

Sequential Testing to Assess Insulin Resistance in the Course of Participation in a Diabetes Prevention Program (DPP)

Background

- Prediabetes is defined by blood glucose or HbA1c levels that are elevated beyond normal ranges but not to levels that indicate a diabetes diagnosis. As a precursor to diabetes and cardiovascular disease, prediabetes offers a target for interventions that prevent progression to diabetes.¹
- The Diabetes Prevention Program (DPP), which the Centers for Disease Control and Prevention has implemented in a national program, uses lifestyle changes and medicine to reduce progression to diabetes.
- However, many DPP participants still progress,^{2,3} and identifying those individuals would be useful. Because insulin resistance (IR) is associated with type 2 diabetes, individuals with high IR could be at risk of progression.
- In a previous study, investigators developed an IR score based on intact insulin and C-peptide measurements.⁴
- **Objective:** In this study, the investigators assessed IR score among DPP participants.

Methods

- A total of 40 participants were enrolled in the study and separated into 3 cohorts based on the participating practice. Data from 2 cohorts (17 patients) were available.
- The utility of the IR score was examined in the context of the IRB-approved protocol, Quest Testing to Assess Insulin Resistance (Q-TAIR). This protocol allowed for the assessment of anthropometric measurements and examination of laboratory testing results of fasting plasma glucose, HbA1c, electrolytes, and lipids at DPP baseline and after 1, 3, and 6 months, and 1 year.
- Intact insulin and C-peptide were measured using a multiplexed mass spectrometry assay.⁵

Results

- Participants lost an average of 11 pounds, which matched expectations for adherent participants.
- For 10 of the 17 participants, initial IR scores were in the top or middle tertile, indicating they were at high risk for IR.
- For 5 of 17 the participants, laboratory test results normalized or improved from baseline. However, these results did not reflect their continued elevated IR risk.

Conclusions

- The findings of this study suggest that IR score may help identify participants in DPP who have high risk of IR; these individuals may remain at risk for progression to diabetes.

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Webpage

<https://www.abstractsonline.com/pp8/#!/7897/presentation/6674>

References

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2. Knowler WC, Barrett-Connor E, Fowler SE, et al. *N Engl J Med*. 2002;346:393-403.
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5. Taylor SW, Clarke NJ, Chen Z, et al. *Clin Chim Acta*. 2016;455:202-208.