

SPSS24 HELP SHEET: paired t-test

CONTENTS

1. How to enter data to do a paired *t*-test.
2. How to do a paired *t*-test.

1. How to enter data to do a paired *t*-test.

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

Paired *t*-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:

The screenshot shows the Variable View window in SPSS. The main table lists the following variables:

	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

At the bottom, the 'Variable View' tab is selected, and the status bar indicates 'IBM SPSS Statistics Processor is ready' and 'Unicode:ON'.

Data View (Value Labels off or on)

The screenshot shows the Data View window in SPSS. The main table displays the following data:

	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		

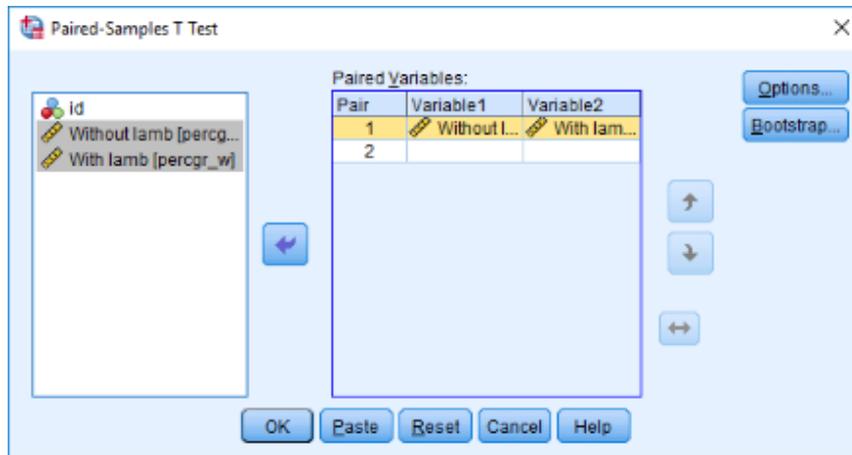
At the bottom, the 'Data View' tab is selected, and the status bar indicates 'IBM SPSS Statistics Processor is ready' and 'Unicode:ON'.

2. How to do a paired *t*-test

To get SPSS to conduct a paired *t*-test :

Open your data file.

Select: Analyze – Compare Means – Paired-Samples T Test...



Select *With lamb* and *Without lamb* from the list on the left and send them over to the Paired Variables box together, by clicking the arrow (ignore the *id* column). Click **OK**.

This will produce the following in the **Output** window.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Without lamb	56.0880	16	7.99046	1.99761
	With lamb	62.9448	16	11.95437	2.98859

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Without lamb & With lamb	16	.288	.280

Paired Samples Test

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Without lamb - With lamb	-6.85677	12.31948	3.07987	-13.42136	-.29219	-2.226	15	.042

Effect size
(unstandardized)

95% CI of
effect size

Statistic (*t*)

Degrees of Freedom

P

The key information is:

$$t_{15} = 2.226, P = 0.042$$

And the unstandardized effect size (estimated difference between the means of the populations) is

$$\text{difference (without lamb—with lamb)} = -6.86, 95\% \text{ CI } [-13.42, -0.29]$$