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Standard analysis 2-1

The purpose of this note is to present a standard analysis of comparing the mean between two independent groups using the normal model. The data on heart period for active and passive was used in Exercise 2-4.

Statistical methods

Mean heart period were compared between the active and passive were compared using the independent two sample t-test. The assumption of normality was accessed using QQ-plots (quantile-quantile plots) and variance homogeneity was accessed using the F-test.

Results and conclusion

The heart period was approximately normal, all though a slightly long tail of the passive heart period were observed. The mean period of the active was 855 (95% CI: 814-895) ms and for the passive 778 (95% CI: 754-802) ms. The difference in means between the active and passive of 77 (95% CI: 33-120) ms was statistical significant (p=0.0007).

Do file

```
**********************************************************************
* Standard2-1.do
* Task: a standard analysis of comparing the mean between two
*       independent groups using the normal model. The data were
*       used in Exercise 2-4.
* Erik Parner: 21-01-2016.
**********************************************************************

clear
cd "D:\Teaching\BasicBiostat\Exercises"

capture log close
graph drop _all
log using Standard2-1.log, text replace

use hp.dta,clear
codebook

* QQ plots.
qnorm day if group==1, name(p1,replace)
qnorm day if group==2, name(p2,replace)
graph combine p1 p2
* A slightly long tail of the passive heart period were observed.
* The slightly long tail of the passive heart period is not expected
* to invalid the comparison of the means using a normal model.
```

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* Comparing the means.
sdtest day ,by(group)
ttest day ,by(group)

* We obtain the same results using the Wilcoxon Mann-Whitney U test.
ranksum day,by(group)

* Drop all graph windows.
graph drop _all

log close
```