

## Assessment of Dietary Patterns of Saudi Patients with Type 2 Diabetes Mellitus in Ramadan and Non-Ramadan Periods

**Authors :** Abdullah S. Alghamdi, Khaled Alghamdi, Richard O. Jenkins, Parvez I. Haris

**Abstract :** Background: Unhealthy diet is one of the modifiable risk factors for developing type 2 diabetes mellitus (T2DM). Improvement in diet can be beneficial for countering diabetes. For example, HbA1c, an important biomarker for diabetes, can be reduced by 1.1% through only alteration in diet. Ramadan fasting has been reported to provide positive health benefits. However, optimal benefits are not achieved, often due to poor dietary habits and lifestyle. There is a need to better understand the dietary habits of people fasting during Ramadan, so that necessary improvements can be made to develop this form of fasting as a non-pharmacological strategy for management and prevention of T2DM. Aim: This study aimed to assess the dietary patterns of Saudi adult patients with T2DM over three different periods (before, during, and after Ramadan) and relate this to HbA1c levels. Methods: This study recruited 82 Saudi with T2DM, who chose to fast during Ramadan, from the Endocrine and Diabetic Centre of Al Iman General Hospital, Riyadh, Saudi Arabia. Ethical approvals for the study were obtained from De Montfort University and Saudi Ministry of Health. Dietary patterns were assessed by a self-administered questionnaire in each period. This assessment included the diet type and frequency. Blood samples were collected in each period for determination of HbA1c. Results: The number of meals per day for the participants significantly decreased during Ramadan ( $P < 0.001$ ). The consumption of fruit and vegetables significantly increased during Ramadan ( $P = 0.017$ ). However, the consumption of sugary drinks significantly increased during and after Ramadan ( $P = 0.005$ ). Approximately 60% of the patients indicated that they ate sugary foods at least once per week. The consumption of bread and rice was reported to be at least two times per week. The consumption of rice significantly reduced during Ramadan ( $P = 0.002$ ). The mean HbA1c significantly varied between periods ( $P = 0.001$ ), with lowest level during Ramadan compared to before and after Ramadan. The increase in the consumption of fruits and vegetables had a medium effect size on the reduction in HbA1c during Ramadan. There was a variance of 7.7% in the mean difference in HbA1c levels between groups (who changed their fruit and vegetable consumption) which can be accounted for by the increase in the consumption of fruits and vegetables. Likewise, 9.3% of the variance in the mean HbA1c difference between the groups was accounted for by a decrease in the consumption of rice. Conclusion: The increase in the frequency of fruit and vegetables intake, and especially the reduction in the frequency of rice consumption, during Ramadan produce beneficial effects in reducing HbA1c level. Therefore, further improving the dietary habits of patients with T2DM, such as reducing their sugary drinks intake, may help them to obtain greater benefits from Ramadan fasting in the management of their diabetes. It is recommended that dietary guidance is provided to the public to maximise health benefits through Ramadan fasting.

**Keywords :** Diabetes, Diet, Fasting, HbA1c, Ramadan

**Conference Title :** ICPDHP 2020 : International Conference on Pharmaceutical Drugs and Health Policies

**Conference Location :** London, United Kingdom

**Conference Dates :** March 12-13, 2020