

A1c Levels: A Comparison of Plant-Based vs. Ketogenic Diets in Type 2 Diabetes

Introduction

The prevalence of type 2 diabetes (T2D) is a global epidemic with rising levels of obesity and resulting insulin resistance, both of which are considered major risk factors for developing this chronic disease. Poor glycemic control is linked to a higher risk for mortality due to associated comorbidities and resulting vascular complications such as diabetic kidney disease, myocardial infarction and strokes. Most current research is focused on managing diabetes through healthy eating plans that promote weight loss through reduced calorie and carbohydrate intake.

PICO Question

In Type 2 diabetic patients, how effective is a whole food plant-based diet compared to a ketogenic diet on lowering A1c levels?

Design

A literature search was conducted using CINAHL, Google Scholar, and Pubmed using the following search terms: *Plant-based diet, ketogenic, diabetes and A1c*. The search results yielded 366 articles of which 126 were excluded based on the appropriateness of studies related to human adults, length of studies, and relation to the PICO question. A total of 6 articles were reviewed which included: 4 randomized control studies and 2 literature reviews.

Conclusion

Randomized control trials and cohort studies strongly support the role of whole food plant-based diets over ketogenic diets in reducing and maintaining T2D.

Whole Food Plant-Based Diet

- Emphasizes whole, minimally processed foods that limits or avoids animal products and focuses on plants including vegetables, legumes, whole grains, vegetables, fruits, nuts and seeds.
- Vegan and vegetarian diets are similar but are not entirely the same, as animal products are completely avoided.



<https://www.nutriplanet.org/2019/09/what-is-whole-food-plant-based-diet/>

Ketogenic Diet

- Emphasizes low carbohydrate intake (up to 5%) while consuming large amounts of fat (80-90%), with the remainder filled with protein (up to 15%).
- When the body replaces carbohydrates with fats it will become more efficient at burning fat for energy instead of carbohydrates by placing the body in a metabolic state known as ketosis.



<https://www.sarasotamagazine.com/articles/2019/9/23/keto-diet>

Risks vs. Benefits	Reduced Risk of T2D	Reduced A1c	Weight Loss	Lower Blood Pressure	Improved Lipid Profile	Risk of Diabetic Ketoacidosis	Risk of Hypoglycemia	Reduced Risk of Heart Disease
Whole-Food Plant-Based Diet	✓	✓	✓	✓	✓			✓
Ketogenic Diet		✓	✓	✓	✓	✓	✓	

Recommendations

- Offer plant-based diets as a primary option in T2D to lower A1c levels and minimize macro- and microvascular complications.
- Provide ongoing patient education on the benefits of plant-based diets.
- Encourage regular follow-ups to ensure continued adherence to diet changes.

Implementation Barriers

- Patient reluctance to convert to a whole food plant-based diet.
- Inadequate resources to support a dietary change.
- Potential for low intake of vital nutrients.

Further Study

Additional long-term human studies on the impacts of the ketogenic diet are needed to examine the potential risk of developing diabetic ketoacidosis as a result of changing the body's primary energy source from carbohydrates to fats and proteins. Another potential study could combine ketogenic and plant-based diets.

References

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