

GET

```
FILE='C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav'.  
SORT CASES BY id(A).  
MEANS TABLES=post_test BY group  
/CELLS MEAN COUNT STDDEV.
```

Means

[DataSet1] C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
post_test post test measurement * group experimental group	120	100,0%	0	,0%	120	100,0%

Report

post_test post test measurement

group experimental group	Mean	N	Std. Deviation
1 treatment	55,4145	60	23,08291
2 control	47,8627	60	20,06111
Total	51,6386	120	21,86509

```
T-TEST GROUPS=group(1 2)  
/MISSING=ANALYSIS  
/VARIABLES=post_test  
/CRITERIA=CI(.95).
```

T-Test

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Group Statistics

	group experimental group	N	Mean	Std. Deviation
post_test post test measurement	1 treatment	60	55,4145	23,08291
	2 control	60	47,8627	20,06111

Group Statistics

	group experimental group	Std. Error Mean
post_test post test measurement	1 treatment	2,97999
	2 control	2,58988

Independent Samples Test

		Levene's Test for Equality of Variances	
		F	Sig.
post_test measurement	Equal variances assumed	1,832	,178
	Equal variances not assumed		

Independent Samples Test

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
post_test measurement	Equal variances assumed	1,913	118	,058
	Equal variances not assumed	1,913	115,751	,058

Independent Samples Test

		t-test for Equality of Means	
		Mean Difference	Std. Error Difference
post_test measurement	Equal variances assumed	7,55182	3,94814
	Equal variances not assumed	7,55182	3,94814

Independent Samples Test

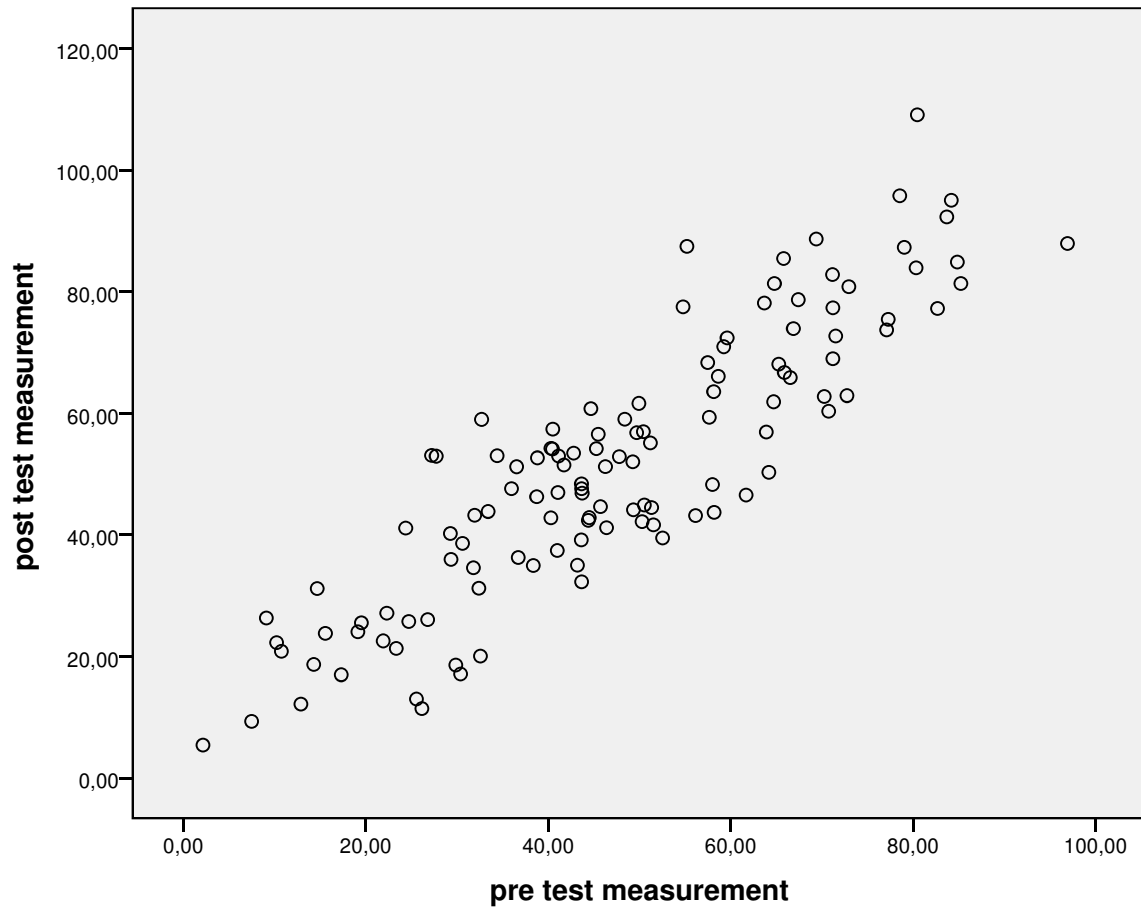
		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
post_test measurement	Equal variances assumed	-,26658	15,37021
	Equal variances not assumed	-,26815	15,37178

GRAPH

```
/SCATTERPLOT(BIVAR)=pre_test WITH post_test BY group (IDENTIFY)
/MISSING=LISTWISE.
```

Graph

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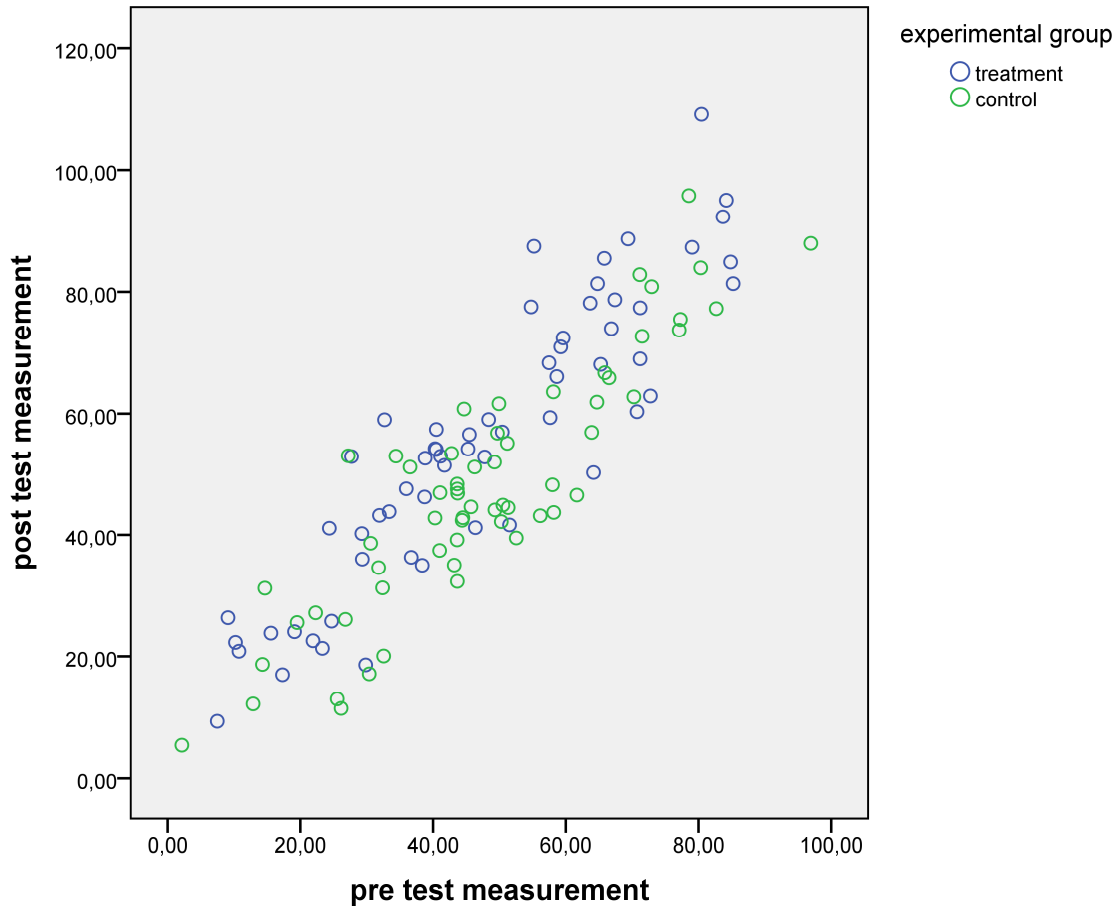


GRAPH

```
/SCATTERPLOT(BIVAR)=pre_test WITH post_test BY group  
/MISSING=LISTWISE.
```

Graph

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```
T-TEST GROUPS=group(1 2)
/MISSING=ANALYSIS
/VARIABLES=pre_test
/CRITERIA=CI(.95).
```

T-Test

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Group Statistics

	group experimental group	N	Mean	Std. Deviation
pre_test pre test measurement	1 treatment	60	47,3232	21,36585
	2 control	60	47,6387	19,41239

Group Statistics

	group experimental group	Std. Error Mean
pre_test pre test measurement	1 treatment	2,75832
	2 control	2,50613

Independent Samples Test

		Levene's Test for Equality of Variances	
		F	Sig.
pre_test pre test measurement	Equal variances assumed	1,842	,177
	Equal variances not assumed		

Independent Samples Test

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
pre_test pre test measurement	Equal variances assumed	-,085	118	,933
	Equal variances not assumed	-,085	116,932	,933

Independent Samples Test

		t-test for Equality of Means	
		Mean Difference	Std. Error Difference
pre_test pre test measurement	Equal variances assumed	-,31546	3,72680
	Equal variances not assumed	-,31546	3,72680

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
pre_test pre test measurement	Equal variances assumed	-7,69553	7,06461
	Equal variances not assumed	-7,69623	7,06531

```
FREQUENCIES VARIABLES=block
/ORDER=ANALYSIS.
```

Frequencies

[DataSet1] C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav

Statistics

block Block based on pre test
(39; 57.5)

N	Valid	120
	Missing	0

block Block based on pre test (39; 57.5)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	40	33,3	33,3	33,3
2	40	33,3	33,3	66,7
3	40	33,3	33,3	100,0
Total	120	100,0	100,0	

```
UNIANOVA post_test BY group
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=group.
```

Univariate Analysis of Variance

[DataSet1] C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav

Between-Subjects Factors

	Value Label	N
group experimental group 1	treatment	60
2	control	60

Tests of Between-Subjects Effects

Dependent Variable :post_test post test measurement

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1710,898 ^a	1	1710,898	3,659	,058
Intercept	319985,085	1	319985,085	684,263	,000
group	1710,898	1	1710,898	3,659	,058
Error	55180,860	118	467,634		
Total	376876,843	120			
Corrected Total	56891,758	119			

a. R Squared = .030 (Adjusted R Squared = .022)

```
UNIANOVA post_test BY group block
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=group block group*block.
```

Univariate Analysis of Variance

[DataSet1] C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav

Between-Subjects Factors

		Value Label	N
group experimental group	1	treatment	60
	2	control	60
block Block based on pre test (39; 57.5)	1		40
	2		40
	3		40

Tests of Between-Subjects Effects

Dependent Variable :post_test post test measurement

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	38533,593 ^a	5	7706,719	47,857	,000
Intercept	312197,734	1	312197,734	1938,676	,000
group	1998,392	1	1998,392	12,410	,001
block	35796,437	2	17898,219	111,144	,000
group * block	166,832	2	83,416	,518	,597
Error	18358,166	114	161,037		
Total	376876,843	120			
Corrected Total	56891,758	119			

a. R Squared = .677 (Adjusted R Squared = .663)

```
UNIANOVA post_test BY group block WITH pre_test
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=pre_test group block group*block.
```

Univariate Analysis of Variance

[DataSet1] C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav

Between-Subjects Factors

		Value Label	N
group experimental group	1	treatment	60
	2	control	60
block Block based on pre test (39; 57.5)	1		40
	2		40
	3		40

Tests of Between-Subjects Effects

Dependent Variable:post_test post test measurement

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	46434,933 ^a	6	7739,155	83,632	,000
Intercept	69,725	1	69,725	,753	,387
pre_test	7901,340	1	7901,340	85,385	,000
group	1870,324	1	1870,324	20,211	,000
block	57,996	2	28,998	,313	,732
group * block	172,864	2	86,432	,934	,396
Error	10456,826	113	92,538		
Total	376876,843	120			
Corrected Total	56891,758	119			

a. R Squared = .816 (Adjusted R Squared = .806)

```
UNIANOVA post_test BY group WITH pre_test
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=pre_test group.
```

Univariate Analysis of Variance

[DataSet1] C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav

Between-Subjects Factors

	Value Label	N
group experimental group 1	treatment	60
2	control	60

Tests of Between-Subjects Effects

Dependent Variable:post_test post test measurement

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	46221,832 ^a	2	23110,916	253,420	,000
Intercept	770,575	1	770,575	8,450	,004
pre_test	44510,934	1	44510,934	488,080	,000
group	1849,490	1	1849,490	20,280	,000
Error	10669,926	117	91,196		
Total	376876,843	120			
Corrected Total	56891,758	119			

a. R Squared = .812 (Adjusted R Squared = .809)

```
IF (block = 1 or block = 3) dummy1=0.
EXECUTE.
IF (block = 1 or block = 2) dummy2=0.
EXECUTE.
IF (block = 3) dummy2=1.
EXECUTE.
IF (block = 1) dummy1=1.
```



```
EXECUTE.
FREQUENCIES VARIABLES=dummy1 dummy2
  /ORDER=ANALYSIS.
```

Frequencies

[DataSet1] C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav

Statistics

		dummy1	dummy2
N	Valid	80	120
	Missing	40	0

Frequency Table

dummy1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,00	40	33,3	50,0	50,0
	1,00	40	33,3	50,0	100,0
	Total	80	66,7	100,0	
Missing	System	40	33,3		
Total		120	100,0		

dummy2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,00	80	66,7	66,7	66,7
	1,00	40	33,3	33,3	100,0
	Total	120	100,0	100,0	

CROSSTABS

```
/TABLES=block BY dummy1 dummy2
/FORMAT=AVALUE TABLES
/CELLS=COUNT
/COUNT ROUND CELL.
```

Crosstabs

[DataSet1] C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
block Block based on pre test (39; 57.5) * dummy1	80	66,7%	40	33,3%	120	100,0%
block Block based on pre test (39; 57.5) * dummy2	120	100,0%	0	,0%	120	100,0%

block Block based on pre test (39; 57.5) * dummy1 Crosstabulation

Count

		dummy1		Total
		,00	1,00	
block Block based on pre test (39; 57.5)	1	0	40	40
	3	40	0	40
Total		40	40	80

block Block based on pre test (39; 57.5) * dummy2 Crosstabulation

Count

		dummy2		Total
		,00	1,00	
block Block based on pre test (39; 57.5)	1	40	0	40
	2	40	0	40
	3	0	40	40
Total		80	40	120

```
IF (block = 2) dummy1=1.
EXECUTE.
IF (block = 1) dummy1=0.
EXECUTE.
CROSSTABS
  /TABLES=block BY dummy1 dummy2
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.
```

Crosstabs

[DataSet1] C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
block Block based on pre test (39; 57.5) * dummy1	120	100,0%	0	,0%	120	100,0%
block Block based on pre test (39; 57.5) * dummy2	120	100,0%	0	,0%	120	100,0%

block Block based on pre test (39; 57.5) * dummy1 Crosstabulation

Count

		dummy1		Total
		,00	1,00	
block Block based on pre test (39; 57.5)	1	40	0	40
	2	0	40	40
	3	40	0	40
Total		80	40	120

block Block based on pre test (39; 57.5) * dummy2 Crosstabulation

Count

		dummy2		Total
		,00	1,00	
block Block based on pre test (39; 57.5)	1	40	0	40
	2	40	0	40
	3	0	40	40
Total		80	40	120

```
IF (block = 1) dummy2=0.
EXECUTE.
CROSSTABS
  /TABLES=block BY dummy1 dummy2
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.
```

Crosstabs

[DataSet1] C:\Users\Thomas\Desktop\quantresearchmeth\ss2016\rand_block_design.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
block Block based on pre test (39; 57.5) * dummy1	120	100,0%	0	,0%	120	100,0%
block Block based on pre test (39; 57.5) * dummy2	120	100,0%	0	,0%	120	100,0%

block Block based on pre test (39; 57.5) * dummy1 Crosstabulation

Count

		dummy1		Total
		,00	1,00	
block Block based on pre test (39; 57.5)	1	40	0	40
	2	0	40	40
	3	40	0	40
Total		80	40	120

block Block based on pre test (39; 57.5) * dummy2 Crosstabulation

Count

		dummy2		Total
		,00	1,00	
block Block based on pre test (39; 57.5)	1	40	0	40
	2	40	0	40
	3	0	40	40
Total		80	40	120

```

RECODE group (1=1) (2=0) INTO group01.
EXECUTE.
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT post_test
  /METHOD=ENTER group01 dummy1 dummy2.

```

Regression

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Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	dummy2, group01, dummy1	.	Enter

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,821 ^a	,674	,666	12,63718

a. Predictors: (Constant), dummy2, group01, dummy1

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38366,761	3	12788,920	80,082	,000 ^a
	Residual	18524,998	116	159,698		
	Total	56891,758	119			

a. Predictors: (Constant), dummy2, group01, dummy1

b. Dependent Variable: post_test post test measurement

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	26,136	2,410		10,843	,000
	group01	8,249	2,345	,189	3,518	,001
	dummy1	21,314	2,864	,461	7,441	,000
	dummy2	42,820	2,826	,927	15,150	,000

a. Dependent Variable: post_test post test measurement