## **One Way Within Participants ANOVA**

A. Arranging your data





We can see each of the three conditions labelled on the top. Each row represents a different

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		Control	Placebo	Drug	var	var	var
	1	567.00	754.00	554.00			
	2	345.00	874.00	655.00			
	3	857.00	543.00	678.00			
	4	456.00	777.00	766.00			
	5	234.00	754.00	754.00			
	6	345.00	832.00	887.00			
	7	443.00	456.00	777.00			
	8	657.00	234.00	754.00			
	9	387.00	345.00	832.00			
1	10	754.00	334.00	677.00			
1	11	477.00	445.00	685.00			
1	12	543.00	445.00	857.00			

## B. Running the ANOVA

	Go to 'Analyse' across the top. 'General Linear Model' and 'Repeated Measures'										
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6	345.00	83	Loglinear	•							
7	443.00	45	Neural Net <u>w</u> orks	•							
8	657.00	23	Classi <u>f</u> y	•							
9	387.00	34	Dimension Reduction	•							
10	754.00	33	Scale	P							
11	477.00	44	Nonparametric rests								
12	543.00	44	Survival								
13	477.00	34	<u>S</u> urvivar Multinle Resnonse								
14	754.00	44	Missing Value Analysis								
15	456.00	65	Multiple Imputation	•							
16	567.00	88	Complex Samples	•							
17	345.00	55	Quality Control								

You will then see a box appear which looks like the one below

Double click where it says factor 1 and give the variable a name. In this case it is 'Dose' with '3' levels. Then click 'Add'













SPSS does not have an automatic function for post hoc tests when running a within participants ANOVA, and so in order to do this you will need to run a series of Paired Samples T Tests. This is shown below.

## C. Running the t tests

Go to 'Analyse' across the top. 'Compare Means' and 'Paired-Samples T Test										nd	]
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	17	345.	.00 5	e Qua	lity Control	•					
	18	250.	.00 5		Curve						
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## The Output

On this part of the output, look at the table of means, labelled 'Descriptive Statistics' Here you can inspect the differences in the means

	Descriptive	Statistics	
	Mean	Std. Deviation	N
Control Group	495.2222	174.52880	18
Placebo Group	565.3333	205.15331	18
Drug Group	691.2222	135.21945	18

The next table to consult is the one labelled 'Tests of Within-Subjects Effects'. Look at the F value and the sig level. You can see that in this case we have a significant effect.

Tests of Within-Subjects Effects										
Measure:MEASURE_1										
Source		Type III Sum of Squares	df	Mean Square	F	Sig.				
dose	Sphericity Assumed	355077.481	2	177538.741	5.471	.009				
	Greenhouse-Geisser	355077.481	1.576	225349.872	5.471	.015				
	Huynh-Feldt	355077.481	1.709	207754.026	5.471	.013				
	Lower-bound	355077.481	1.000	355077.481	5.471	.032				
Error(dose)	Sphericity Assumed	1103395.852	34	32452.819						
	Greenhouse-Geisser	1103395.852	26.786	41192.354						
	Huynh-Feldt	1103395.852	29.055	37975.958						
	Lower-bound	1103395.852	17.000	64905.638						

Finally the table at the bottom shows the Paired Samples Test, which displays the three comparisons made. Because we have run three t tests, we stand a chance of making a Type 1 error, and therefore we need to apply Bonferroni's correction, which means adjusting our significance level accordingly.

Paired Samples Test										
Paired Differences										
					95% Confidenc Differ	e Interval of the ence				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t t	df	Sig. (2-tailed)	
Pair 1	Control Group - Placebo Group	-70.11111	312.98447	73.77115	-225.75463	85.53241	950	17	.355	
Pair 2	Control Group - Drug Group	-196.00000	206.80881	48.74530	-298.84360	-93.15640	-4.021	17	.001	
Pair 3	Placebo Group - Drug Group	-125.88889	232.35264	54.76604	-241.43514	-10.34264	-2.299	17	.034	