

SPSS: 2 Within-Groups ANOVA

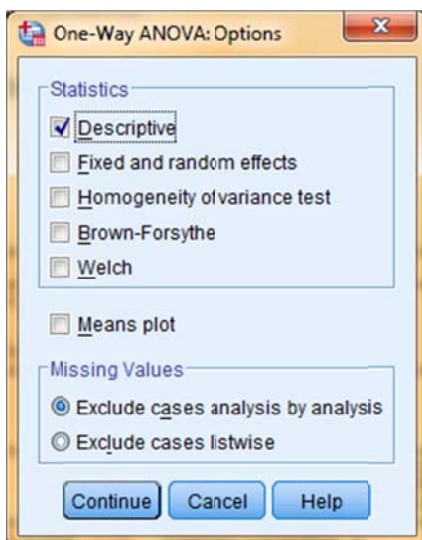
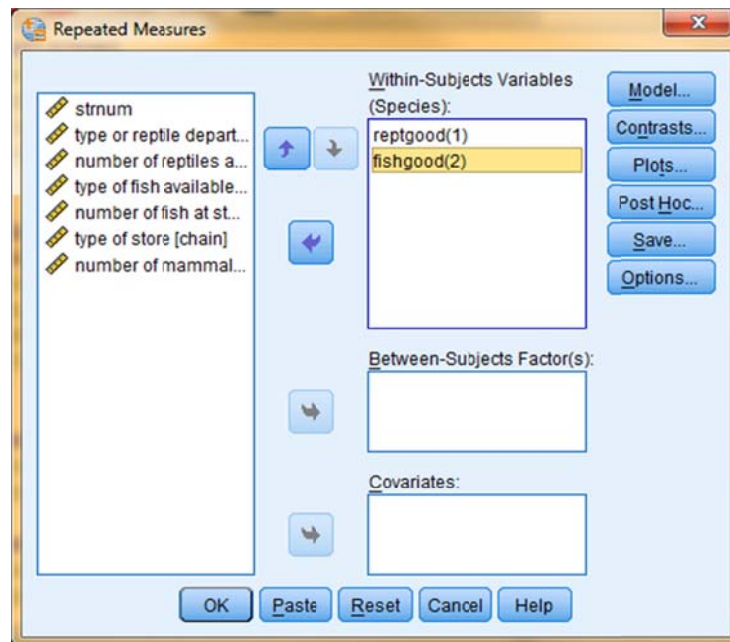
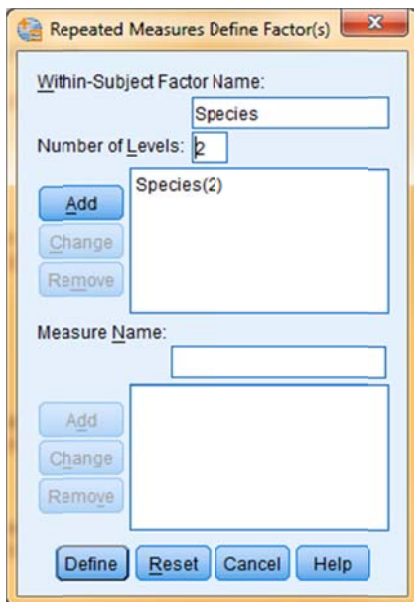
Application: To compare the means of two or more quantitative variables obtained from dependent samples (repeated measures or matched groups). The two or more scores might be the same variable measured at two or more different times or under different conditions, two or more comparable variables measured at the same time, or some combination.

Research Hypothesis: The researcher hypothesized that a store's fish would be of higher quality than its reptiles, because of the greater difficulty obtaining and maintaining healthy reptiles.

H0: for this analysis: The quality ratings of reptiles and fish displayed by pet stores have the same means.

Analyze → General Linear Model → Repeated Measures

- enter your name for the IV in the "Within-subject Factor Name" window (pettype)
- enter the number of conditions of the IV in the "Number of levels" window (2)
- click the "Add" button
- click the "Define" button
- for each IV condition — highlight the variable that is the DV score for that condition and click the arrow
- "Options" — check that you want "Descriptives"



SPSS Syntax

GLM reptgood fishgood ← list variables holding DV for each IV condition
 /WSFACTOR=Species 2 ← give a name to the WG IV & tell # conditions
 /PRINT=DESCRIPTIVE. ← get mean and std

Descriptive Statistics

	Mean	Std. Deviation	N
rating of reptile quality - 1-10 scale	5.67	2.498	12
rating of fish quality - 1-10 scale	6.67	2.146	12

The p-value of .012 means that there is about a 1.2% chance that this result is a Type I error.

Remember, even if the printout shows it, never report $p = .000$, because that would suggest there is no possibility of a Type 1 error. Instead, report " $p < .001$ "

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Species Sphericity Assumed	6.000	1	6.000	.846	.377
Error(Species) Sphericity Assumed	79.000	11	7.091		

df effect
df error

Mean Square Error (MSE)

p-value

Reporting the Results:

Table 1. Summary of reptile fish quality

Type of Reptile Department	Mean	Std	n
Reptile Quality	5.67	2.50	12
Fish Quality	6.67	2.17	12

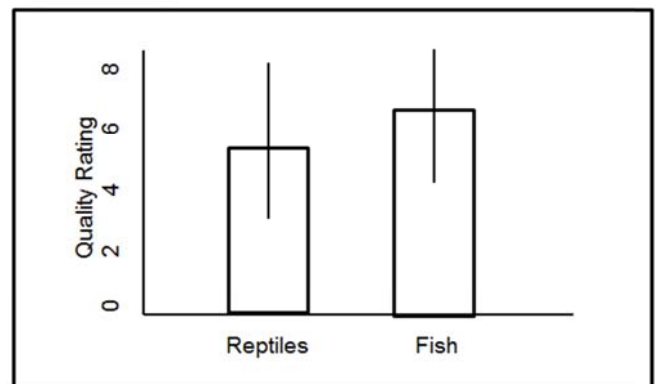


Figure 1 Mean reptile and fish quality ratings (+/- 1 std shown)

Figure/Table 1 shows the mean Reptile and Fish quality ratings. Contrary to the research hypothesis, there was no difference between the mean quality ratings given to fish and those given to reptiles in these stores, $F(1, 11) = .85$, $p = .377$, $Mse = 7.091$.

It is important to report the univariate statistics for the dependent variable for both groups before presenting the ANOVA results. Often these are presented in a table or a figure.

As in the example, be sure to communicate:

- The research hypothesis (if there is one)
- The statistical results
- Whether or not those results support the research hypothesis

Reporting the Results:

Contrary to the research hypothesis, there was no difference between the mean quality ratings given to fish (mean = 5.67, $S = 2.50$) and those given to reptiles (mean = 6.67, $S = 2.15$) in these stores, $F(1, 11) = .85$, $p = .377$, $Mse = 7.091$.

Sometimes, the univariate statistics are presented in text, along with the correlation results.