



ISSN: 2694-1767

DOI: 10.33552/WJYPR.2023.04.000582

**World Journal of
Yoga, Physical Therapy and Rehabilitation**

Iris Publishers

Mini Review Article

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Therapeutic Effects of Yoga to Regulate Blood Glucose Levels in Patients with Type II Diabetes Mellitus

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Received Date: August 29, 2023

Published Date: September 25, 2023

Abstract

Yoga is a practice that has been around for more than 5,000 years and is used for the purpose of balancing the body, mind, and emotions. Type 2 diabetes and other health conditions can be managed with the help of yoga. The therapeutic effects of yoga on diabetes involve immunological, neuroendocrine, and psycho-neuro-endocrine systems. Yoga practice integrated into daily life helps diabetics achieve glycemic control and lowers their risk of complications. Based on evidence from the literature, we briefly discuss the significance of different yoga practices in the treatment of diabetes in this mini review.

Keywords: Diabetes Mellitus II; Yoga

Abbreviations: High-density lipoprotein (HDL); Type II diabetes mellitus (T2DM)

Introduction

Every year, the global incidence of diabetes mellitus, a widespread non-communicable disease, rises over the world. With a vulnerable age range of 20 to 79 years, there are currently 463 million people suffering from diabetes worldwide. It is predicted that this figure will rise to 700.2 million by 2045 [1]. Changes in the lifestyles of individuals, such as a decrease in activity, might be responsible for the rising incidence of diabetes mellitus worldwide. Environmental variables such as rising prosperity and urbanization, which cause an increase in obesity and insulin resistance, may exacerbate factors that may contribute to the high incidence of diabetes mellitus sufferers in addition to genetic ones. Diabetic problems can be mitigated by exercise therapies. Exercise can enhance glucose intolerance and insulin sensitivity by modifying muscle fibers and enhancing beta-cell activity. Previous

study of McDermott KA, et. Al showed that in the early stages of the condition, exercise may be particularly beneficial [1]. High-density lipoprotein (HDL) levels may rise as a result of physical activity, whereas triglyceride and cholesterol levels may lower [2]. However, due to several factors like age, obesity, cardiovascular disease, and other problems, individuals with diabetes mellitus are typically unable to maintain the level of advised physical activity. One of the physical pursuits that persons with diabetes can partake in is yoga therapy [2, 3].

Yogic exercise is a static, slow-paced form of physical activity. It can even be performed by people who are normally unable to engage in traditional types of physical activity like severe strength training and gym-based training due to limited joint mobility, physical unfitness brought on by obesity, and sedentary lifestyles



[4]. It seems to be the quickest and most effective method of achieving and maintaining mental tranquility. Yoga is also known to alter volunteers' physiological and biochemical makeup [5].

A literature search of clinical trials and observational studies was performed in this review to explain the concept that yoga exercise increases the GLUT-4 receptors expression on skeletal muscles which leads to the transport of glucose from blood into muscles and hence lowering the blood glucose levels. As Skeletal muscle contract, they require more energy and utilize excess glucose for energy through blood, which lowers glucose in the blood.

Discussion

Yoga treatment has the potential to be beneficial for both health and diseases. The most current studies suggest that yoga-based lifestyle adjustments may help to manage type 2 diabetes and its potential risk factors. The management of diabetes is thought to involve the interaction of immunological, neuroendocrine, and psych neuroendocrine mechanisms. Parasympathetic activation and the associated anti-stress processes all enhance patients' overall metabolic, psychological, glucose tolerance, and lipid metabolism profiles. Yoga practices such asanas, pranayama, mudras, bandhas, meditation, mindfulness, and relaxation have been demonstrated to dramatically enhance clinical outcomes by controlling concomitant diseases linked to type 2 diabetes mellitus and lowering blood glucose levels [6].

Yoga is also good for reducing stress and improving overall health [7]. In addition to allopathic T2DM treatment methods, yoga can be seen as a non-invasive, affordable adjuvant therapy for T2DM management. Other advantages of yoga include a decrease in the need for insulin and oral hypoglycemic medicines and a delay in the advancement of diabetes [5, 7].

With the use of yoga, the pancreatic beta cells can be directly triggered. Abdominal stretching positions in yoga may increase insulin production and enhance how efficiently the muscles use glucose. Regular yoga practice can improve overall wellbeing and aid in the management of type II diabetic mellitus (T2DM). According to the current study, alterations in fasting blood glucose levels may also lessen the symptoms of diabetes and enhance a person with diabetes' quality of life. Parasympathetic activation and the associated anti-stress processes all enhance patients' overall metabolic, psychological, glucose tolerance, and lipid metabolism profiles. Yoga practices such asanas, pranayama, mudras, bandhas, meditation, mindfulness, and relaxation have been demonstrated

to considerably enhance clinical results by reducing blood glucose levels and managing coexisting illness conditions [6].

Conclusion

The findings of the current review showed that yoga is efficient in lowering blood glucose levels in T2DM patients. In conclusion, along with the obesity epidemic, the prevalence of type 2 diabetes mellitus will probably increase steadily over the following several decades. Yoga-based therapies show great potential in the management of type 2 diabetes mellitus. Yoga is an inexpensive treatment with no adverse side effects. By expanding research across the globe, implementing more rigorous research designs, increasing dosage and long-term evaluation, using theory-based frameworks, and adding intervention implementation process evaluation, yoga as a feasible alternative therapy can be promoted.

Acknowledgements

None.

Conflict of Interest

There are no hidden conflicts of interest among the authors.

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