IAMJ

INTERNATIONAL
AYURVEDIC
MEDICAL JOURNAL

Review Article | ISSN: 2320-5091 | Impact Factor: 6.719

A CONCEPTUAL STUDY OF ROLE OF YOGASANA & EXERCISE IN TYPE 2 DIABETES MELLITUS

Shravani R. Babar[1], Ramchandra P. Babar[2]

[1]Assistant Professor, Department of Swasthavritta, Sumatibhai Shah Ayurved Mahavidyalaya, Malwadi, Hadapsar, Pune 28, Maharashtra, India
[2]Associate Professor, Department of Kaumarbritya, Sumatibhai Shah Ayurved Mahavidyalaya, Malwadi, Hadapsar, Pune 28, Maharashtra, India

Corresponding Author: ramchandrababar@gmail.com

https://doi.org/10.46607/iamj2710032022

(Published Online: March 2022)

Article Received: 24/02//2022 - **Peer Reviewed:** 07/03/2022 - **Accepted for Publication:** 08/03/2022

ABSTRACT

The prevalence of DM worldwide, particularly Type 2 DM, is raising due to multiple common causes, such as obesity, unhealthy lifestyle habits (sedentarism and inadequate diet), stress, and ageing, which interact with genetic background susceptibility. Stress may precipitate the onset of the disease and negatively affect glycaemic control in people with overt DM. Glucose toxicity consequent to permanent hyperglycaemia may further impair insulin secretion, favouring the progression of the disease and the development of DM chronic complications. Since stress has a stimulatory effect upon the release of counter-regulatory hyperglycaemic hormones, it also alters glucose homeostasis. In this regard, several studies have reported the beneficial effects of relaxation techniques, yogasana, exercise upon glucose metabolism. Yoga has been suggested as a complementary and alternative treatment for type 2 diabetes mellitus. The purpose of this study was to review studies using yoga in preventing or controlling diabetes.

Keywords: Diabetes mellitus, Yogasana, Exercise, hyperglycaemia

INTRODUCTION

Type 2 diabetes mellitus is a metabolic disorder characterized by insulin resistance and impaired insulin secretion.[1] Several behavioural interventions have been suggested for preventing and controlling type 2 diabetes mellitus, including increased physical activity, diet modification, and cessation of smoking.[2] In addition, there is growing evidence that psychological stress and negative mood states are bi-directionally associated with insulin resistance, glucose intolerance, central obesity, hypertension, and dyslipidemia.[3] Subsequently, mind-body interventions have been suggested to aid in regulating stress psychophysiology. The main causes of our loss of workout and wrong meals conduct include excessive consumption of meals having residences like *Ushna, Snigdha*, and *Guru* (curd, fish) which increases *Kapha, Meda,* and *Mutra. Tridosha* is concerned in *Prameha* and *Diwashayan* (day sleep) is told to be one in every of motive for its vitiation[4] The *Kapha* selling substances, laziness, intake of meals that are cold, unctuous, sweet, fatty and liquid is a causative factor for *Prameha* as consistent with *Charaka* and *Sushruta*.[5] the general features of all types of *Prameha* include *Prabhuta* and *Aavila Mutrata, Medodusti* signs like excessive urination and turbidity. The *Ojas* in a wholesome person determines the physical, psychic, sensory and motor features of the frame. *Dhatukshaya* in *Prameha* ends in an imbalance of *Oja* which may also lead to cardiac and anxiety issues.[6] In this light, yoga has been suggested as a complementary and alternative medicine for the treatment of type 2 diabetes mellitus. Yoga is an ancient practice that originated in India more than 4000 years ago.[7] Rooted in the religion of Hinduism, yoga has been modified significantly from its original context to accommodate Western lifestyles.[8] Yoga has been demonstrated to reduce stress and induce relaxation, which could aid in controlling symptoms of type 2 diabetes mellitus.[9] It is non-invasive, free of deleterious side effects, and can be practised by individuals with severe physical limitations. Given the high cost of treating type 2 diabetes mellitus, the negative side effects of traditional type 2 diabetes mellitus prescription medications, and the physical limitations of many types 2 diabetes mellitus patients, yoga offer an appealing alternative to traditional treatment. Therefore, the purpose of this study was to systematically analyse and synthesize yogasana and Exercise interventions to prevent and control type 2 diabetes mellitus.

Role of *Yogasana* & Exercise in Diabetes Mellitus:

1. Our ancient scholars focused not only on the physical but also on the mental status of body and mind, which is responsible for the progression of any disease including Diabetes Mellitus. As per our Yogic Acharya people follow yogasana more easily than exercise.
2. During physical exercise, whole-body oxygen consumption may increase, even greater increases may occur in the working muscle, to meet its energy needs under these circumstances skeletal muscle is used at a greatly increased rate its stores of glycogen and triglycerides as well a free fatty acid.[10]
3. Excess Exercise increase stress level, and yogasana help to reduce the stress level, it helps to increase stability.[7]
4. Exercise is an important factor in diabetes control. To improve muscle tone and to keep the heart, blood vessels and lungs healthy exercising at sufficient intensity and duration levels blood cholesterol and triglyceride levels and burns calories. [11]
5. The aim of Yogasana is not only to develop the muscles and the body but also to regulate the proper activities of all the internal organs and glands that affect the nervous system and that which control our wellbeing to a much greater degree than we suppose.[12]
6. **Effect/Mechanism of *Aasana* on frame Fitness of the frightened device**:

Many *Aasanas* (postures) in Yoga, specifically again bending assist to remove blockages from the vital apprehensive system, this may improve the functioning of the autonomic apprehensive device and nerve conduction.

Massaging the internal organs: Postures (mainly the twisting postures) compresses the stomach towards the thigh and induces stomach respiration, as a result, the

internal organs (kidneys, liver, pancreas and many others.) are massaged, speeding up the bloodstream and cleaning impact (elimination of pollution, blood is the carrier of the toxins as well as the vitamins). Similarly massaging of the pancreas will take place for you to rejuvenate it and grow the production of the pancreatic cells and the insulin.

Strain reduction: Strain is a main contributing thing to diabetes. Stress will increase the secretion of glucagon that's liable for growing blood glucose tiers. Strain additionally releases cortisol, adrenaline which can cause meals cravings. If a couple of minutes an afternoon practice with a mixture of the *Yoga Asanas, Pranayama* and meditation enable to lessen strain within the thoughts and body.

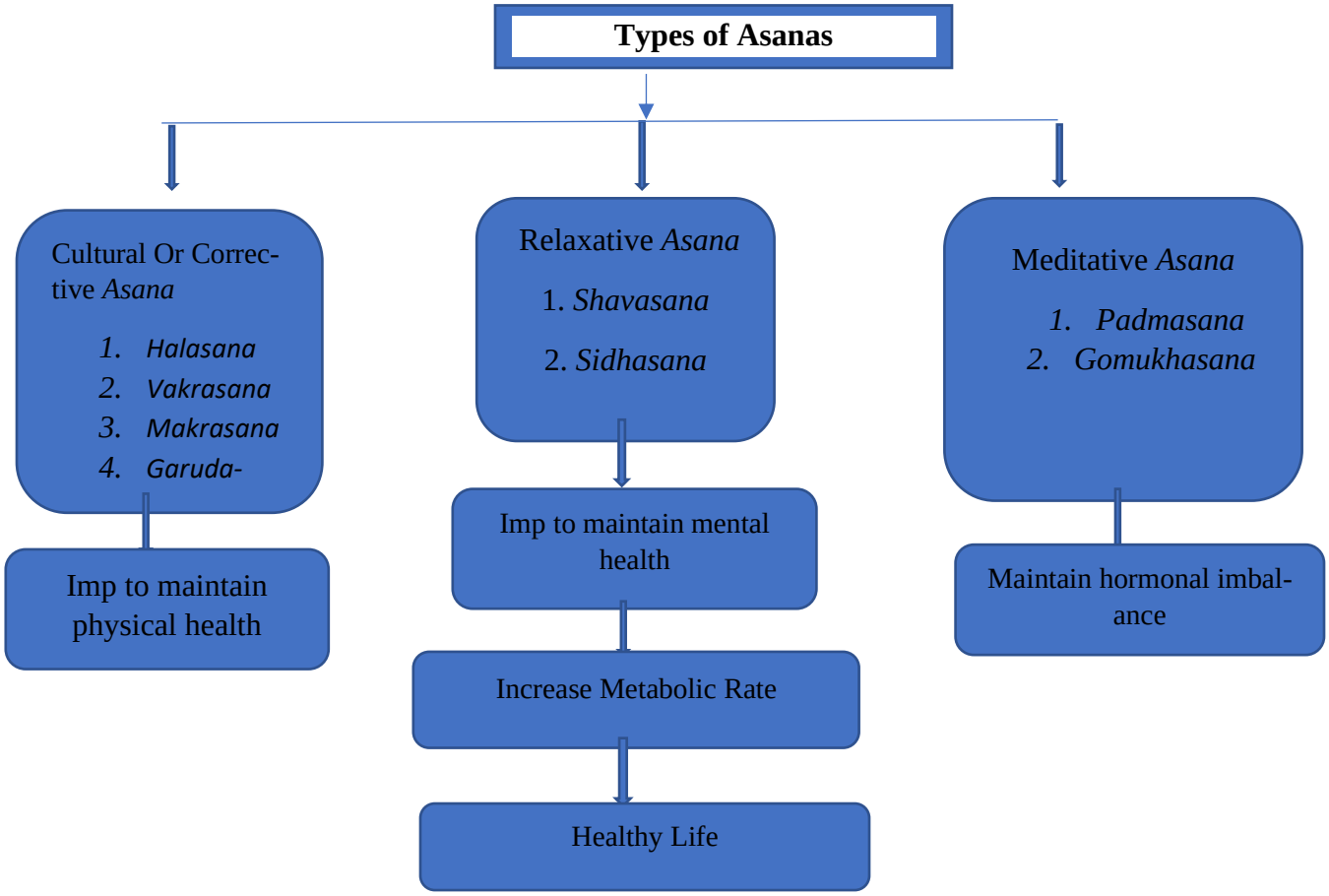
Weight loss & lower blood strain: excessive depth sequences just like the *Surya Namaskar* can help to lessen weight and additional fat which in turn will maintain the blood pressure is taking a look at.

Lowers the blood sugar stage: The diverse Yoga postures massage the inner viscera and growth the insulin sensitivity, supporting a discount in blood sugar degree. Additionally, sequences like Surya Namaskar will burn the glucose and the fat reducing the sugar level in the frame.

The series of *Aasana* like *Utthita Parsvakonasana*, *Parivrtta Parsvakonasana*, *Paschimottanasana*, *Janu sirshasana*, *Makarasana*, *Dhanurasana*, *Halasana*, *Ardhamatsyendrasana* and *Shashankasana* are useful in diabetic cases. [13]

7. The yogasana which are helpful in Diabetes mellitus are following:
    1. *Siddhasana, Sirsasana*
    2. *Sarvagasana*
    3. *Mayurasana*
    4. *Ardha Matsyendrasana*
    5. *Halasana*
    6. *Makarasana*
    7. *Chakrasana*
    8. *Dhanurasana*

    All the above *Yogasana* are important to maintaining the physical, mental and endocrine system, maintaining hormonal imbalance, will increasing the metabolic rate to maintain the health in Diabetes mellitus.



DISCUSSION

Yogic *asana* is a physical exercise with a low physical impact that involve various body postures. These postures are ideally used for meditative practices. Yogic *asanas* relieve bodily strain and relax the mind. Some examples of *asanas* helpful in diabetes are *padma asana* (lotus pose), *dhanura asana* (bow pose), *Paschim tana asana* (forward-seated bend pose), *Mayur asana* (peacock pose), and *shalabh asana* (locust pose). *Pranayama* is focused on controlling and inducing rhythmic breathing patterns to improve oxidative power and blood flow. *Pranayama* consists of 3 stages: *puraka* (inhalation), *kumbhaka* (pausing or holding the breath), and *rechaka* (exhalation). The purpose of *pranayama* is to develop this type of rhythmic breathing. The ratio of these 3 stages is 1:4:2. Adhering to this formula, an individual would inhale air for 4 seconds, hold the air for 16 seconds, and then exhale the air over 8 seconds. *Shatkriyas* are cleansing exercises aimed at improving internal hygiene. There are 6 *shatkriyas*: (1) *Dhauti* (cleansing of mouth, throat, and stomach), (2) *Basti* (cleansing of the lower part of the colon), (3) *Neti* (cleansing of the respiratory tract), (4) *Tratak* (cleansing and strengthening of eyes), (5) *Nauli* (abdominal cleaning), and (6) *Kapalbhati* (cleansing of lungs). Because these are difficult techniques, they are seldom used in yoga interventions. Yoga *Nidra* is deep relaxation designed to reduce tension and anxiety**.** Diabetes is mainly related to the malfunction of the endocrine part of the pancreas. So, the *Aasanas* like *Halasana, Sarvangasana, Matsyasana, Ardhamatsyendrasana, Shirshasana, Vajrasana, Dhanurasna, Chakrasana,* and *Ushtrasana* are very effective for stimulating the functions of the pancreas. In addition, *Pranayama* like Birdstrike, *Bhramari, Kapalbhati,* and *Nadishodhan* are effective in instances of diabetes mellitus. The *Asanas* and *Pranayama* efficiently relieve physical and intellectual frame pressure. *Bhrasrika* is revitalizing *Pranayama* which

increases oxygen stages and reduces carbon dioxide ranges within the blood. The *Aasana* which create a few pressures over the pancreas and belly viscera via the anatomical view is extra helpful in controlling blood sugar. Physical and mental pressure is relieved by using Pranayama facilitates to correct the pathology of diabetes.[11] The importance of finding other avenues of treatment for ensuring a permanent cure of diabetes cannot be over-emphasized. Yoga has aroused hope for a diabetic patient to remain free from disease and drugs. Yoga is a science of self-realization, significant physical, physiological, psychological and endocrinal changes have been reported following various yogic regimens over some time.[14,15]

CONCLUSION

In conclusion, the prevalence of type 2 diabetes mellitus is expected to steadily increase over the next several decades in tandem with the obesity epidemic. Yoga-based interventions for the prevention and treatment of type 2 diabetes mellitus hold much promise. Yoga is a cost-effective treatment that is free of negative side effects. Yoga as a potential treatment modality can be advanced by expanding research. By applying more rigorous research designs, increasing dosage and long-term evaluation, using theory-based frameworks and including intervention, the implementation process of evaluation. It is concluded that the diabetes patient can reduce random blood sugar levels by doing yogic practices.

REFERENCES

1. Hu, FB. Globalization of diabetes. Diabetes Care. 2011; 34:1249–1257.
2. Crandall, JP, Knowler, WC, Kahn, SE. The prevention of type 2 diabetes. National Clinical Practical Endocrinol Metabolism. 2008; 4:382–393.
3. Innes, KE, Vincent, HK. The influence of yoga-based programs on risk profiles in adults with type 2 diabetes mellitus: a systematic review. Evid Based Complement Alternat Med. 2007; 4:469–486.
4. Shastri A, Abhinava Swasthavrutta, Reprinted. Varanasi: Chaukhambha Prakashan; 2007; p. 183.
5. Byadgi PS & Pandey AK, Prameha Chikitsa, A textbook of Kayachikitsa 1 st ed. New Delhi: Chaukhambha Publications; 2014; p. 684.
6. Suresh Babu, The principles & practice of Kayachikitsa, Vol-2, Chapter-51, Reprinted. Varanasi: Chaukhambha orientalia; 2009, p. 397.
7. Dr M Augustine Gnanaraj, Effect of selected yogic practices on diabetic patients, International Journal of Physiology, Nutrition and Physical Education 2018; 3(2): 653-654.
8. Romas, JA, Sharma, M. Practical Stress Management: A Comprehensive Workbook for Promoting Health and Managing Change Through Stress Reduction. 5th ed. San Francisco, CA: Benjamin Cummings; 2010.
9. Aljasir, B. Yoga practice for the management of type II diabetes mellitus in adults: a systematic review. Evid Based Complement Alternat Med. 2008; 7:399.
10. (American Diabetic Association, Physical activity/ Exercise and Diabetes Mellitus, Diabetes care, vol 26, supplement 1, January 2003 573-577).
11. Jean, Marie Ekoe. Overview of Diabetes Mellitus and Exercise, Medicine and Science in Sports and Exercise, (Published by Williams & Wilkins. 1989; 21(4):353.
12. Rugmini PS, Sinha RN, the effect of yoga therapy in diabetes mellitus, seminar on yoga, man and science, yoga research hospital, Vishwayatana yogashram, CCRIMH, New Delhi, India, 1976: 175-89.
13. Malhotra V, Singh S, Tandon OP, Madhu SV, Prasad A, Sharma SB. Effect of Yoga asanas on nerve conduction in type 2 diabetes. Indian J Physiol Pharmacol. 2002 Jul;46(3):298-306.
14. Udupa KN, Singh RN, the scientific basis of yoga *J Amer Med Assoc*1972, 220:1365.
15. Kumail Sindhe, Mukesh Paresh, The executives of Diabetes mellitus through aasana and pranayama, IMJ, ISSN: 13412051, Vol 24, Issue 01, April 2019, 1-9.

Source of Support: Nil
Conflict of Interest: None Declared

How to cite this URL: Shravani R. Babar & Ramchandra P. Babar: A Conceptual Study Of Role Of Yogasana & Exercise In Type 2 Diabetes Mellitus. International Ayurvedic Medical Journal {online} 2022 {cited March 2022} Available from: http://www.iamj.in/posts/images/upload/735_739.pdf