

SPSS24 HELP SHEET: Wilcoxon signed-rank test

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1. How to enter data to do a Wilcoxon signed-rank test.

For general advice on data entry see the “How to enter data into SPSS” help sheet.

Wilcoxon signed-rank tests are used on related data: Data from one sample go in one column and for the other sample in another column: Related data points in the two samples must be in the same case (i.e., row). The samples/columns are identified by which category of the independent variable they are from. In this example, the dependent variable is *Time spent grazing* and the independent variable is *Reproductive status* of the ewe. *Time spent grazing* is given as a percentage and is a scale level of measurement. *Reproductive status* is measured at the nominal level: *percgr_wo* (variable label = Without lamb) or *percgr_w* (variable label = With lamb). ID indicates the identity of the ewe and is not involved directly in the analysis.

Variable View:

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	id	Numeric	8	0		None	None	8	Right	Nominal	Input
2	percgr_wo	Numeric	8	2	Without lamb	None	None	8	Right	Scale	Input

Data View (Value Labels off or on)

	id	percgr_w o	percgr_w	var	va
1	10	72.00	55.50		
2	168	62.35	43.80		
3	227	55.77	66.80		
4	801	59.98	68.00		
5	805	51.60	57.88		
6	820	61.48	61.90		
7	823	52.57	45.40		
8	837	52.50	56.67		
9	842	56.43	73.30		

2 How to do a Wilcoxon signed-rank test

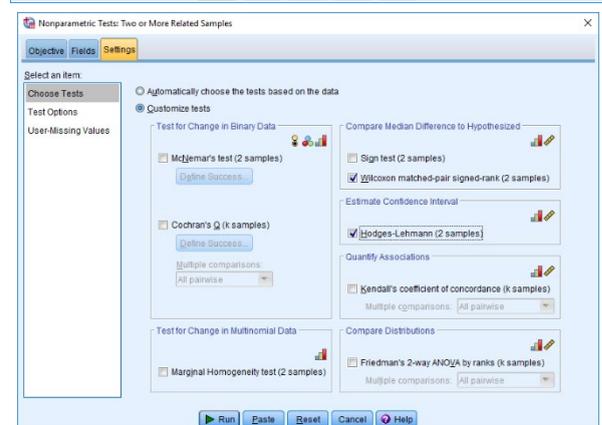
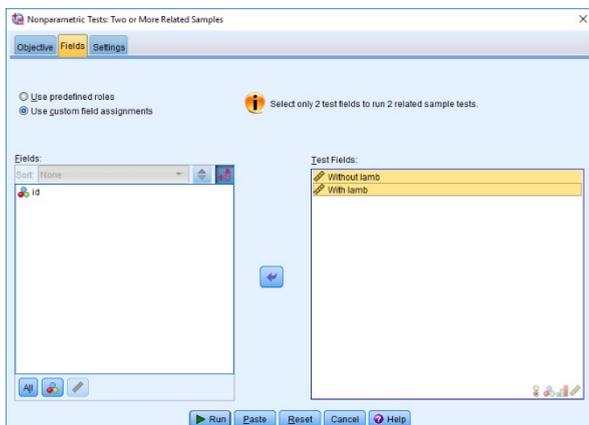
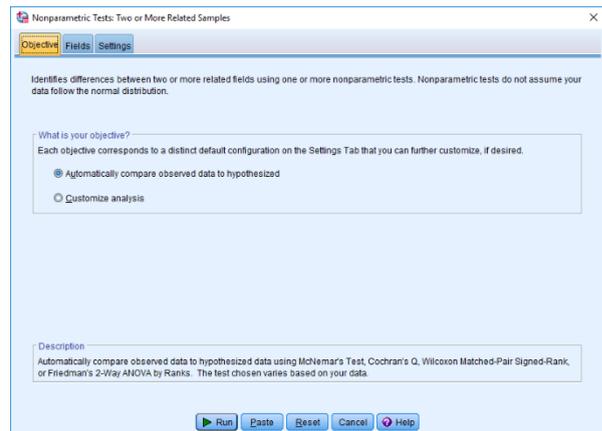
To get SPSS to conduct a Wilcoxon signed-rank test :

Open your data file.

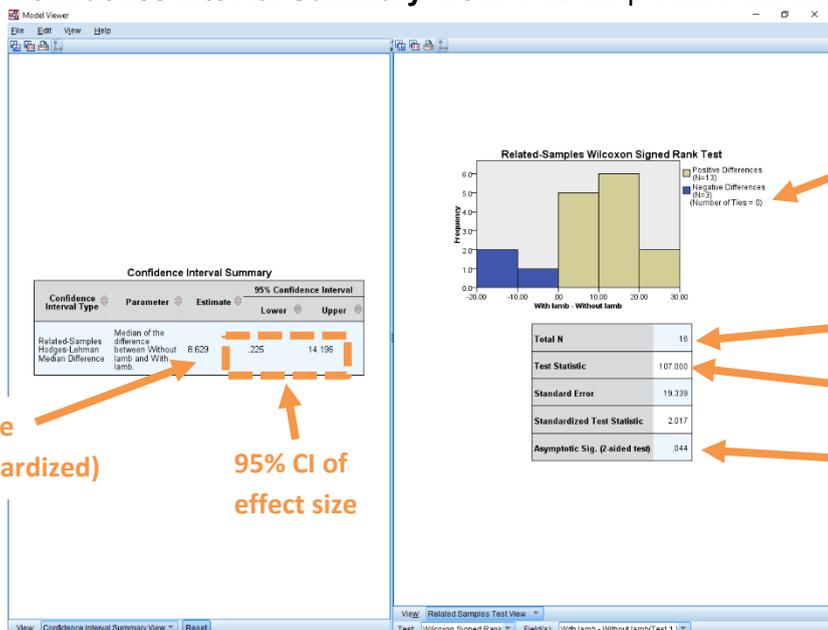
Select: Analyze - Nonparametric Tests – Related Samples...

This will bring up the **Nonparametric Tests Two or More Related Samples Tests** window which has three tabs:

1. **Objective.** Select **Customize analysis.**
2. **Fields.** Either use the default **Use predefined roles** or select **Use custom field assignments** and send *Without lamb* and *With lamb* to the **Test Field** box.
3. **Settings.** Select **Customize tests**, then **Wilcoxon Matched-pair signed-rank (2 samples)** in the **Compare Median Difference to Hypothesized** area and **Hodges-Lehman estimates (2 samples)** under in the **Estimate Confidence Interval** area.



Press **Run** on any and then double click on the **Hypothesis Test Summary** table in the **Output** window to bring up the **Model Viewer** window. From the **View** drop-down menu (bottom left), select **Confidence Interval Summary View**. This will produce the following in the **Output** window.



Number of pairs where difference is zero ($N=n$ minus this number)

Total number of pairs (n)

Statistic (T)

P

NB: Using this route, the T value that SPSS reports is the sum of the positive ranks of the differences based on the sample 2 minus sample 1 so depends on the order of the samples as to whether this is the higher or lower value..

In summary the key information is:

$$T = 107, n = 16, N = 16, P = 0.044$$

And the unstandardized effect size (estimated difference between the medians of the populations) is difference (female–male)=8.63, 95% CI [0.23,14.20]