

## R HELP SHEET: Pearson correlation

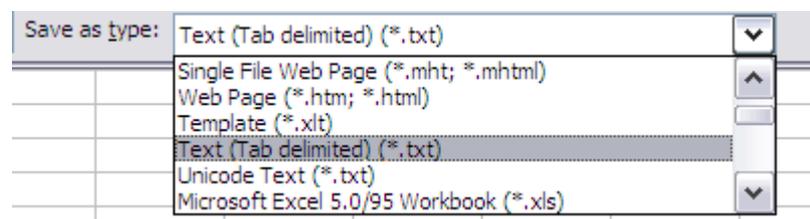
### CONTENTS

1. Creating a tab delimited data file using Excel
2. Conducting an Pearson correlation
3. Identifying the key elements of the output
4. Additional notes

### 1. Creating a tab delimited data file using Excel

Open Excel and type the data for the two variables into different with appropriate headings at the top of each column (e.g., *eye*, *blood*). If appropriate a third column for a reference variable (e.g., *ID*) then save the file as a **Text (Table delimited)(\* .txt)** with an appropriate name (e.g., *RData\_EyeBlood*) file using **Save as type**.

	A	B	C
1	id	eye	blood
2		1	15.3
3		2	11.3
4		3	17.3
5		4	14.4
6		5	15.1
7		6	18.6
8		7	18.1
9		8	21.7
10		9	13.8
11		10	9.2
12		11	7.5
13		12	22.7
14		13	15.8
15		14	15.6
16		15	15.7
17		16	12.3
18		17	22.3
19		18	12.3
20		19	18.2
21		20	10.1



### 2. Conducting an Pearson correlation

The text in green after the hash (#) sign is just **notes** to help you remember what's in the output: it does not get R to actually "do" anything. The text in blue is **R code** with stars representing words that are specific to the example: you need to replace this with text specific to your data as shown in the output in section 3.

To get R to conduct a Pearson correlation:

Open an **R-Editor** window by selecting **File** then **New script**.

Type in (or copy and paste) the notes and code below.

Replace the stars with appropriate text as indicated in notes.

Highlight everything and press **Ctrl R**.

**#Importing data from tab delimited file**

**#(replace stars with an appropriate object name e.g.,eye.blood)**

```
*****<-read.table(file.choose(),header=TRUE)
```

```
attach(*****)
```

```
names(*****)
```

**#Conducting a Pearson correlation**

**#(replace stars with appropriate text e.g. eye,blood)**

```
cor.test(***, *****)
```

### 3. Identifying the key elements of the output

Following the instructions above will produce the following output in the **R Console** window: the **key elements** are annotated in orange.

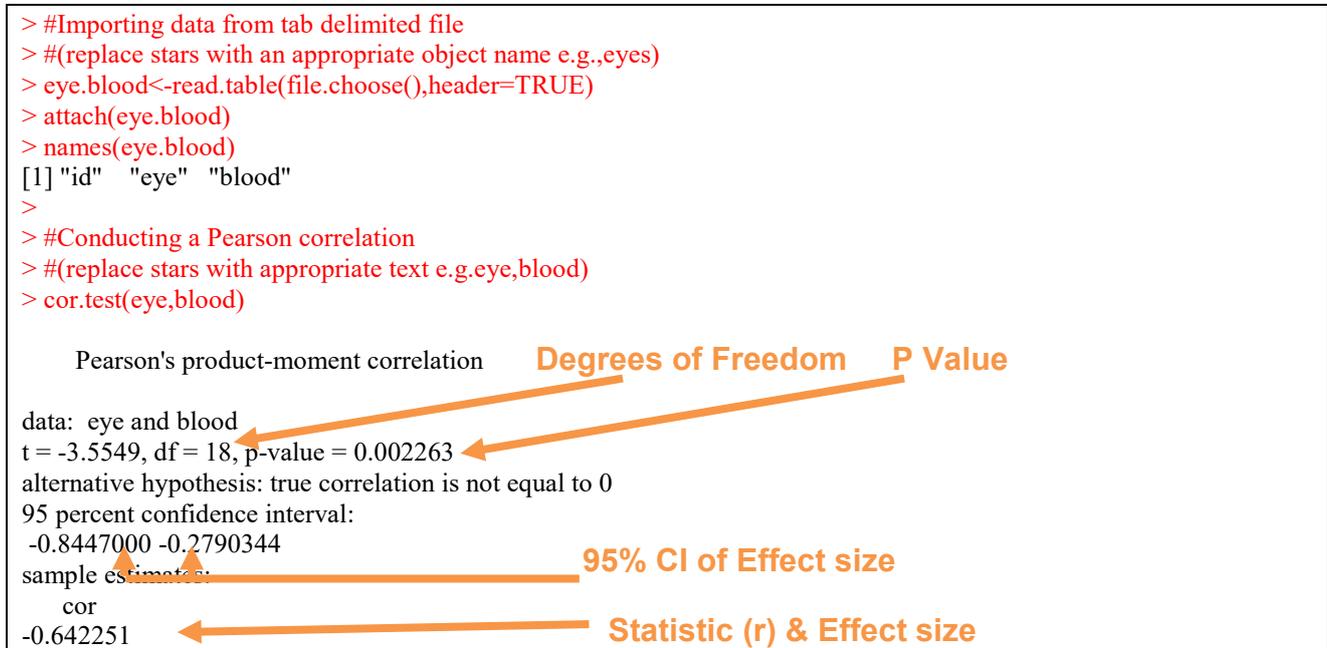
```
> #Importing data from tab delimited file
> #(replace stars with an appropriate object name e.g.,eyes)
> eye.blood<-read.table(file.choose(),header=TRUE)
> attach(eye.blood)
> names(eye.blood)
[1] "id" "eye" "blood"
>
> #Conducting a Pearson correlation
> #(replace stars with appropriate text e.g. eye,blood)
> cor.test(eye,blood)
```

Pearson's product-moment correlation      **Degrees of Freedom**      **P Value**

data: eye and blood  
t = -3.5549, df = 18, p-value = 0.002263  
alternative hypothesis: true correlation is not equal to 0  
95 percent confidence interval:  
-0.8447000 -0.2790344  
sample estimates:  
cor  
-0.642251

**95% CI of Effect size**

**Statistic (r) & Effect size**



In summary the key information from the test is

$$r_{18} = -0.642, P = 0.002$$

### 4. Additional notes

- Notice the full stop in “eye.blood”: you must not have a space.
- The column of numbers label “id” is just for reference and not involved in the calculations.