

Activities for hypothesis testing: tests for more than two samples

Activity 1

A study reported the results of a randomized comparison of three groups of ten children suffering from frequent and severe migraine (**data_headache.xlsx**). The active treatments given were relaxation response, either with or without biofeedback, and a third group of children was not treated. The frequency and duration of headaches were recorded before and after the study period, and the difference between these measurements was used as a measure of weekly headache activity (expressed as a percentage reduction). Note that a negative value indicates an increase in headache activity.

Activity 2

We consider a pharmacological experiment on the effects of an antipyretic drug on the body temperature of guinea pigs. Four independent samples each of 18 guinea pigs were involved in the experiment and each of the four treatment doses was administered to a distinct group. The temperature change (in °C) after the administration of the drug observed on each animal is reported in **data_temperature.xlsx**. The goal of the experiment consists in testing whether the effectiveness of the drug differs from group to group, in other words whether the concentration of active ingredient does affect the effectiveness of the drug.