

ABSTRACT

Vinolia Wahyuning Agustine, 2025. *The Effect of Providing Vegetable and Animal Food Sources of Protein Before Carbohydrates on Blood Glucose Levels of Patients with Type 2 Diabetes Mellitus at Puskesmas Janti Malang City. Bachelor of Applied Nutrition and Dietetics Study Program, Department of Nutrition, Health Polytechnic of Malang. Advisor: Sutomo Rum Teguh Kaswari, SKM., M. Kes and Dwipajati, SST., M. Gz.*

Background: Type 2 diabetes mellitus (T2DM) is a chronic metabolic disorder with a steadily increasing prevalence in Indonesia, thus requiring appropriate dietary management to prevent complications. One non-pharmacological strategy, namely meal-sequence modification, is consuming protein before carbohydrates, which has been shown to slow glucose absorption and reduce the glycemic response.

Objective: To analyze the effect of consuming plant-based and animal-based protein sources before carbohydrates on fasting blood glucose (FBG) and 2-hour postprandial blood glucose (2h-PBG) levels in patients with Type 2 Diabetes Mellitus. **Methods:** This study used a quasi-experimental design with a pretest-posttest group design in patients with T2DM who were divided into two groups: group 1 received 40 g of red bean soup and group 2 received 22 g beef soup. Intervention A (protein before carbohydrates) was conducted in the first week and Intervention B (protein with carbohydrates) in the second week, each given three times. Fasting blood glucose (FBG) and 2-hour postprandial blood glucose (2h-PG) measurements were conducted at each stage, and data were analyzed using the Independent Samples T-Test ($p < 0.05$). **Results:** There was no significant difference in GD2JPP levels between group 1 and group 2 in either Intervention A ($p = 0.597$) or Intervention B ($p = 0.625$). **Conclusion:** The administration of plant-based or animal-based protein before carbohydrates did not produce a significant effect in either group.

Keywords: Type 2 Diabetes Mellitus, Blood Glucose Level, Protein Consumption Before Carbohydrates.