

02441 Applied Statistics and Statistical Software

Exercise 1C - calcium

Does increasing calcium intake reduce blood pressure? Observational studies suggest that there is a link, and that it is strongest in African-American men. Twenty-one African-American men participated in an experiment to test this hypothesis. Ten of the men took a calcium supplement for 12 weeks while the remaining 11 men received a placebo. Researchers measured the blood pressure of each subject before and after the 12-week period. The experiment was double-blind. The dataset calcium contains data from the experiment.

Variable name	Description
treatment	whether subject received calcium or placebo
begin	aseated systolic blood pressure before treatment
end	aseated systolic blood pressure after treatment
decrease	decrease in blood pressure (begin-end)

1. What statistical test is appropriate for comparing the change in blood pressure between the treatment and placebo groups?

2 .May the data in each group be considered as being normally distributed?

Start by loading data:

```
# put code here
```

Investigate normality

```
# Put code here
```

3. Test whether the variance in each group can be assumed to be the same

```
# code here
```

4. Make a graphical comparison of the treatment means

```
# Code here
```

5. Make the statistical test for comparing the change in blood pressure between the treatment and placebo groups. What is your conclusion? What is the p-value of the test?

```
# Code here
```

6. Which non-parametric test could be used if data cannot be assumed to be normally distributed?

```
# Code here
```