

A Family History of Type 2 Diabetes May Impair Glucose Area Under the Curve in Young, Healthy Hispanics

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ABSTRACT

Obesity and type 2 diabetes are associated with impaired glucose homeostasis and blood lipid profiles. Further, a family history of diabetes (FH) increases the risk for development of insulin resistance. However, it is unclear whether a FH impairs glucose tolerance, blood glucose and lipid profiles in young, healthy, normoglycemic adults. **PURPOSE:** To investigate whether a FH impairs glucose tolerance and blood lipid profile in healthy, sedentary Hispanic males. **METHODS:** 22 sedentary, normoglycemic, Mexican American males (mean±SEM: age:23±0.56 yrs; BMI: 26.9±0.98 kg/m²) with/without FH participated in the study. Glucose tolerance was assessed by calculating glucose area under the curve (AUC) following an oral glucose tolerance test. Participants were fed a 5-day standardized diet (55/15/30% Carbohydrate/Protein/Fat) before testing. Serum was collected for analysis of blood glucose and lipid panels by a diagnostic center (Lab Corp, Burlington, NC). **RESULTS:** AUC was significantly greater in individuals with a FH compared to individuals without FH (FH- vs FH+: 311.91±7.30 vs 355.35±11.91 AU; p=0.008). Fasting glucose (75.9±2.07 vs 79.1±2.85 mg/dL; p=0.40) and homeostatic model assessment of insulin resistance (HOMA-IR) (2.64±0.48 vs 1.81±0.19 AU; p=0.26) were not different between groups. There was no difference in fasting insulin between groups. Lastly, no differences in total cholesterol (p=0.18), triglycerides (p=0.28) or LDL cholesterol (p=0.24) were detected regardless of FH. **CONCLUSION:** Fasting glucose, insulin, insulin resistance (measured by HOMA-IR), and lipid profiles were not different between individuals with and without a FH. However, glucose AUC may be an early indicator of risk for developing insulin resistance in young adults with a family history of type 2 diabetes, despite an otherwise normal clinical health status.