Nutritional metabolomics

object specific lipoprotein profiles and fat boosting

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Nutritional metabolomics
Nutritional metabolomics seeks to relate the intake of a particular dietary component to specific metabolic fingerprints.

The workflow of a nutritional metabolomics study involves hypothesis, experimental design, sampling of biofluids, the analytical platform, the sample spectra, data preprocessing, the multivariate data analysis and last but not least the biological interpretation.

Motivation
By using nutritional metabolomics techniques, it may be possible to detect additional nutritional responses to those found with the traditional biomarkers.

In this study, NMR spectroscopy in combination with multivariate data analysis is applied to investigate the full blood metabolic effects of daily supplementation of mixed linkage β-glucans from oat and barley.

Both targeted and explorative metabolomics approaches are used.

Lipoprotein profiles
The second most influential variation in the data is due to gender and characteristic lipoprotein profiles are found for male and female samples.

Conclusions
No significant blood metabolic exposure and effect markers were identified for intake of β-glucans from oat and barley as studied by targeted metabolomics.

Explorative metabolomics revealed the existence of subject unique lipoprotein profiles, which especially are dependent on gender and diet.

This leaves a potential for improvement of design in future nutritional metabolomics studies.

References