

Short Oral Abstracts

Short Oral Abstract 1 - Diets naturally-rich in different polyphenols improve glucose metabolism: is the effect related to specific subclasses? (Claudia Vetrani, Italy)

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Objective: It is known that dietary long chain n-3 polyunsaturated fatty acids (LCn3) and polyphenols (PP) may influence glucose metabolism. However, evidence from clinical trials in humans still gives conflicting results. This randomized controlled study evaluated the effects of diets naturally rich in PP and/or LCn3 on glucose metabolism trying to highlight any specific effect of different PP subclasses.

Methods: Eighty-six individuals with high waist circumference and any other feature of the metabolic syndrome were randomized to one of four isoenergetic diets differing only for LCn3 and PP content: (A) poor in LCn3 and PP; (B) rich in LCn3; (C) rich in PP; (D) rich in LCn3 and PP. Before and after the 8-week intervention, insulin-sensitivity (OGIS) and β -cell function (Δ AUCinsulin/ Δ AUCglucose) were derived from plasma glucose and insulin concentrations during 3-h OGTT. Moreover, correlation analyses were performed between dietary changes in PP subclasses and clinical outcomes.

Results: PP-rich diets significantly reduced blood glucose AUC and increased insulin 30min-AUC ($p < 0.05$ for PP effect, 2-way ANOVA), improving also OGIS ($p < 0.05$ C vs. A, one-way ANOVA). Correlation analyses indicated that changes of dietary flavons triggered the effect on glucose AUC ($p = 0.009$) whereas those of anthocyanidins and flavan-3-ols were mainly related to early insulin secretion ($p = 0.010$ and $p = 0.029$; respectively). LCn3 significantly reduced β -cell function ($p < 0.05$ for LCn3 effect).

Conclusions: Diets naturally rich in PP improve glucose tolerance, likely through an improved insulin sensitivity and early insulin secretion. Some subclasses of PP seem to be more effective.

Protocol registration: [clinicaltrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT01154478) identifier, NCT 01154478

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Short Oral Abstract 2 - The Effect of α -linolenic Acid and Fish on Glucose Metabolism, Serum Lipid Profile and Low-grade Inflammation in Subjects with Impaired Glucose Metabolism (Maria Lankinen, Finland)

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Objective: Our aim was to examine whether α -linolenic acid (ALA), fatty fish and lean fish differ in their effects on glucose metabolism, lipid metabolism and inflammatory markers.