Sheria Johnson

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LDG 660 SPSS Assignment 1

The following data represent weights in pounds of 21 pro football players (the variable called WTFT), and 19 pro basketball players (the variable called WTBK). A convenience sample was conducted.

Reference: Sports Encyclopedia of Pro Football, and Official NBA Basketball Encyclopedia

There are 5 steps (each worth 15 pts). The lab, in total, is worth 75 pts.

Step 1 (15 pts): Import the data into SPSS. Insert an image/screenshot below to confirm this.

	WTFT	WTBK
1	245	205
2	262	200
3	255	220
4	251	210
5	244	191
6	276	215
7	240	221
8	265	216
9	257	228
10	252	207
11	282	225
12	256	208
13	250	195
14	264	191
15	270	207
16	275	196
17	245	181
18	275	193
19	253	201
20	265	.
21	270	.
22		
23		
24		

Step 2 (15 pts): Generate any graph you would like for the weights of pro football players. Insert an image/screenshot below to confirm this.

Note: You could do this several ways:

(1) *Analyze → Descriptive Statistics → Frequencies – from here the Charts option will allow to output bar charts, pie charts, and histograms*
(2) *Graphs → Chart Builder*

Histogram

Mean = 259.62
Std. Dev. = 12.056
N = 21
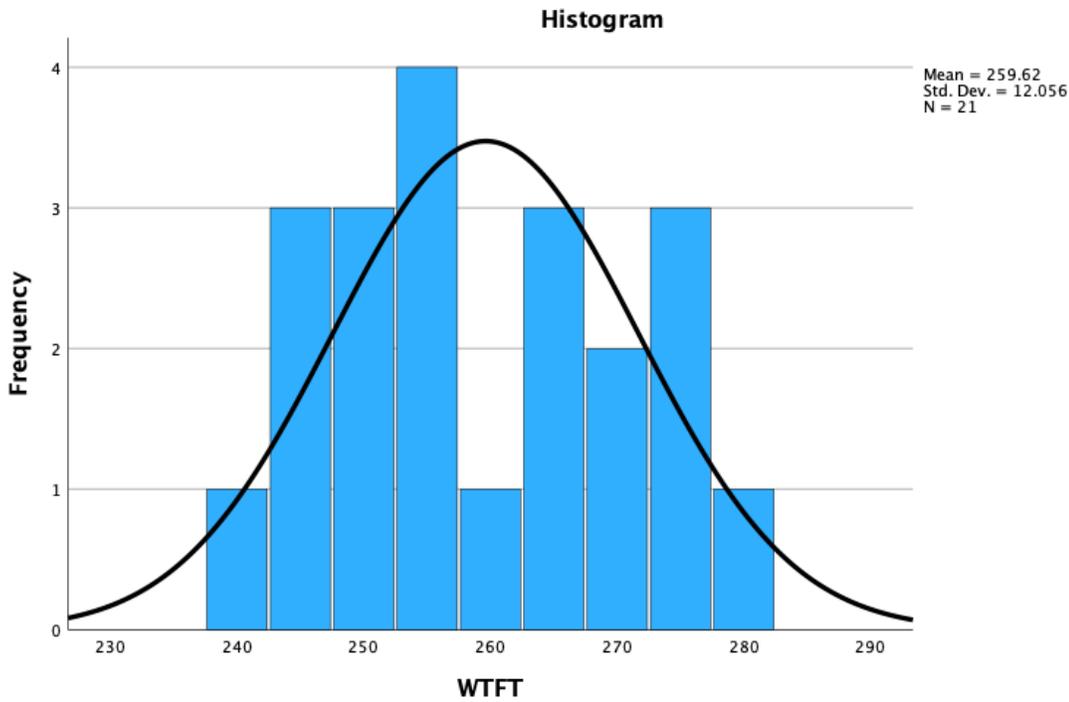
Comment on what you see/what you can infer from the graph you generated.

- **Mean is 259.62 lbs**
- **Std. Dev = 12.056**
- **Total Number or Population is 21**
- **When looking at the curve the histogram is not normal**

Step 3 (15 pts): Compute descriptive statistics for the weight of pro basketball players.

Note: Be certain to include in the output: mean, std deviation, variance range, minimum, maximum, and range (i.e. make sure these are checked).

Insert an image/screenshot below to confirm this.

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
WTBK	19	47	181	228	205.79	12.900	166.398
Valid N (listwise)	19						

What is the average weight of the 19 randomly selected basketball players? **205.79**

What is the meaning of the standard deviation?

On average each of the 19 basketball players vary from the mean of 205.79 lbs by approximately 12.9 lbs (Std. Deviation).

Square root the Std. deviation to receive the variance. 12.9 x 12.9 = 166.398

Step 4 (15 pts): Test (at the 5% level of significance) the hypothesis that the true population mean weight of football players is equal to 250 lbs. Therefore, test the following:

Null: μ = 250lbs
Alternative: μ ≠ 250lbs

Insert an image/screenshot below to confirm this.

One-Sample Test

Test Value = 0

	t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper
WTFT	98.683	20	<.001	<.001	259.619	254.13	265.11

What is the p-value?

  p is less than .001

What is the decision rule (do we reject the null OR fail to reject the null)?

- 0.001 compare 0.05 – decision rule is to reject the null. The evidence supports the alternative that the true average weight of all football players is not equal to 250lbs.

  (Note: if the p-value is small, you reject the null. If the p-value is less than or equal to the level of significand (0.05) then reject the null)

What is the real-world conclusion?

  the true average weight of all football players is not equal to 250lbs.

Step 5 (15 pts): Do you think it is wise to use this sample data to make inferences and conclusions about the true weights for pro football and basketball players? Why or why not?

> *Hint: There are two things related to sampling that should likely be discussed in your answer.*

1. We used a convenience sample (non-probability based approach, therefore it does not guarantee any type of random sampling – Researchers prefer random sampling because it is fair and representative of the entire population)
2. The sample size (21) is small. The goal is to get a minimum of 30 participants in the sample size.