

DOES VITAMIN C AFFECT HbA_{1c}?

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ABSTRACT

Background: Diabetes is a chronic disorder associated with disturbances in carbohydrate, fat, and protein metabolism characterized by hyperglycemia. HbA_{1c} is used to monitor long-term glycemic control, adjust therapy, assess the quality of diabetes care, and predict the risk for the development of complications. Early studies showed that vitamin C increases inflammation and oxidative stress as a strategy to prevent diabetes. This study aimed to examine the effect of vitamin C on HbA_{1c}.

Subjects and Method: This was a literature review study. The literature was obtained from ScienceDirect, PubMed, and Google Search. After screening of articles published from 2000 to 2018 using keywords “HbA_{1c}” and “vitamin C”, the author obtained 21 articles. The study population was diabetic and non-diabetic patients.

Results: Almost all research articles under review showed inverse relationship between vitamin C and HbA_{1c}. That said, the higher vitamin C consumption, the lower HbA_{1c}. This is because vitamin C can reduce microvascular complication and cardiovascular disorder in diabetic and non-diabetic patients. In non-diabetic patients, vitamin C can reduce the risk of diabetes. In diabetic patients, it can reduce the risk of diabetes complication.

Conclusion: High dose of vitamin C decreases HbA_{1c} level. Vitamin C can help reduce risk of diabetes as well as diabetes complications.

Keywords: diabetes, HbA_{1c}, vitamin C

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