

## Effectiveness of Diabetic Nutrition Plan

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Diabetic nutrition plan reveals the effect of nutritional habits on diabetes control in diabetic individuals and their benefits in blood sugar regulation. The study shows the effect of diet on reducing HbA1c levels in diabetic individuals with impaired sugar regulation. Additionally, by revealing the differences between various eating patterns; research is being conducted on optimal nutrition.

**Keywords:** Diabetes Mellitus, Nutrition Therapy, Diet, Dietary Approaches to Stop Hypertension, Diet, Plant-Based**1. Overview**

A healthy dietary pattern, regular physical activity and often pharmacotherapy are key components in diabetes management. In diabetic individuals, the most discussed stage in treatment planning is the stage of deciding what to eat [1]. Nutritional recommendations for diabetic individuals are based on theories or consist of the opinions of the healthcare provider [2]. The aim of diabetic nutrition is; it is the development of interventions that improve healthy eating habits and help achieve target blood glucose, lipid levels and optimal blood pressure [1]. The position of the American Diabetes Association (ADA) on this issue is against recommending a single nutritional model for all diabetic individuals [3]. The nutrition plan should be individualized to meet the needs of diabetic individuals. In individualization, the lifestyle of diabetic individuals, socioeconomic factors, cultural background and attitude towards implementing the nutrition plan should be taken into consideration. The modern diabetic diet, based on clinical research, consists of portion control and individualized lifestyle changes [4].

**2. Clinical Evidence**

Numerous studies provide sufficient evidence regarding the effectiveness of diabetic nutrition (improvement of glycemic control and other metabolic outcomes). Hemoglobin A1c (HbA1c) is used for glycemic evaluation because it reflects the average blood sugar level of the past months [2]. In diabetic individuals who follow a nutrition plan created by a dietitian; depending on the type of diabetes, its duration, and the initial HbA1c level, the HbA1c level decreased on average between 1% and 2% [1]. A diabetic nutrition plan was applied to a newly diagnosed type 2 diabetic individual with an HbA1c level of approximately

9%, and a 2% decrease in HbA1c was observed [5]. However, a diabetic nutrition plan was applied to a newly diagnosed diabetic individual with an HbA1c level of 6.6% and a 0.4% decrease in HbA1c was observed [6]. Both findings are clinically significant. A diabetic nutrition plan was applied to an individual with long-term uncontrolled diabetes for approximately 9 years and HbA1c decreased by 0.5%. This finding is clinically meaningful and is more effective and cost-effective than adding a third drug [7]. In type 1 diabetic individuals, implementing a diabetic nutrition plan and adjusting the insulin dose according to carbohydrate intake provided an approximately 1% improvement in HbA1c. It has been observed with an increase in quality of life without an increase in the risk of hypoglycemia and cardiovascular risk [8].

**3. Diabetic Nutrition Plan**

Diabetic nutrition plan is basically based on the individualization of meal intake of diabetic individuals; it can be classified as ketogenic diet, Mediterranean diet, DASH diet and vegetarian diet. The ketogenic diet (KD) is considered minimal carbohydrate and maximum fat intake, leading to the induction of ketosis, a state thought to metabolize fat more than carbohydrates to provide energy. KD has received more attention in recent years and is used for many purposes, including weight loss and the treatment of serious diseases such as type 2 diabetes. Secondly, first proposed by Ancel Keys in the 1960s, the typical Mediterranean diet includes a high intake of monounsaturated fatty acids, vegetables and fruit, vegetable protein, whole grains, fish and low-fat dairy products, and moderate alcohol (red wine) intake and is characterized by low red meat consumption [9]. In short, the DASH (Dietary Approaches to Stop Hypertension) eating plan is an acceptable diet for diabetics. In addition to supporting blood pressure control, this eating pattern

has been shown to improve insulin resistance, hyperlipidemia, and even overweight/obesity. This balanced approach encourages the consumption of a variety of foods (whole grains, fat-free or low-fat dairy, fruits, vegetables, poultry, fish, and nuts) and is suitable for the whole family [10].

#### 4. Conclusion

As seen in clinical evidence, a diabetic nutrition plan has been found to be effective both in preventing the development of diabetes mellitus and in its management. Individualization of food intake patterns, which forms the basis of a diabetic nutrition plan, is key to the modern diabetic diet. These nutritional intake patterns have been observed to be accompanied by continuous improvements in metabolic parameters in diabetic individuals, whether on the Mediterranean diet or the DASH diet. For example, prospective studies show that greater adherence to the Mediterranean diet is associated with a 20-23% reduction in the risk of developing type 2 diabetes, while results from randomized controlled trials show that the Mediterranean diet reduces glycosylated hemoglobin levels by 0.30-0.47% and is also associated with a reduction in cardiovascular events. It is associated with a 28-30% reduction in risk [11]. The DASH eating pattern can provide more than 55% of calories from carbohydrates; this may be too high a carbohydrate intake for some people with type 2 diabetes. Additionally, there is little research showing the glycemic benefits of the DASH eating plan for people with diabetes. However, in a study of 31 people with type 2 diabetes the DASH diet plan improved blood lipids and blood pressure while also improving A1C (by 1.7 percentage points) and fasting blood sugar levels (by 29 percentage points) reduced [12]. De Paula et al. found that fruits and vegetables, two food groups in the DASH diet plan, helped lower blood pressure in a group of 225 people with type 2 diabetes [13]. In conclusion, the diabetic nutrition plan was found to be associated with improvement in diabetic indicators and is effective. Considering the DASH eating pattern and Mediterranean type nutrition, not only improvement in metabolic parameters was observed in diabetic individuals, but also the diabetic diet was found to be beneficial in preventing diabetes in prediabetic individuals. Further research is important in the context of ensuring strong state initiatives in limiting the production and use of processed and refined foods and prioritizing plant-based nutrition.

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