Tsuruoka Metabolomics Cohort Study

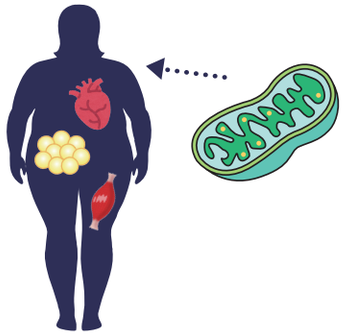
Metabolic Profiling of "Metabolically Obese Normal Weight" Women

STUDY QUESTION

Are amino acids and other metabolic changes associated with Metabolic Syndrome (MetS) in a relatively lean, Asian postmenopausal women?

Metabolically-Obese Normal-Weight (MONW) concept

- ✔ Relatively lean, but displays impaired insulin sensitivity.
- ✔ Higher risk of developing diabetes, CVD and mortality.

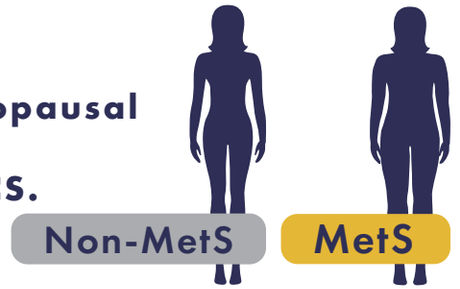


Alterations in BCAA metabolism

↓

BCAA levels ↑↑

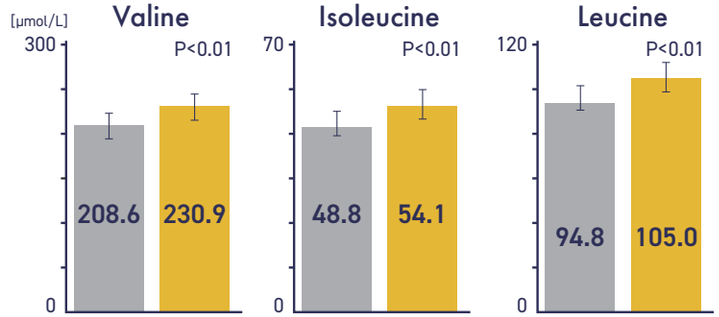
877
Postmenopausal women from TMCS.



Average: BMI 23.0kg/m², HDL-C 72.1mg/dL

78
plasma metabolites were profiled using CE-MS.

Branched chain amino acids (BCAAs)



19 metabolites* including BCAAs differed significantly.

* Alanine, Alpha-aminoadipate, BCAAs and derivatives, cis-Aconitate, Cystine, Glutamate, Guanidinosuccinate, 3-Hydroxybutyrate, Lactate, Mucate, Phenylalanine, Proline, Pyruvate, Threonine, Tyrosine

Identifying these metabolic changes may be useful for detecting MONW.

Profiling of Plasma Metabolites in Postmenopausal Women with Metabolic Syndrome
Iida et al. (2016) Menopause | doi: 10.1097/GME.0000000000000630