

8.4: Testing...

The significance of difference between means for paired parametric data (t-test for paired data):

... t-test for independent data:

(Last example is for learning purpose only because our data is paired since every row corresponds with one animal. Also, "`paired=FALSE`" is the default for the `t.test()`, therefore one can skip it.)

Here is how to compare values of one character between two groups using formula interface:

Formula was used because our weight/sex data is in the *long form*:

Convert weight/sex data into the *short form* and test:

(Note that test results are exactly the same. Only format was different.)

If the p-value is equal or less than 0.05, then the difference is statistically supported. R does not require you to check if the dispersion is the same.

Nonparametric Wilcoxon test for the differences:

One-way test for the differences between three and more groups (the simple variant of ANOVA, analysis of variation):

Which pair(s) are significantly different?

(We used Bonferroni correction for multiple comparisons.)

Nonparametric Kruskal-Wallis test for differences between three and more groups:

Which pairs are significantly different in this nonparametric test?

The significance of the correspondence between categorical data (nonparametric Pearson chi-squared, or χ^2 test):

The significance of proportions (nonparametric):

(Here we checked if this is true that the proportion of male is different from 50%.)

The significance of linear correlation between variables, parametric way (Pearson correlation test):

... and nonparametric way (Spearman's correlation test):

The significance (and many more) of the linear model describing relation of one variable on another:

... and analysis of variation (ANOVA) based on the linear model:

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