

```

> read.csv(file.choose())->fitness
> fitness
  subj    time fit
1     1  morning 45
2     2  morning 42
3     3  morning 36
4     4  morning 39
5     5  morning 51
6     6  morning 44
7     1 afternoon 50
8     2 afternoon 42
9     3 afternoon 41
10    4 afternoon 35
11    5 afternoon 55
12    6 afternoon 49
13    1  evening 55
14    2  evening 45
15    3  evening 43
16    4  evening 40
17    5  evening 59
18    6  evening 56
> str(fitness)
'data.frame':  18 obs. of  3 variables:
 $ subj: int  1 2 3 4 5 6 1 2 3 4 ...
 $ time: Factor w/ 3 levels "afternoon","evening",...: 3 3 3 3 3 3 1 1 1 1 ...
 $ fit : int  45 42 36 39 51 44 50 42 41 35 ...
> as.factor(fitness$subj)->fitness$subj
> as.factor(fitness$time)->fitness$time
> as.numeric(fitness$fit)->fitness$fit
> str(fitness)
'data.frame':  18 obs. of  3 variables:
 $ subj: Factor w/ 6 levels "1","2","3","4",...: 1 2 3 4 5 6 1 2 3 4 ...
 $ time: Factor w/ 3 levels "afternoon","evening",...: 3 3 3 3 3 3 1 1 1 1 ...
 $ fit : num  45 42 36 39 51 44 50 42 41 35 ...
> aov(fit~time+Error(subj/time),data=fitness)->fitness.model
> summary(fitness.model)

Error: subj
      Df Sum Sq Mean Sq F value Pr(>F)
Residuals  5  658.3   131.7

Error: subj:time
      Df Sum Sq Mean Sq F value Pr(>F)
time      2  143.44    71.72   12.53 0.00189 **
Residuals 10   57.22     5.72

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
> pairwise.t.test(fitness$fit,fitness$time,paired=1,p.adj="bonf")

Pairwise comparisons using paired t tests

data:  fitness$fit and fitness$time

      afternoon evening
evening 0.0053      -
morning 0.4842    0.0305

P value adjustment method: bonferroni
> install.packages("sjstats")
嘗試 URL 'https://cran.rstudio.com/bin/macosx/el-capitan/contrib/3.6/sjstats_0.18.1.tgz'
Content type 'application/x-gzip' length 353401 bytes (345 KB)
=====
downloaded 345 KB

```

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The downloaded binary packages are in
  /var/folders/ns/bd55z8fj6210znkp29_8rhvc0000gn/T//RtmpavtL8H/downloaded_packages
> install.packages("pwr")
嘗試 URL 'https://cran.rstudio.com/bin/macosx/el-capitan/contrib/3.6/pwr_1.3-0.tgz'
Content type 'application/x-gzip' length 157645 bytes (153 KB)
=====
downloaded 153 KB

```

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The downloaded binary packages are in
  /var/folders/ns/bd55z8fj6210znkp29_8rhvc0000gn/T//RtmpavtL8H/downloaded_packages
> library(sjstats)
Warning message:
package 'sjstats' was built under R version 3.6.2
> anova_stats(fitness.model)
stratum | term | df | sumsq | meansq | statistic | p.value | etasq | partial.etasq |
omegasq | partial.omegasq | epsilonsq | cohens.f | power
-----
subj | Residuals | 5 | 658.278 | 131.656 | | | 0.766 | 0.920 |
0.728 | 0.859 | 0.733 | 3.392 | 1.000
subj:time | time | 2 | 143.444 | 71.722 | 12.534 | 0.002 | 0.167 | 0.715 |
0.153 | 0.562 | 0.154 | 1.583 | 0.994
subj:time | Residuals | 10 | 57.222 | 5.722 | | | | |
| | | | |

```