

Effects of Yoga Practice on High Blood Pressure

Rekha Rani*

Research Scholar

Abstract – *Yogic exercises showed a positive and significant impact on diabetic adults. In the case of systolic blood pressure, diastolic blood pressure it was found that the reduction level was significant in post-test condition. Similar study is necessary to observe the efficacy Asanas and Pranayama on different age level and gender. Another suggestion may also be that these variables should be included with other variables and different time intervals with an organized manner. The observations suggest that the performance of Asanas led to increased sensitivity of the B cells of pancreas to the glucose signal. The increased sensitivity seems to be sustained for long time resulting in a progressive long term effect of Asanas. The study is significant because, it has for the first time attempted to probe the mechanism by which yoga- Asanas reduce blood sugar. In the present study there was a significant fall in the fasting blood glucose levels in the yoga group. All the participants in the yoga group develop a sense of wellbeing without any side effect. So they are self-motivated to continue the yoga practice as a daily routine in their life.*

Keywords: *Yoga Practice, High Blood Pressure, Exercises, Adults, Asanas, Pranayama, Performance, Life, etc.*

INTRODUCTION

Yoga is a systematic practice for the realization of higher perceptions. It is the science of life and an ideal way of living, providing rhythm to the body, melody to the mind, harmony to the soul and thereby symphony to life. In short, Yoga is a way to achieve total health, peace, bliss and wisdom. Physical, mental and spiritual aspects of yoga help to make one's life purposeful, useful and noble. Thus Yoga is an art, science and philosophy, which influence the life of man at each level. Therefore, the effect of yoga must be felt in every movement of our day- to- day lives.

India has more diabetics than any other country in the world, according to the International Diabetes Foundation (2010), although more recent data suggest that China has even more. The disease affects more than 50 million Indians - 7.1% of the nation's adults - and kills about 1 million Indians a year. The average age at the onset is 42.5 years. The high incidence is attributed to a combination of genetic susceptibility plus adoption of a high-calorie, low-activity lifestyle by India's growing middle class. The word yoga means 'union': union of mind, body and spirit - the union between us and the intelligent cosmic spirit of creation-'the oneness of all things'. Recent scientific studies have shown the beneficial role of yogic exercises in management of asthma. Role of yogic exercises in management of cardiac diseases, diabetes, chronic

pancreatitis, depressive disorders, epilepsy, osteoarthritis, multiple sclerosis, even for tuberculosis and pleural effusion have been reported. The five principles of yoga are relaxation, exercise (Asanas), pranayama (breathing control), nourishing diet, and positive thinking and meditation, Pranayama are yogic breathing techniques that increase the capacity of lungs. The internal organs improve mental control and deepen your ability to relax. The ancient Indian science yoga is a way of life which includes changes in mental attitude, diet, and the practice of specific techniques such as yoga postures (Asanas), breathing practices (pranayama), and meditation. (Taimini,) Among different yoga techniques, breathing practices (pranayama) can be performed while seated, and are less challenging for people who are physically inactive. Yoga has proven its efficacy in the improvement of oxidative stress as well as in improving the glycemic status of diabetics through neuroendocrine mechanisms.

REVIEW OF LITERATURE:

Padmanathan, (2011), conducted a study on the effect of low impact aerobic exercises on selected health related physical fitness variables such as muscular endurance, cardio respiratory endurance, and flexibility and Body mass index of male adolescents. Their age ranged from 12 to 15 years. They were divided in to two groups and designed as

Experimental group 'A' and Control group 'B' The Experimental group-A was given aerobic and calisthenics exercises for a period of twelve weeks, both morning and evening for five days in a week, whereas control group-B is not involved any specific exercise programme other than their regular physical activities programme as per their school curriculum. The result of this study indicated that muscular endurance and cardio respiratory endurance were significantly improved and also it was observed that Body mass Index significantly reduced.

Ramesh and Subramaniam (2010) suggested that effect of physical activity and aerobic fitness on health related physical fitness variables of overweight and obese adolescents. The selected variable includes muscular endurance flexibility, cardio-respiratory endurance, and body composition (body mass index). For the purpose of the study thirty obese boys in the age groups of 12 to 15 years and they were selected at random from Tirunelveli district higher secondary schools They were divided into two equal groups and assigned as experimental group and control group. The experimental groups were given physical activity and aerobic exercise for a period of twelve weeks, both morning and evening on five days a week. Control group did not participate in physical activity and aerobic exercise training programme.

Rajkumari et al. (2010) studied a cross-sectional study among 3356 school children of classes VIII to XII in Imphal West district, Manipur between September 2005 and August 2006. The characteristics of the respondents and related variables such as parental build, watching television, eating habits, playing of video/computer games and outdoor games, dietary pattern and knowledge of obesity were assessed using a questionnaire. Height, weight, waist circumference, hip circumference, fat percentage, fat mass and fat-free mass were measured. Body mass index (BMI) and waist-hip ratio for each student were calculated. The BMI of the sampled students was lower than the corresponding WHO and International Obesity Task Force standards.

Ramesh and Subramaniam (2011) conducted a study on the effect of aerobic and calisthenics exercise on health related physical fitness variables such as muscular strength, muscular endurance, flexibility, cardio respiratory endurance and body mass index (BMI) of obese adolescents. Their age ranged from 12 to 18 years. They were divided into two groups and designed as the experimental group and control group. The Experimental group was given aerobic and calisthenics exercise for a period of three months, both morning and evening for five days in a week. However, the control group was not allowed to participate in aerobic and calisthenics exercise training programme. The result of this study indicated that muscular strength, muscular endurance, cardio respiratory

endurance was significantly improved, and also it was observed that Body mass Index significantly reduced.

Saremil et al. (2010) examined the effects of 12 weeks of aerobic training on serum chemerin levels in association with cardiovascular risk factors in overweight and obese males. Twenty-one overweight and obese subjects [44.3 (\pm 4.1 yrs, body mass index (BMI) 25 kg/m²) were assigned to exercise training (obese EX, n= 11) and control (obese CON, n= 10) groups. The obese EX group participated in 12 weeks of progressive aerobic training 5 days a week. Serum chemerin, insulin resistance, lipid profiles, blood pressure, and body composition were all measured before and after the training. After the aerobic training, waist circumference (P=0.009), fat percent (P=0.03), visceral fat (P=0.03), subcutaneous fat (P=0.01), fasting glucose (P=0.01), insulin resistance (P=0.03), triglyceride (P=0.05), total cholesterol (P=0.04), low-density lipoprotein cholesterol (P=0.05) and systolic blood pressure (P=0.04) of participates were significantly decreased. Concurrently, serum chemerin concentrations were significantly decreased after aerobic program (P=0.02). Aerobic training caused an improvement in cardio metabolic risk factors in obese subjects, and this improvement was accompanied by decreased chemerin levels.

Chaudhary et al. (2010) evaluated the effects of aerobic and strength training on cardiac variables such as blood pressure, heart rate (HR), and metabolic parameters like cholesterol, high density lipoprotein (HDL), triglycerides and anthropometric parameters of obese women of Punjab. This study was performed as an experimental study, in which subjects were randomly selected. There were thirty obese women, aged between 35-45yrs with body mass index (BMI) of above 30. Subjects were grouped into control (n=10), aerobic training (n=10) and resistance training (n=10). Aerobic training was given for three days a week at 60-70% of maximum HR for 6 weeks. Resistance training (Delorme and Watkins Technique) was given for alternate days for 6 weeks. HR and blood pressure were measured before and after the exercise. Recovery HR was also measured.

Habibzadeh et al. (2010) examined the obesity has been identified as a risk factor for the development of bulimia nervosa (BN) in those who try to lose weight. The purpose of the present study was to examine the effect of walking exercise in order to provide a method for overcoming bulimia nervosa in obese young women suffering from bulimia nervosa. Twenty obese women with bulimia nervosa (body mass index [BMI]>30) and a mean age of 22.00 \pm 1.50 years volunteered to participate in this study. They were randomly assigned to exercise (n=10) and control (n=10) groups. Both groups underwent

anthropometric measurements and blood analysis before and after the training program.

1- The Aim of Yoga: The aim of yoga is to attain perfection of the intellect, both of the head and the heart, so that, the artist becomes devoted, true and pure. This demands an almost total relinquishment of interest in other activities of life except the chosen path. The mind is fluid and runs after sensual pleasures. Art demands total undivided focal attention. Hence Patanjali explains that the mind must be controlled and then submitted to serve the artistic nature of yoga to its highest potency. Yoga or any art requires acute sharpness of intellect and alert organs of perception. In yoga there is no competition but it requires freedom to think and reconstruct with a desire to perform better. Then it brings to the yogi the most exalted enlightenment. From now on, wherever the yogi is and whatever he does, his thoughts are rooted in spiritual communion, which takes him to the Zenith of spiritual life. The Indian classical thought holds salvation as the ultimate objective of human endeavor. This ideal of achieving salvation (moksha) can be attained by the four different ways viz. Karma yoga, Bhakti yoga, Raja yoga and Gyana yoga etc. We shall in the time allotted briefly consider 'Raja yoga' or 'Astanga yoga' as propounded by Maharishi Patanjali and Swami Vivekananda.

2- Meaning and Concept of Yoga: The word "Yoga" is derived from the Sanskrit root "Yuj" which means union, joining, harnessing, contact, or connection it is union between the individual self and the universal self. It is the fusion of a healthy body with a disciplined mind for the purpose of spiritual development. Yoga is also blissful contact with the supreme element, higher than the highest of the known elements. It is the harnessing of one's inherent inner power, as well as the wider natural forces from which one has emerged. Yoga is an inseparable part of the Indian life and culture. It has come down to us from antiquity with an unbroken tradition. Integration encompasses putting together and controlling the same judiciously. This is consistent with the definition of Yoga in "Bhagavad Gita" which says, "Smatvameva Yoga Uchyate" that is equanimity is called Yoga. It means that yoga remains equipoised in success and failure, gain and loss, victory and defect etc. The term 'Samatva' may also be translated as equilibrium, which leads to harmonious development of the physical, mental and spiritual aspects of human personality. Equanimity and equilibrium are thus the essential traits of Yoga. They help in the skillful performance of an action.

3- Yoga as an Art: Yoga is an art in all its aspects, from the most practical to the highest. It is a spiritual art, in the sense that it transforms the seer and brings him into contact with his inner soul. It is a fine art, since it is aesthetic, expressive, visual art, since the body is made to form geometrical designs, lines

architectural shapes and the like which are beautiful to behold. It is essentially a useful art for the doer and is presented as a performing art for viewer. The art of yoga is creative, rhythmic in practice and individualistic in nature. It is ennobling. It is the purest of knowledge where wisdom begins and investigates into the nature as being as love is experienced by the lover and the beloved. As living is an art, yogic enhances the quality of one's life. Hence it is an art. It improves one's thought process and enables one to face life's difficult situations happily and with equanimity. It teaches one to strive to achieve a goal in life, to cultivate friendliness, concentration, piety, contentment, joy and more essentially to discard what is not essential to life and to cultivate good habits to lead a righteous life. Yoga is disciplined action to achieve and attain final emancipation.

4- Yoga as a Science: Yoga is considered as a full-fledged science. The science of yoga consists of acquiring knowledge through observation and experiment. It is a science, which deals with the body and mind controlling the body through the practice of Yoga to achieve the rhythm of mind. The health and strength of the body and the mind are acquired, only when a state of equilibrium is attained whereby the body and the mind are balanced. Like all other arts, Yoga is also a science as well as a philosophy too. As science is concerned with analyses Yoga too is bent on analysis. Yoga analyses the turbulent mind and shows the ways and means of reaching the ultimate goal of freedom. As any other science, yoga too conveys truth. On a practical level, yoga keeps the body healthy the mind quiet and pure, and self in beatitude. It is therefore a darsana. The practical aspect of yoga darsana conveys the artistic aspect of Yoga with its precision and beauty. The science of yoga works on physical, mental, emotional, psychic and spiritual aspects of a person, when imbalance is experienced at this level, the organs, muscles and nerves no longer function in harmony, rather they act in opposition to one another. Therefore, yoga aims at bringing the different bodily functions into perfect coordination so that they work for the good at the whole body. Therefore yoga develops the personality of an individual mentally, morally, spiritually and intellectually.

5- The Eight Stages of Raja Yoga: By observing their own thoughts, scientifically and objectively, the ancient yogis studied the many obstacles in bringing the mind under conscious control. Sage Patanjali who lived in 320 A.D was a great saint of his time and was reverently called as 'Patanjali Maharishi'. His greatest contribution to the science and philosophy of yoga is rendered in the form of Patanjali yoga sutras. His main scheme of yoga is popularly known as Raja yoga or Asthana yoga, a text that describes the inner workings of the mind, and also provides an eight stepped (Astanga) blueprint for controlling the

restless mind and enjoying lasting peace. The eight stepped blueprint or stages are:

1. Yama – Social Discipline,
2. Niyama – Personal Discipline,
3. Asanas – Postures,
4. Pranayama – Breath control,
5. Prathyahara – Withdrawal of senses,
6. Dharana – Concentration,
7. Dhyana – Meditation,
8. Samadhi – Union.

If these eight stages are practiced and followed in life, virtues like morality, (morally sound conduct) and good character would develop in man. Besides, there would be an all-round progress in human life- physical, intellectual and spiritual and man would attain physical fitness and mental equanimity. Keeping in view of the significance and relevance of yoga in one's life, the researcher has made an attempt to experiment it in practical life so as to study and analyze its effects concretely.

CONCLUSION:

The study is significant because, it has for the first time attempted to probe the mechanism by which yoga-Asanas reduce blood sugar. In the present study there was a significant fall in the fasting blood glucose levels in the yoga group. In the present study, there was a decrease in glycosylated hemoglobin in the patients undergoing Yoga practice. These findings are similar to those reported of bibliography. The exact cause of reduction in HbA1c is not known. But the reduction in glycosylated Hb protects the patients from early development of various microvascular and microvascular complications of diabetes mellitus.

All the participants in the yoga group develop a sense of wellbeing without any side effect. So they are self-motivated to continue the yoga practice as a daily routine in their life. Practice of yoga Asanas and pranayama may be helpful in reducing body weight in obese person as a result of which remote complications of diabetes mellitus may be prevented. Further studies may be conducted to prove efficacy of yoga in control of obesity. It can be concluded that yoga Asanas and pranayama may be used as an adjunct to medical therapy to optimize the biochemical parameters. Yoga therapy also improves the status of diabetics in terms of reduction of drug doses, physical and mental alertness and prevention of complications.

REFERENCES:

- Chaudhary, S., et al., (2010). "The Effects of Aerobic Versus Resistance Training on Cardiovascular Fitness in Obese Sedentary Females", *Asian Journal of Sports Medicine*, 1(4), pp. 177- 184.
- Habibzadeh, N., et al., (2010). "The Effects of Exercise in Obese Women with Bulimia Nervosa", *Asian Journal of Sports Medicine*, 1(4), pp. 209-213.
- Padmanathan V. and Jhonjoseph K. (2011). "Effect of Aerobic Exercise on Select Health Related Physical Fitness Variables of Adolescents", *Facts of Sports Science*, Krishna Publications, Triunelveli, India.
- Rajkumari B., et. al., (2010). "Overweight and Obesity among Schoolchildren in Manipur", *The National Medical Journal of India*, 23(5).
- Ramesh V. and P. K. Subramaniam (2010). "Effect of Physical Activity and Aerobic Fitness on Health Related Physical Fitness Variables of Overweight and Obese Adolescence", *Indian Journal of Yoga Exercise & Sport Science and Physical Education*, pp. 46-52.
- Ramesh V. and Subramaniam P.K. (2011). "Effect of Physical Exercise Training at Different Intensities on Bmi, Basel Metabolic Rate and Body Fat Percentage of Obese Adolescence", *Entire Research National Quarterly Research Journal*, 3(1) pp. 20- 25.
- Saremil A., et al., (2010). "Twelve-Week Aerobic Training Decreases Chemerin Level and Improves Cardiometabolic Risk Factors in Overweight and Obese Men", *Asian Journal of Sports Medicine*, 1(3), pp.151-158.

Corresponding Author

Rekha Rani*

Research Scholar

E-Mail – drrekharani@gmail.com