

Measures of insulin clearance, insulin sensitivity, and insulin secretion and association with incident diabetes in older adults: The Cardiovascular Health Study

Shohinee Sarma, Mary Lou Biggs, David Siscovick, Joshua Barzilay, Ravi Retnakaran, Caroline Kramer, Luc Djousse, Joe Ix, Jorge Kizer, Kenneth Mukamal
Beth Israel Deaconess Medical Center, Boston, USA. Correspondence: ssarma@bidmc.harvard.edu

1565 men and women aged ≥ 65 years in The Cardiovascular Health Study (CHS)

Abnormal OGTTs from 1996-97 visit

Age, sex, education, race (1989-90 visit)
BMI, waist circumference, cholesterol, CRP, smoking, diet, physical activity (1996-97)

Exposures

Insulin clearance: C-peptide/insulin ratio

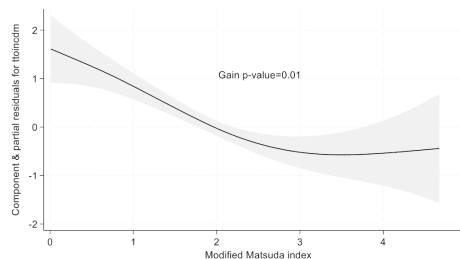
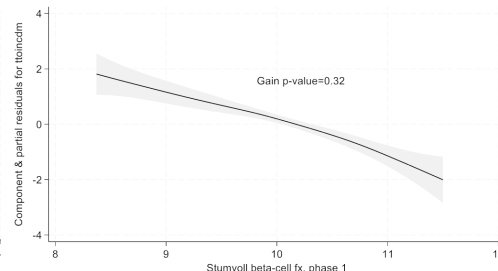
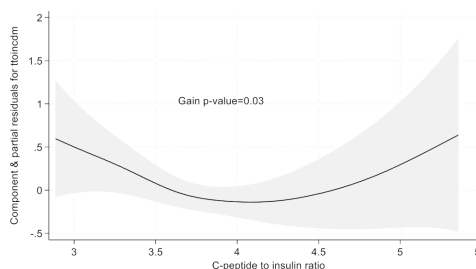
Insulin sensitivity: Matsuda Index

Insulin secretion: Stumvoll equation

Outcomes:

Incident Type 2 diabetes

Diabetes defined by: Use of diabetes medications, fasting glucose ≥ 126 mg/dL, CMS claims for diabetes



HR (95% CI) for association of Insulin clearance with T2DM p-value

\leq median

$>$ median

2-hr
NEFA

1.53 (0.85-2.75)

0.64 (0.37-1.09)

0.02

Conclusion: Among older adults in CHS, measures of insulin secretion (Stumvoll) and insulin sensitivity (Matsuda Index) were associated with lower risk of incident T2DM. Insulin clearance (C-peptide/insulin ratio) had a non-linear significant association with T2DM and varied by adipocyte insulin resistance.