

ISOFLAVONE SUPPLEMENTATION IN POSTMENOPAUSAL WOMEN DOES NOT INFLUENCE SUBCUTANEOUS ADIPOSE TISSUE METABOLISM – A PILOT STUDY

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Introduction: Isoflavones (IF) are discussed to impact body composition (BC) through effects on lipid metabolism related gene expression^[1-4]. To evaluate whether oral IF supplementation affects gene expression profiles in subcutaneous adipose tissue (SAT) and are associated with changes in BC parameters, we performed a controlled intervention study in healthy postmenopausal women (PMW).

Methods: PMW ingested 117mg soy IF extract/d (n=12) (NovaSoy650®) or a placebo (n=11) for 12 weeks in addition to their normal diet. SAT needle aspiration biopsies were performed after 12 weeks. After sample preparation IF and their metabolites were analyzed in adipose tissue samples by UHPLC-MS/MS. Global RNA sequencing and PCR were applied for gene expression analysis. BC was assessed by DEXA before and after the intervention.

Results: Supplementation with the soy extract considerably increased IF concentrations in SAT (intervention: 80.5±94.3 pmol IF/g SAT; placebo: 1.3±2.7 pmol/g). Remarkably, IF concentrations showed broad individual differences. IF did neither affect gene expression nor BC parameters nor body fat distribution.

Conclusion: Our working hypothesis that IF uptake affects gene expression in SAT and/or BC was not confirmed. The number of performed biopsies might have been too low to find an impact on gene expression in SAT or associated changes in BC.

1. Kim et al., 2006. *J Nutr* 136 (2); 409-414.
2. Rayalam et al., 2008. *J. Nutr. Biochem.* 19 (11); 717-726.
3. Kurrat et al., 2015. *Mol Nutr Food Res.* 59, 2407–2418
4. Zanella et al., 2015. *Eur. J Nutr* 54 (7); 1095-1107.