

Powered by Plants



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Introduction:

- Type 2 diabetes is a multifaceted disease process that is a challenge to communities worldwide
- The International Diabetes Federation reports that this condition affected 10.5% of the adult population in 2021 and is projected to rise to 46% by 2045.
- The American College of Lifestyle Medicine and American College of Endocrinology recommend integrating a plant-based diet as a foundation for individuals to improve glycemic control, body weight management, and vascular health.
- A plant-based diet consists of the consumption of grains, vegetables, legumes, nuts, seeds, and their derivative products, with minimal intake of meat and dairy.
- In this case study, we highlight a collaborative approach of integrating new habits to help a patient achieve his optimal health goals.

Background:

- High fat diets damage the normal intestinal barrier, allowing endotoxins to enter and disturb glucose oxidation processes.
- Chronic low-grade systemic inflammation is present in individuals with increased body weight and type 2 diabetes, impairing insulin signaling pathways and promoting β -cell dysfunction.
- With excess body weight, adipose tissue releases inflammatory cytokines, promoting insulin resistance.
- Cardiovascular disease is the leading cause of morbidity and mortality in patients with diabetes.
- Plant-based diets play a role in reversing β -cell and endothelial cell dysfunction.

Case Description:

- 54-year-old Caucasian male with a history of type 2 diabetes, hypertension, dysrhythmia, obstructive sleep apnea, and hypertriglyceridemia presented with concerns of increased weight gain, poor sleep quality, and rising serum blood glucose levels.
- Medications: Tresiba 100u, Novolog 30u, CoQ10 100 mg, Amlodipine 10 mg, Rosuvastatin 10 mg, Valsartan 320 mg, Fenofibrate 160 mg, Vascepa 1 g, Glipizide 5 mg, and Omeprazole 20 mg.
- Patient reported adherence to all medications as well as autopap use nightly.
- Diet: Inexpensive, processed foods purchased by his wife.
- Attempted to follow a “healthy” diet in the past but reverted to his old habits due to work stressors.
- Serves as a powerlifting coach for the Louisiana Special Olympics in his free time, but largely leads a sedentary lifestyle. He cites a hybrid work life, working from home most days. His physical activity is walking around the office when he is at the office.
- The patient followed a plant-based diet for 10 days and incorporated 15-30 minutes of daily physical activity.
- Start: 03/06/2024, End: 03/15/2024
- There were notable decreases in the fasting blood glucose, LDL, HDL, triglycerides, weight, and the patient was pleased with his new changes in energy levels and overall well-being.

	Fasting Blood Glucose (mg/dL)	A1C (%)	LDL (mg/dL)	HDL (mg/dL)	TAGs (mg/dL)	Weight (lbs)
05/27/2023	291	8.3	49	19	670	245*
03/15/2024	197	8.8	39	23	361	235

Table 1: Baseline to follow-up fasting blood glucose, A1C, LDL, HDL, Triglycerides, and weight. *Weight taken on 02/19/2024.

Discussion:

Through a comprehensive approach involving lifestyle modification and patient education, there is the potential for significant improvement in chronic diseases such as diabetes. These individuals often contend with multiple medications, complex medical histories and reveal their frustration with knowing what and how to eat. Often, they are overwhelmed with “diets” that involve “calorie counting.” Plant based “jumpstarts” can help patients make significant improvements in their fasting blood glucose, energy levels and weight in as short a time as 10 days. Patients feel empowered as they learn about their physiology and can actively participate in grocery shopping and meal prepping in a way that becomes sustainable.

A “Lifestyle Medicine Prescription” incorporates realistic goals for patients. The focus of this care plan within the 10-day jumpstart highlights the pillars of Lifestyle Medicine: a whole-food, plant-predominant eating pattern, physical activity, restorative sleep, stress management, avoidance of risky substances and positive social connections.

References:

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2. Salehin, S.; Rasmussen, P.; Mai, S.; Mushtaq, M.; Agarwal, M.; Hasan, S.M.; Salehin, S.; Raja, M.; Gilani, S.; Khalife, W.I. Plant Based Diet and Its Effect on Cardiovascular Disease. *Int. J. Environ. Res. Public Health* 2023, 20, 3337. <https://doi.org/10.3390/ijerph20043337>.