SPSS24 HELP SHEET: *t*-test

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1. How to enter data to do a *t*-test.
For general advice on data entry see the "**How to enter data into SPSS**" help sheet.

t-tests are used on unrelated data: Data for the dependent variable go in one column and data for the independent variable goes in another. In this example, the dependent variable is *BMD* and the independent variable is *SEX*. *BMD* is bone-density measurement measured in grams per square centimetre of the neck of the femur which is a scale level of measurement). *SEX* is measured at the nominal level: either 1 (value label = female) or 2 (value label = male).

Variable View:

Data View
(View – Value Labels off)

Data View
(View – Value Labels on)

2. How to do a *t*-test

To get SPSS to conduct a *t-t*est :
Open your data file.
Select: Analyze – Compare Means – Independent-Samples T Test*...*

This will bring up the **Independent-Samples T Test** window. Select the dependent variable, and send it to the **Test Variable(s) List** box (in the example above this is *Bone Density Measurement*). Select the independent variable, and send it to the **Grouping Variable** box (in the example above this is *Sex*).

Press the **Define Groups** button to bring up the Define Groups window (above right). Under **Group 1** type the number code for the first sample (in the example above this is *1*). Under **Group 2** type the number code for the first sample (in the example above this is *2*). Click **Continue** and then **OK**.
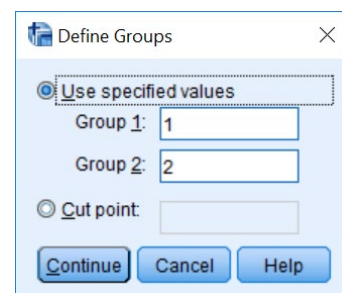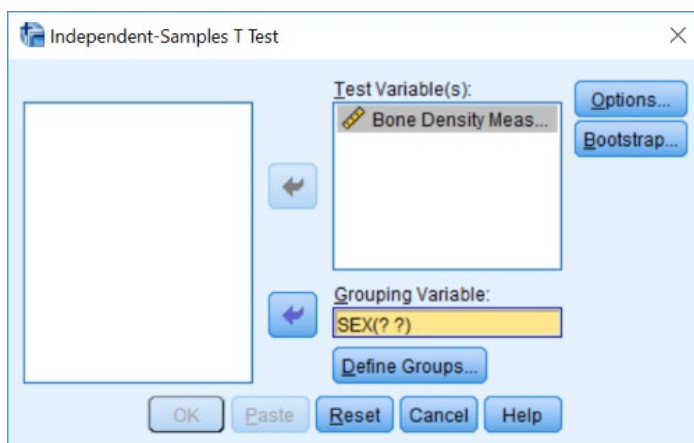
This will produce the following in the **Output** window.

Group Statistics

	Sex	N	Mean	Std. Deviation	Std. Error Mean
Bone Density Measurement (g/square cm)	female	20	.81475	.111522	.024937
	male	20	.87995	.087092	.019474

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Bone Density Measurement (g/square cm)	Equal variances assumed	1.527	.224	-2.061	38	.046	-.065200	.031640	-.129252	-.001148
	Equal variances not assumed			-2.061	35.892	.047	-.065200	.031640	-.129376	-.001024

Statistic (t)

Degrees of Freedom

P

Effect size (unstandardized)

95% CI of effect size

In summary the key information from the test is
$t_{38}=2.06, P=0.046$
And the unstandardized effect size (estimated difference between the means of the populations) is
difference (female–male)=-0.065, 95%CI [-0.130, -0.011]