

## Plasma taurine, genetic predisposition, and changes of insulin sensitivity in response to weight-loss diets: The POUNDS lost

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Taurine metabolism disturbance is closely linked to obesity, insulin resistance and diabetes. Previous evidence suggested the preventative effects of taurine on diabetes might be through regulating the expression levels of diabetes related genes. In current study, we aimed to estimate whether blood taurine levels modify the overall genetic susceptibility to diabetes on improvement of insulin sensitivity in a randomized dietary trial. We analyzed data from 711 overweight or obese participants (80% Caucasians) who had genetic variants as well as blood taurine levels measured, from the Preventing Overweight Using Novel Dietary Strategies (POUNDS Lost) trial, a 2-year weight-loss dietary intervention trial. We calculated a genetic risk score (GRS) based on 31 diabetes-associated variants, and estimated the long-term (2 years) improvements of glycemic control traits. We found that baseline plasma taurine levels significantly modified the effects of diabetes GRS on changes in fasting glucose, insulin, and homeostatic model assessment of insulin resistance (HOMA-IR) over 2-year diet interventions ( $P$  for interaction = 0.04, 0.01, 0.002, respectively), regardless of weight loss. High baseline taurine levels were associated with a less reduction in both fasting glucose and HOMA-IR among the participants with the lowest tertile of diabetes GRS (both  $P=0.02$ ), and with a greater reduction in both insulin and HOMA-IR among those with the highest tertile of diabetes GRS (both  $P=0.04$ ). Our data suggest that blood taurine levels might differentially modulate the genetic effects of diabetes on improvement of insulin sensitivity among overweight/obese patients on weight-loss diets.

### Biography

Yoriko Heianza has completed her PhD from University of Tsukuba and has been conducting Postdoctoral studies in Tulane University School of Public Health and Tropical Medicine. She has published more than 30 papers in peer-reviewed medical journals.

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