**Practicing *t*-tests using R-commander**

Open the file Anthropometrics\_2010\_2013.RData.

**Problem 1.** Check whether the mean hip circumference (variable hip) is 90 cm in the population.

Run: *Graphs/Histogram and Statistics/Means/Single Sample t-test/* and type *mu=90*

Name of the test:.............

H0:…………..

Ha:…………..

Assumption:…………….

Graphical check of the assumption:…………..

Result of the test:

Test statistic=………. df=………….. p-value=………….

Decision: ………………………..

Explain your decision:……………………

**Problem 2.** Compare the means of the two consecutive measurements of hip circumference (variables hip1 and hip2).

Run: *Statistics/Means/Paired t-test/*

To check assumptions *(*optional*): Data/Manage Variables in active dataset/Compute new variable/ name: variables, expression: hip1-hip2, then Graphs/Histogram*

Name of the test:.............

H0:…………..

Ha:…………..

Assumption:…………….

Graphical check of the assumption:…………..

Result of the test:

Test statistic=………. df=………….. p-value=………….

Decision: ………………………..

Explain your decision:……………………

**Problem 3.** Check whether the two consecutive measurements of body height have the same population-mean.

Name of the test:.............

H0:…………..

Ha:…………..

Assumption:…………….

Graphical check of the assumption:…………..

Result of the test:

Test statistic=………. df=………….. p-value=………….

Decision: ………………………..

Explain your decision:……………………

**Problem 4.** Compare the mean hip circumference of boys and girls!

*Run: Graphs/Histogram/chose variable Plot by groups/* choose variable*. Test: Statistics/Means/Independent Samples t-test*

Name of the test:.............

H0:…………..

Ha:…………..

Assumption:…………….

Graphical check of the assumption:…………..

Result of the test:

Test statistic=………. df=………….. p-value=………….

Decision: ………………………..

Explain your decision:……………………

Open the file „BEER.Rdata. The following table contains the name and the meaning of the variables. State which variables are categorical (factors) and which of them are continuous.

|  |  |  |
| --- | --- | --- |
| Variable name | Meaning | values |
| rating | Rated Quality of Beer | Very good-Good-Fair |
| beer |  |  |
| origin |  | USA-Canada\_France\_Holland\_Mexico |
| avail | Availability in the U.S. | National-Regional |
| price | Price per 6-pack |  |
| cost | Cost per 12 Fluid Ounces |  |
| calories | Calories per 12 Fluid Ounces |  |
| sodium | Sodium per 12 Fluid Ounces in mg |  |
| alcohol | Alcohol by Volume (in %) |  |
| class | Price Class | Not given-Superpremium-Premium-Popular |
| light | Rated Quality of Beer | NONLIGHT-LIGHT |

**Problem 5.** Compare the mean calorie-content of light and non-light beers!

Name of the test:.............

H0:…………..

Ha:…………..

Assumption:…………….

Graphical check of the assumption:…………..

Result of the test:

Test statistic=………. df=………….. p-value=………….

Decision: ………………………..

Explain your decision:……………………

**Problem 6.** Compare the mean price of light and non-light beers!

Name of the test:.............

H0:…………..

Ha:…………..

Assumption:…………….

Graphical check of the assumption:…………..

Result of the test:

Test statistic=………. df=………….. p-value=………….

Decision: ………………………..

Explain your decision:……………………

**Problem 7.** Compare the variances of the price of light and non-light beers!

Run: *Statistics/Variances/Two Variances F test*

Name of the test:............. H0:………….. Ha:…………..

Result of the test: test statistic=………. df=………….. p-value=………….

Decision: ………………………..

Explain your decision:……………………

**Problem 8**. Open the file „BEFAFTER.RData”. Compare the mean body weights before and after the diet.

Name of the test:.............

H0:…………..

Ha:…………..

Assumption:…………….

Graphical check of the assumption:…………..

Result of the test:

Test statistic=………. df=………….. p-value=………….

Decision: ………………………..

Explain your decision:……………………