

YOGIC EXERCISE AND DIETARY INTERVENTION ON SYMPTOMATIC DIABETES PATIENTS: A REVIEW ANALYSIS

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Abstract: Diabetes is a chronic diseases characterized by high level of blood sugar. Nowadays people need to modification of treatment focus on medication and lifestyle. Such as yogic exercise and dietary interventions have great benefits to managing the diabetes symptoms and others diseases. The aim of these review to analyse the effect of yogic exercise and dietary intervention on symptomatic diabetes patients :A review analysis , evaluating the effectiveness of sugar control and overall well-being. A systematic review approach to develop the body of knowledge regarding on yogic exercise and dietary intervention on symptomatic diabetes patients. The literature for this reviews were sourced from primary databases: Pub Med, Semantic Scholar, ERIC, etc. A structured approach was used to identify, evaluate, and analyze relevant articles to ensure the comprehensiveness and reliability of the findings. According to the findings suggest that regular practice of yogic exercise can significantly improved the level blood glucose, quality of life and overall well-being. Additionally, dietary modification and lifestyle change are also one of the most important thing in control blood sugar level and metabolic health. The combination of yogic exercise and dietary modification have effective complementary approach in managing symptomatic diabetes and not only in diabetes but also improved the sugar control, enhance the mental health, reduce stress, quality of life and lower risk of diabetes related complications.

Keywords: Diabetes, Yogic Exercise, Dietary Intervention, Sugar Control

INTRODUCTION

Diabetes is a most common form of chronic condition associated with changing of lifestyle and dietary habits such as alcohol, tobacco, physical activity low vegetables etc. This status can cause major difficulty to heart, eyes, nerves, blood vessels, kidneys. Diabetes Lifestyle alteration such as diet management and improved physical activity are the main things to control diabetes along with proper medications. Diabetes is instantly related to modern lifestyle which enhance sedentary lifestyle and low physical exercise.

A regular physical or yogic exercise reduces mental and oxidative stress and beneficial to maintain sugar level. Regular yogic exercise with proper scientific way is beneficial for defending

various lifestyle diseases including diabetes. Scientific experimental on yogic exercise suggests that yogic exercise is one the most needed cardiovascular activities that enhance control sugar level and insulin sensitivity.

Dietary guidance is one of the most key important in the management of diabetes. The American Diabetes Association advice a hypo caloric diet for weight or obese with diabetes patient in order to reduce weight loss. However, there is limited evidence on the maximum formulation to control sugar level in Diabetes patients. The recent nutrition template of the American Diabetes Association show that there is doubt regarding the maximum proportion of energy movement from carbohydrates, protein, and fat for patients with diabetes. Emerging information indicate that a diet high in unsaturated fatty acids is related to improved sugar control. Lifestyle alteration can prevent the onset of diabetes as well as its advancement.

The intervention of symptomatic diabetes presents a significant challenge in contemporary healthcare. While pharmacological interventions form a basis of treatment, growing evidence inform a cooperative benefit from integration complementary therapies, such as yogic exercises and dietary change. This investigation remove into the potential effectiveness of this holistic approach, analyse its impact on sugar control, cardiovascular risk factors, and overall patient well-being. It's a spot like adding another layer of action to the defensive structure of health. Many survey have explored the several effects of yoga and dietary effect on diabetic patients. its emphasis on mindful movement, controlled breathing (Pranayama), and meditation, has shown promise in rising insulin sensitivity. The combination of both yogic exercise and dietary intervention have significantly reduce symptom and improving quality of life. Yogic exercise and dietary intervention give a complementary approaches to conventional management of diabetes, improved blood sugar control, reducing deceases and improved quality of life.

METHODOLOGY

The study uses a systematic review approach to develop the body of knowledge regarding on yogic exercise and dietary intervention on symptomatic diabetes patients. The literature for this review was sourced from primary databases: Pub Med, Semantic Scholar, ERIC, etc. A structured approach was used to identify, evaluate, and analyze relevant articles to ensure the comprehensiveness and reliability of the findings.

ANALYSIS OF REVIEW OF LITERATURE

Singh, S., et al (2004) this study was done in twenty-four diabetes cases provides metabolic, and clinical evidence for an improvement in control level of sugar and autonomic functions. Baseline fasting blood glucose, postprandial blood glucose, glycosylated Hb and autonomic function studies were monitored. The patients were trained in yoga asanas and practised, under supervision for 30–40 min/day for 40 days. These postures included 13 popular asanas, practiced in a particular order. The parameters were repeated after 40 days of yoga asanas regimen. There was significant reduction in fasting blood glucose level from baseline 190.08 ± 18.54 mg/dl to the value of 141.5 ± 16.3 mg/dl after yoga regimen. There were significant ($P < 0.001$) reduction in postprandial blood glucose level, which reduced from 276.54 ± 20.62 in mg/dl to 201.75 ± 21.24 in mg/dl, and glycosylated hemoglobin decreased from $9.03 \pm 0.29\%$ to $7.83 \pm 0.53\%$ after yoga regimen. Pulse rate, systolic and diastolic blood pressure were significantly reduced (from 86.45 ± 2.0 to 77.65 ± 2.5 pulse/min, from 142.0 ± 3.9 to 126.0 ± 3.2 mm of Hg and from 86.7 ± 2.5 mm of Hg to 75.5 ± 2.1 mm of Hg after yoga regimen respectively). QTc decreased from (0.42 ± 0.0) to (0.40 ± 0.00). According to these studies, yoga poses and pranayama can help

diabetics stabilize their autonomic function and improve their blood sugar control. Kumari, P., & K, R.C. (2025) this study is to know the effect of Surya-namaskar and little millet diet on management of symptomatic diabetes patients. In this study randomized control study at SSH Hospital, BHU, Varanasi. The study is divided into three groups of participants with type 2 diabetes: Group (A) Surya-namaskar alone, Group (B) Surya-namaskar with little millet as a diet and (C) control group which is no intervention is provided. In this study, the composition used of Surya-namaskar and little Millet diet has been recovered highly significant in lowering symptoms of increased hunger, weight loss, fatigue, healing, frequent urination, thirst. The researcher conducted four weeks of training sessions in this study. After a month, group A and B have been found to have a lowering of fasting sugar levels significantly. It is concluded that the Surya Namaskar and little millet diet are interventions and significant roles in managing diabetes patients. In order to know the studies want to be conducted in larger, Multi-center and also increase the intervention period to validate results accurately. Malhotra, V., et al. (2005) Twenty diabetes patients in the age range from 30-60 years. All the subjects were selected from G.T.B Hospital. All the patients were given 40 days of yoga asanas under the supervision of a yoga expert with a specific 13 yoga asanas. Before conducting the training, all the patients were measured for serum insulin, plasma fasting, postprandial blood sugar level, anthropometric parameters and also after yoga asanas. In this study, the results show that the significantly reduced the fasting sugar level from basal 208.3 +/- 20.0 to 171.7 +/- 19.5 mg/dl and one hour postprandial sugar levels reduced from 295.3 +/- 22.0 to 269.7 +/- 19.9 mg/dl. Also a significant reduction in waist-hip ratio and the insulin level were also changed. The researcher suggested that the effect of yoga on reduced blood sugar level is the best plan to intervene from diabetes. Pandey, A., et al. (2011). Diabetes is a chronic disorder in the endocrine system. This fearful case is found all over the world and now is the most serious disease which is affecting human health. There are many medicines, drugs to control diabetes but for now there is no reported recovery yet. So treatment with drugs is not satisfactory to control diabetes. Many researchers have investigated different types of medicinal plants to help in the diabetes cure. In this study, apart from chemical drugs, using other therapies like dietary intervention, hydrotherapy, acupuncture and yoga therapies are the perfect therapies to control blood sugar level and diabetes. Malhotra, V., et al. (2002) Regular practice of yoga asanas help humans to keep their bodies fit and protect from many diseases. In this study, 24 diabetes patients aged from 30 to 60 years, supply metabolic and clinical proof to enhance the sugar control and pulmonary functions. This range of ages subjects were type II diabetics on counteracting the buildup of excess sugar in the blood and dietary regimen. Before giving training, the baseline fasting and postprandial blood sugar levels were monitored with pulmonary function studies. Under the supervision of an expert, the training given to the patients by 30-40 minutes of yoga asanas for 40 days consist of 13 different types of postures. After the training session, all the related parameters were repeated. In this study, the results show that there was a significant decrease in fasting sugar level (basal 190.08 +/- 90.8 in mg/dl to 141.5 +/- 79.8 in mg/dl), postprandial also decrease (basal 190.08 +/- 90.8 in mg/dl to 141.5 +/- 79.8 in mg/dl), and glycosylated Hb also increase (9.03 +/- 1.4% to 7.83 +/- 2.6%). So the results suggest that regular practice of yoga asanas and pranayama control sugar level and pulmonary function of diabetes patients. Kim S. D. (2014) the study was conducted on nursing students to know the effect of yogic exercise on life stress and sugar level. In this study, twenty-seven undergraduates were selected randomly from nursing students. All the subjects were divided into two groups, one is exercise group and another one is control group with 12 exercise and 15 control group. The expert gave 12 weeks

of yogic intervention for 60 minute once a week. In these study combined with physical exercise(suryanamaskar), relaxation and meditation(shavasana yoga nidra). For life stress scale was used to measured life stress and digital glucometer was used to measured postprandial blood sugar level. In these study the exercise group was significantly reduced the both life stress and postprandial blood sugar level compared with control group. So , the study shows that yogic practice would decrease postprandial sugar level and life stress. Astbury N. M. (2024) Diabetes is one of the most risk health condition in worldwide, affected millions of people in the world. It treatment Is very difficult to manage and preventing. Many dietary and medical practitioner are trying to treat and manage diabetes. According to overview of the review many dietary strategies evidence that have increasing long term sugar control or diabetes remission and useful to reduce postprandial sugar level. Many people who are facing with diabetes can achieve remission. From the evidence of the epidemiological studies that people who manage or follow the dietary is lower risk to from diabetes,and also low animal base food or animal derived food was benefit to control sugar level and cardiovascular disease. Not only provide all the food and nutrient prescriptions but also provide proper time to take or do not take the food. So in these study suggested that evidence for approaches dietary benefits of control sugar level. Lastly proper dietary strategies is useful to prevent postprandial sugar level and others disease. Chudyk, A.M., & Petrella, R.J. (2011) Physical activity is most essential for diabetes management and prevention for all the disease. According to review literature from 1970 to 2009, the effect of resistance training and aerobic exercise on cardiovascular risk, sugar control,blood pressure, dyslipidemia and body composition in diabetes patients. From all the review article, 645 were retrieved ,most the literature were aerobic exercise alone, and some are reported combined exercise training.Aerobic exercise and combined resistance training were found significantly improved the level of blood sugar control -0.6 and -0.67, systolic blood pressure-6.08 and -3.59 mm-Hg, triglycerides -0.3mmol/L, and also waist circumference was significantly improved -3.1 cm, with the help of combined training of aerobic and resistance training. But resistance training alone on cardiovascular risk marker in diabetes remains unchanged. Paul, M.K., & Kumar, R.(2017) Yogic exercise and breathing exercise directly effects in all the organs system of the whole body. In these study examining the behavioral how intensity and prevent from diabetes. To improved the diabetes by doing yogic exercise regularly is the best way to control sugar level. In these study there were 22 male and 8 female diabetes patients and the intervention training program was for 3 months. The participants were practice for one hour yoga with dietary program mainly in vegetarian food. Before conducting the training collected pre test for fasting blood sugar level and postprandial blood sugar level of the patients. After completed the training session post test also done. There was 1 % level of significant difference in these study. No significant difference between gender and age span of the patients. The dose of the medication remained same as given by expert. In the result diabetes is progressive disorder continuously. But by doing regular yogic exercise , eating healthier food, loosing weight improved to control sugar level. The unwanted medication is burden to patients and patients also aware that diabetes is progressively disorder nowadays. By doing right therapy is essential to prevent or control the diseases. A regular physical activities,physical endurance and yoga can improved all round development of the body. Sharma, N., & Ram, S. (2021)Yoga is a way of life that changes the human health includes mental health,diet and other technique such as Yoga asana, Pranayama and meditation to find the greatest consciousness. Yogic exercise are very necessary to control diabetes and disease. In these study all the research paper

were collected from the difference authentic research journal and Ayurveda classical texts. Yogic exercise help to keep pancreas actively, blood, oxygen and rejuvenate the beta cells in diabetes patients to reducing sugar level. So yogasana ,pranayama, meditation are take important role to prevent and manage the diabetes and cardiovascular. Senthilnathan, J., & Maniazhagu, D.D. (2016) The aim of these study to know the effect of combined training of aerobic and yogic exercise on diabetes. For study 40 diabetes and the age range from 35 to 45 were taken from Salem town, Tamil Nadu. The selected subjects were divided into four group. Group -1 (aerobic exercise), Group-2 (yogic exercise), Group-3 (combined training of training aerobic exercise and yoga practice), Group -4 (control group). in these research aerobic exercise, yogic practice, combined training and blood glucose was used as dependent variables. Pre test and post test were done before and after of the training session. ANCOVA was used for four group and Scheffe's post hoc test was used for pair wise comparisons between group. These study result shows that the combine training of aerobic exercise , yogic practice intervention have a significant improved the level of blood glucose. Lodha, D., et al (2024) The 12-week yoga therapy combined with dietary intervention, has been shown significant result in maintain blood sugars, hemoglobin A1C levels, and decrease BMI with weight reduction. Thakur, G.,et al .(2011) In diabetes Vakrasana and Mundkasana of yoga help to improved the sugar level of the diabetes patients. In these study claim that naturopathy with yoga exercise improved to focus on mental abilities. Naturopathy and yoga practice with diet help to control human organ system, lifestyle, and risk reduction in diabetes patients. Nowadays naturopathy and yogic practice was more conventional for diabetes patients. Raveendran, A.V. et al (2018) Yoga is ancient and originated from India. Yoga means balancing and harmony, mind, emotion of body. Yoga exercise help to improved various lifestyle diseases including diabetes and others Psycho-neuron-endocrine case. Regular yoga practice help to maintain the blood glucose level and reduces other risk people. In this study explain that the role of yoga exercise improved the management of diabetes. Mondal, S.,et al (2014) the study is examine 12 weeks of yogic practice to intervene on elder women diabetes patients. The subjects of these study was from two old age home and the age range of 50 to 70 with diabetes. They were divided into two group, one is control group and another is experimental group. In experimental group and expert given for 12 weeks of yoga session. In these study all the necessary test were examine before and after of the yogic session both group (total cholesterol, triglycerides and density lipoprotein(low,very low high). Results shows that in these study significantly improved in the experimental group.according to result,yoga is a perfect way to control and maintain the whole body including diabetes and other disease without non-drug, non-invasive and cost-effective way to enhance quality of life.

DISCUSSION

The review of existing studies on yogic exercise and dietary intervention on symptomatic diabetes patients shows that the significant the impact of modification of lifestyle, control sugar and overall well being. Many studies shows that yoga practice(postures,breathing technique and meditation) help to reduced the blood sugar level, improved lipid profile and improved stress management. The yoga exercise is particularly beneficial for diabetes management.

Dietary intervention, focus on a low glycemic index(GI),diet plan from dietitian and mindful eating have also found to regularize the sugar levels. A combination of balance diet and regular yoga practice has shown the decrease of HbA1c levels and preventing diabetes related complications.

A regular practice of yoga and dietary intervention is more effective than either intervention alone. Many studies suggest that patient focusing on both practice have better sugar control, cardiovascular health, improved quality of life. But the design of the study, participant, demographic and intervention duration is need to establishing standardized protocols for better results. Future research should focus on large scale,long term randomized controlled trials to establish the standardized protocols for integrating these intervention into conventional diabetes management plans. The further research is necessary to make standardized intervention plan and evaluate their long term efficacy

CONCLUSION

The study of these review findings suggest that the combination of yogic exercise and dietary modification have effective complementary approach in managing symptomatic diabetes and not only in diabetes but also improved the sugar control, enhance the mental health, reduce stress, quality of life and lower risk of diabetes related complications. Healthcare practitioners should consider these combination of yogic practice and dietary modification. With increasing the global prevalence of diabetes. Holistic lifestyle modification such as yogic practice and dietary changes is sustainable strategy for improving patient outcomes.

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