

Statistical analysis plan

- 1. The data obtained from the cross over design used in the postprandial study is inspected according to principle published here:**

Available at:

[Outlier Detection Using Principal Component Analysis and Hotelling's T2 and SPE/DmodX Methods | by Erdogan Taskesen | Towards Data Science](#)

Still available: 23.10.2024.

The software used: Unscrambler X from Camo Software

Reported outliers or intuitively strange results from the exploratory analysis leads to a new review of the data registration (process).

- 2. The data that are related to 2 treatment groups and is analyzed according to statistical tools available in MINITAB 18 (Softonic).**

The methods are:

Grubbs' Test for Outliers

T-test with a priori equal variance and 2- tailed

ANOVA, subgroup GLM for assessing variables that may covary with the intervention, this may typically be waist circumference

Regression with two variables: Spearman's or Pearson's correlation coefficient

Statistical analyses may also be performed using IBM SPSS Statistics for Windows, Version 27.0. (Armonk, NY: IBM Corp) and GraphPad Prism version 9.0 for Windows (GraphPad Software, San Diego, California USA).

- 3. Preprocessing of raw data**

The data (time profiles only) will be analyzed as is but also be transformed using normalization.

- 4. Multivariate ANOVA (MANOVA) analysis**

Specifically: 50: 50 MANOVA, a multivariate analysis of variance for collinear responses. The program is described and possible to download at [Software](#). (Still available 24.10.2024). The statistical package is also a part of the: The R Project for Statistical Computing ([R: The R Project for Statistical Computing](#)).

The MANOVA model used

Y in model: (7 responses) – time profiles

Categories (X) in model: sex, diet, sex*diet, error

5. Explorative analysis using Principal Component analysis (PCA) and other multivariate approaches

The software used: Unscrambler X from Camo Software

Used on a selection of data

The following functions will be used:

PCA

Preprocessing options (like normalization)

Correlation matrix calculation

ANOVA-PLS (partial least square regression)