



Association of Dietary Insulin Index and Insulin Load on Diabetes, Obesity and Cardiometabolic Health: A Scoping Review

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Abstract

Background: Obesity, diabetes and dyslipidaemia are significant global health concerns with insulin resistance being a significant underlying trigger. Research has focused on dietary factors for their management, and in recent years, the Dietary Insulin Index (DII) and Dietary Insulin Load (DIL), indices measuring dietary insulinotropic factors, have gained importance.

Aim: This comprehensive review aims to evaluate the association between DII and DIL with cardiometabolic risk factors with specific reference to biomarkers of insulin resistance, obesity, diabetes, dyslipidaemia in the context of metabolic syndrome.

Method: Literature search was conducted (2010 to 2023) using appropriate keywords in scientific databases. Fourteen observational studies were identified on associations between DII and/DIL with obesity, diabetes and other cardiometabolic risk factors.

Results: Among adolescents high DII and DIL were positively correlated with the risk of metabolic syndrome. Similarly, in healthy, obese, and diabetic adult subjects, higher DII & DIL was associated with increased BMI, waist circumference, insulin resistance, blood pressure, TGL and cholesterol. Furthermore, in elderly men, high DIL was associated with elevated FBG levels and hs-CRP, indicating a potential link between dietary insulin response and inflammation. Results of review suggest that across the diverse study populations, consistent patterns emerged, i.e., higher DII and DIL was associated with increased cardiometabolic risk factors, including obesity, diabetes, and dyslipidaemia.

Conclusion: The review findings underscore the importance of using DII and DIL as dietary intervention tools for a comprehensive approach in the prevention and management of diabetes and metabolic syndrome.

Keywords

Dietary Insulin Index, Insulin Load, Diabetes, Cardiometabolic Health

