind) material. **Please save your responses to this assignment, as you will need them for your discussion assignment this week!**

*Instructions: In 2023, the Denver Nuggets unfortunately beat the Miami Heat in the NBA Championships. Beth is a Nuggets fan. Alex is Heat fan. Even though the Nuggets won the championship, they need to know once and for all: which team had the better players during the **regular season** in 2023? You decide to test this using an independent samples t-test to compare the average field goal percentage for the players on each team during the regular season.*



Below are actual statistics from the 2022-2023 Denver Nuggets Basketball team. This is the same dataset we have been working with all semester.

| Denver Nuggets Player Name | Field Goal % |
|----------------------------|--------------|
| Nikola Jokic               | 63.2         |
| Jamal Murray               | 45.4         |
| Michael Porter Jr.         | 48.7         |
| Aaron Gordon               | 56.4         |
| Bones Hyland               | 39.9         |
| Bruce Brown                | 48.3         |
| Kentavious Caldwell-Pope   | 46.2         |
| Reggie Jackson             | 38.3         |
| Jeff Green                 | 48.8         |
| Zeke Nnaji                 | 56.1         |
| DeAndre Jordan             | 76.5         |
| Vlatko Cancar              | 47.6         |
| Christian Braun            | 49.5         |
| Thomas Bryant              | 48.5         |
| Peyton Watson              | 49.2         |
| Ish Smith                  | 39.7         |
| Davon Reed                 | 31.3         |
| Jack White                 | 42.1         |



Below are actual statistics from the 2022-2023 Miami Heat Basketball team. This is the same dataset we have been working with all semester.

| Miami Heat Player Name | Field Goal % |
|------------------------|--------------|
| Jimmy Butler           | 53.9         |
| Bam Adebayo            | 54           |
| Tyler Herro            | 43.9         |

|                   |      |
|-------------------|------|
| Max Strus         | 41   |
| Kyle Lowry        | 40.4 |
| Victor Oladipo    | 39.7 |
| Caleb Martin      | 46.3 |
| Gabe Vincent      | 40.2 |
| Kevin Love        | 38.8 |
| Cody Zeller       | 62.7 |
| Duncan Robinson   | 37.1 |
| Dewayne Dedmon    | 49.6 |
| Nikola Jovic      | 40.6 |
| Jamal Cain        | 56.1 |
| Omer Yurtseven    | 59.3 |
| Haywood Highsmith | 43.1 |
| Udonis Haslem     | 34.5 |
| Jamaree Bouyea    | 46.2 |
| Orlando Robinson  | 52.8 |
| Dru Smith         | 35.7 |



Question 1 0.5 pts

What is the null hypothesis?

p



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Question 2 0.5 pts

What is the alternative hypothesis?

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p



Question 3 0.25 pts

What is the risk level?

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.01

☐

.25

☐

.5

☐

.05



Question 4 0.25 pts

What is the best statistical test to use?

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t-Test for independent samples

☐

z-test

☐

ANOVA

☐

correlation test

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t-Test for dependent samples



Question 5 2 pts

Compute the test statistic. The formula is below for you. *Also, remember to use the variance rather than the standard deviation in your calculation. You have already calculated the variance for your previous assignment, so that part is already done!*

Put your calculated t value below, round your answer to two decimal places:

$$t = \frac{(m_1 - m_2)}{\sqrt{\left(\frac{((n_1 - 1)s_1^2 + (n_2 - 1)s_2^2)}{n_1 + n_2 - 2}\right)\left(\frac{n_1 + n_2}{n_1 n_2}\right)}}$$



## Question 6 1 pts

Now it's time to compare our obtained value (the one you just calculated) to the critical value. First, we'll need the degrees of freedom. What are the degrees of freedom?

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28

☐

39

☐

36

☐

40



## Question 7 1 pts

Should we use a "one tailed" or a "two tailed" test for this?

Hint: To figure this out, think about whether it is directional or non-directional. Take a look at your alternative hypothesis (above!), and think about the prompt for the assignment---did we expect a specific team to be better than the other (directional), or are we simply looking at whether the teams are different (non-directional)?

☐

one tailed

☐

two tailed



## Question 8 1 pts

What is the critical value for this statistical test? (*hint: you'll need your answers to the previous two questions, as well as your "level of risk"; remember, if the exact degrees of freedom aren't in the t-test table of critical values, you can choose the closest value that is there*).

☐

1.69



2.03



2.021



2.438



## Question 9 1 pts

Write up your results as you would see it in a results section of an empirical research paper (in APA style). Make sure to include the means and *SDs*.

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## Question 10 1 pts

Based on your answer to the previous question, what is your decision?



Fail to reject the null hypothesis



Not enough information to decide



Reject the null hypothesis



## Question 11 1 pts

Imagine that you also wanted to compare if there was a difference between the average amount of time people get stuck in traffic in Denver versus Miami (unlike all the other data we have used this semester, these results are entirely made up!).

An independent samples t-Test comparing the average amount of time spent in traffic per week was statistically significant  $t(500) = 3.24$ ,  $p < .05$ . The average time spent in traffic was significantly more for those living in Miami ( $M = 0.75$ ,  $SD = 0.32$ ) than in Denver ( $M = 0.56$ ,  $SD = 0.13$ )

Calculate the effect size for this new t-test, using the Pooled Variance Formula (Below). Round your answer to two decimal places.

$$ES = \frac{(m_1 - m_2)}{\sqrt{\frac{(\sigma_1^2 + \sigma_2^2)}{2}}}$$



Question 12 0.5 pts

What "size" is this effect size?

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Large

☐

There isn't enough information to answer this question.

☐

Medium

☐

Small

Quiz saved at 5:47pm

Submit Quiz