

Healthy Heart through Yoga Practice

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ABSTRACT

Yoga is an ancient science of health and wellness bestowed by the seers and sages of India for the welfare of the humanity. It has been a great art and science of healthy living even though it is one of the six systems of Indian philosophy. The practice of yoga is very useful in the promotion of positive health of the mind and body. The practice of yoga is also great means alleviating the sufferings of the human life through the proper knowledge and understanding of the connections of the afflictions and their influence. Its therapeutical applications have been highly significant in the prevention and management of various diseases of the different systems of the human body. Health is a multidimensional phenomenon; heart is one of the precious organs playing prominent role in the positive health. Heart care is one of the most demanding medical attentions due to the most of the cardiovascular disorders manifest due to the chronic stress experienced either in the professional or personal life. The principle and practices of yoga promote the functions of lungs and liver which are the two important organs helping the heart through enhancing the healthy lipid profile and proper lung capacity. The teaching of classical curriculum of hatha yoga such as the practice of asana contributes for the physical and mental health, steadiness, and feeling of well-being and keeps an individual free from diseases of the mind and body. The current paper focuses on the preventive, promotive, and curative aspects of yoga as natural health care measures for the promotion of the healthy heart functions.

Key words: Healthy heart, yoga techniques, yoga practice

INTRODUCTION

The heart is one of the most important organs in the human body. The heart pumps the blood, which carries all the vital materials which help our bodies function and removes the waste products that we do not need.

^[1] The brain requires oxygen and glucose, which, if not received continuously, will cause it to lose consciousness.

^[2] Muscles need oxygen, glucose, and amino acids, the proper ratio of sodium, calcium, and potassium salts to contract normally. Glands need sufficient supplies of raw materials from which to manufacture specific secretions.^[3] The history of yoga stretches back as far as ancient India when people practiced it to increase their tranquility and spiritual insight. Today, worldwide enjoy it to help them relax and increase their flexibility and may even improve their heart health.^[4] Traditional yoga is done by slow and study the body into a variety of poses while focusing on breathing and meditation.

^[5] It enhances the physical mental and emotional well-being of human life. Dr. Cunningham, a speaker and event director for Taksha's Center of Integrative Medicine and Yoga (CIMY), is a leading speaker, author, and educator in the field of Mind-Body Medicine and Health Psychology. She is the President of Positive Health Solutions and the

Founder and Director of the renowned training program Cardiac Medical Yoga. Dr. Cunningham is also a Counseling Psychologist in private practice in Charlottesville, Va. and has been a business consultant for over 20 years. She has lectured extensively both nationally and internationally and is a widely recognized authority in health and business psychology, sleep enhancement, stress management, and medical yoga. She is also an Assistant Professor at the University of Virginia School of Nursing where she teaches a course in Medical Yoga. Dr. Cunningham is certified in Auricular Acupuncture and is a certified yoga teacher from two traditions. She has taught and practiced in these areas for over 35 years.

Dr. Cunningham is also the author of two innovative books: Medical Yoga: A Gentle and Modified Practice of Yoga for Assistance in Healing and Cardiac Yoga. She has also produced two popular CDs entitled: Healing Journey and before and after surgery: Guided Imagery and Relaxation for Surgery Patients. It is for healthy hearts, "Yoga is a study of life, the study of your body, breath, mind, intellect, memory, and ego; study of your inner faculties." Besides wisdom and philosophy, yoga is a relaxing combination of asanas, breathing techniques, and meditation. Posture of yoga effects on respiratory system, respiratory rate influences on heart rate. Hence, yoga is effective in healing and dealing with stress and pressure.^[6]

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MEANING AND DEFINITION

Basically yoga is a system of physical and mental self-improvement and final liberation that people have been using for thousands of years. Yoga arose in the age of the Vedas and Upanishads. Yoga is a method of training the mind and developing its power of subtle perceptions so that man may discover for himself the spiritual truths on which religion, beliefs, and moral values finally rest.^[7] It is realization of our hidden powers. Yoga also has proven benefits for those who have faced cardiac diseases or other heart functions, yoga is nothing but union of mind-body and spirit. Hence, many different practices, such as hatha yoga, ashtanga yoga, and many others, emphasize different focuses, such as toning, strength training, or meditation.

The blood vessels carry oxygen-rich blood away from your heart for delivery to every part of your body. Arteries look like thin tubes or hoses. Heart disease is a condition, in which the heart muscle receives an inadequate amount of blood due to an interruption on its blood supply. Depending on the degree of interruption, symptoms can range from a mild chest pain to a full-scale heart attack. In general, the symptoms manifest themselves when there is about 75% narrowing of coronary artery lumen. The underlying causes of this disease are many and varied. Two of the principal ones are "Atherosclerosis" and "Coronary artery spasm." A hormone produced by the adrenal glands on top of the kidneys and involved in the stress response. It rises in the mornings, inducing wakefulness and also rises during stress. Sleep deprivation, caffeine, and alcohol can also raise cortisol levels. Chronically, high levels have been linked with low immunity, weight gain, and other health problems.

HEALTH AND HEART

Heart disease is the most common cause of the cardiovascular disability and death. This pathological state includes "Arteriosclerotic Coronary Artery Disease" and "Ischemic heart disease." The heart functions as the pumping station for the supply of blood to the whole body, whereas "Coronary arteries" which come out of the aorta supply the blood and feed the heart muscles themselves. The main coronary arteries lie on the surface of the heart and small arteries penetrate into the cardiac muscle mass. The "left coronary artery" supplies mainly the anterior part of the left ventricle, whereas the "right coronary artery" supplies most of the left ventricle.^[8]

The resting coronary blood flows in the human being averages approximately 225 ml/min, which is about 4–5% of the total cardiac output. During the extra work period, the heart increases its cardiac output as much as 4–5-fold, and it pumps the blood against a higher than normal

arterial pressure. Consequently, the work output of the heart under severe conditions may increase as 6–8-fold. The coronary blood flow also increases 4–5-fold to supply the extra nutrients needed by the heart.

Causes for Heart Disease

Atherosclerosis (something called "hardening of the arteries") is a situation characterized by thickening of the arterial wall with large number of smooth muscle cells. Atherosclerosis, or "hardening of the arteries," is a vascular disease. Plaque is made up of deposits of smooth muscle cells, fatty substances, cholesterol, and the disease, while others develop disease and have no known risk factors, carotid artery wall, and increase the size of the lumen (opening) of the artery.

The mechanism that initiates this thickening is not clear, but it is known that cigarette smoking, high plasma cholesterol concentration hypertension, diabetes, and several other factors increase the incidence and the severity of the atherosclerotic process. The extra muscle cells and various deposits in the wall bulge into the lumen of the vessel and increase resistance to flow. This is usually progressive, often leading ultimately to complete occlusion. Acute coronary occlusion may occur due to sudden formation of blood clot on the roughened vessel surface,

- a) The breaking off of a fragment of blood clot or fat then loges downstream, completely blocking smaller vessel, or
- b) A profound spasm of the vessel, smooth muscle.

Coronary Artery Spasm (CAS)

CAS is a condition, in which the smooth muscle of a coronary artery undergoes a sudden contraction, resulting in vasoconstriction. It typically occurs in individuals with atherosclerosis and may result in chest pain during rest, chest pain during exertion, heart attacks, and sudden death. Although the causes of coronary artery spasm are not well known, smoking, stress, and alcoholism are said to be the triggering agents.

Heart arrhythmia symptoms can include, fluttering in your chest, racing heartbeat, slow heartbeat, chest pain or discomfort, shortness of breath, lightheadedness, dizziness, and fainting.

Yoga and Health

Yoga asanas impart physical and mental health over the body by controlling, regulating, and balancing the effect over the sympathetic and parasympathetic nervous system. Through regular practice of yoga, normal physiological activities of nervous system, flexibility and

contractibility of muscles vital capacity of lungs, blood circulation, etc., such biological processes are toned up.^[9]

A balanced equilibrium between the sympathetic and parasympathetic wings of the autonomic nervous system leads to a dynamic state of health. Yoga asanas and pranayama are unquestionably an ideal method to preserve the health and longevity of our body. Yoga is unique in that it recuperates the entire system. In the yogic system, the mechanism is quiet and restful. Asanas provide a soothing effect on both the outer and inner organs. The result is organ tranquility.

Yoga and Heart

The practice of yoga has been around for thousands of years and still maintains its popularity today.^[9] When most think of yoga, meditation and relaxation are certainly two things that come to mind. While these are important reasons for the health benefits that they provide, it even goes beyond finding your “happy place.”

Some reasons why yoga is more than just a trend and how it can help heart health. It reduces stress in a stressful situation. One of the first steps take to calm down is usually deep breathing. The practice of pranayama yoga is breathing based, focusing on inhaling and exhaling, meditation, and relaxation. Unfortunately, encountering stress is inevitable. It can help reduce the risk of heart disease; high cholesterol, blood pressure, and blood sugar are all factors that can increase your risk for heart disease. It tones and strengthens muscles, along with burning calories. While some forms of yoga focus solely on meditation and relaxation, others emphasize toning muscles.^[10]

Importance of Yoga in Heart disease

There are specific asanas in yoga for heart problems. Tadasana, the mountain pose helps strengthen the vertebral column and the heart. The deep breathing involved also expands the lungs. The tree pose helps in developing a firm and balanced posture. It broadens the shoulders and opens the heart, making one feel confident and happy. Utthita Hastapadasana, this yoga posture requires focus and strength to balance. It also increases stamina. The Veerabhadrasana improves balance in the body and increases stamina. It also improves blood circulation and releases stress. It keeps the heart rate in check. In the Utkatasana, one can feel the heart and respiration rate increase. This posture stretches the chest and stimulates the heart. Marjariasana is a welcome relief after the chair poses. It allows the heart rate to settle and become soft and rhythmic. It also boosts blood circulation. The Bhujangasana strengthens the chest muscles and expands the lung region, increasing its capacity.

Yoga insists that prevention is better than cure. Asanas relieve angina pain very quickly. Asanas and pranayama practiced regularly keep coronary heart disease (CHD) at bay, each of the different practices contributing in its own way.

When the process of atherosclerosis advances, the blood vessels are narrowed beyond a critical degree. Hence, strokes, heart attacks, and malfunctioning of all organs occur. Thus, the elasticity of the blood vessels is lost and pressure rises in the blood vessels. Asanas maintain the elasticity of tissues and prevent changes in pressure.

Yoga is the wonderful solution to all circulatory problems. It works by keeping the two gates of the body – the circulatory system and the respiratory system – clean. Regional circulation (blood flow to each organ) reduces, as one grows older. There is a fall in perfusion pressure, dampening the flow of blood to vital organs.

The brain requires oxygen and glucose, which, if not received continuously, will cause it to lose consciousness. Muscles need oxygen, glucose, and amino acids, the proper ratio of sodium, calcium, and potassium salts to contract normally. Glands need sufficient supplies of raw materials from which to manufacture specific secretions.

Yoga Therapy

Yogic practice is holistic living, it means conscious correct living in every moment. Every moment requires extraordinary awareness, conscious control, and transformation of what is not desired or harmful for and in life – negative attitudes, habits detrimental to health, unconscious drives and movements, and regulation in physical, emotional, and mental activity while constantly evolving the mind to higher states of consciousness.^[11] Yogic practice for heart disease should include practices for all levels – physical, mental, emotional, spiritual, and social levels. The increased endurance and elasticity of body, stamina and vitality, higher level of awareness to remain detached with outer events and condition that brings conflicts, stress, anxiety and depression, learning emotional poise which prevents any emotional upsets and outbursts, mental peace and tranquility, calm and relaxed, and least excited of brain for maintaining normal activity of brain and nervous systems. Yoga is a science that offers regulation of all activities of living. It is an art of living consciously in joy at all time, irrespective of any conditions, events, and circumstances.

An integrated practice of yoga for heart disease offers unique management program rather than lopsided, fragmented practices of yoga it is easy to practice an integrated program of yoga while understanding its philosophy about human frame, human frame is

considered as having five layers – interacting with one another results into harmony, health, and happiness.

Yogic practices must be included the following practices:

1. Contemplation on the aim of life as truth, wisdom and health, harmony, and happiness. This can be done by many practices of prayers, couplets seeking truth, aspiring for truth, manta, and chanting
2. Breathing practices for enhancing the level of awareness of self or withdrawing the scattered mind with for physical, mental, and emotional relaxation as well. Conscious correct breathing is a key to good health, autonomic balance, and positive impact on many biochemical and metabolic functions
3. Asana practices should be selected and useful for heart disease such as Padmasana, Supta Pawanmuktasana, Paschimottanasana, Vajrasana, Shavasana, Makarasana, Gomukhasana, Trikonasana, Tadasana, Ardha Matsyendrasana, and Shalabhasana, minimum five asanas may be selected depending on the flexibility and constitution of the body
4. Pranayama breath regulation techniques such as Ujjayai, Anulom Vilom, Shitkari, and Seetali are good. Any one or two may be selected for practice in the beginning
5. Relaxation practice
6. Meditation.

Forward bends soothe the nerves and bring down the heart rate. Inverted pose improves the contractility. Back bending poses lengthen the cardiac muscle and the septum. This improves the contraction of heart and improves the quality to pump blood in and out. Twisting pose stretches the wall of the heart. The diaphragm is squeezed and the endurance of the heart is increased. Hence, one gains control over the involuntary mechanism of the body.

The body system is taken care of, with all the internal organs functioning together to improve the cardiovascular efficiency. Any practitioner can benefit from the practice – whether as preventive, improvement, or reverting to normal condition.

Practice of yoga changes the overall character of a practitioner, controls high blood pressure and diabetes. The effect is more significant with a proper diet. Pranayama gives proper relaxation to reduce and manage stress. A conscious breathing rhythm regulates the heartbeat.

Research Findings

Nagarathna and Nagendra concluded yoga for bronchial asthma: A controlled study – 53 patients with asthma underwent training for 2 weeks in an integrated set of yoga exercises, including breathing exercises, Sodhi *et al.*

done a research on “A study of the effect of yoga training on pulmonary functions in patients with bronchial^[12] asthma.” The study contains the following. The role of yoga breathing exercises, as an adjunct treatment for bronchial asthma is well recognized. One hundred and twenty patients of asthma were Group A (randomized into two groups, i.e., group, yoga training group) and Group B (control group). Each group included 60 patients. Pulmonary tests were performed on all the patients at baseline, after 4 weeks then after 8 weeks. Majority of the subjects in the two groups had mild disease (34 patients in Group A and 32 in Group B). Group A subjects showed statistically significant increasing trend ($P < 0.01$) in percentage predicted peak expiratory flow rate, forced expiratory volume in the second (FEV₁), forced vital capacity (FVC), forced mild expiratory flow in 0.25–0.75 s (FEF_{25–75}), and FEV₁/FVC% ratio at 4 weeks as compared to Group B. Thus, yoga breathing exercises used adjunctively with pharmacological treatment significantly. Pulmonary function improves in patients with bronchial asthma.^[13]

Twelve studies met the inclusion criteria for this review, with only seven utilizing randomized control design and only three addressing the psychosocial components of cardiovascular disease.^[14] Therefore, it is clear that additional studies utilizing randomized controlled trials (RCTs), performing sample size calculations, and implementing feasible duration and dosage modalities to reduce attrition rates must be performed.

Seven RCTs with 624 patients comparing yoga to usual care were included in the study. For CHD (four RCTs), there was very low evidence for no effect on mortality, for a reduced number of angina episodes, and for increased exercise capacity, and low evidence for reduced modifiable cardiac risk factors. For heart failure (two RCTs), there was very low evidence for no effect on mortality, and low evidence for increased exercise capacity, and for no effect on health-related quality of life. For cardiac dysrhythmias treated with implantable cardioverter-defibrillator (one RCT), there was very low evidence for no effect on mortality, and for improved quality, and low evidence for effects on non-fatal device-treated ventricular events.^[15] Three RCTs reported safety data and reported that no adverse events occurred.

CONCLUSION

Yoga is a way of life and living which demands conscious effort on the part of practitioner. This conscious effort brings changes in the whole personality, attitude, and lifestyle which is in fact a way of transformation of life, mind, and body. Studies conducted around the globe suggest positive changes at physiological, biochemical, and

psychological levels that are bound to bring an integrated approach in the management while standardizing the techniques and tools applied for wider acceptance and application among researchers and scientists. This interpretation of social work is given by those who are not trained social work as a professional practice mainly uses the following methods while potential tool for the positive change and personality development of individuals. Yoga also has proven benefits for those who have faced cardiac arrest, heart attack, or other heart events, according to Cunningham. "The acute emotional stress of such an event certainly has a significant and adverse effect on the heart," she said. "That's where yoga can be a tremendous benefit to manage the stress." For example, Cunningham said that half of bypass surgery patients go through depression, facing emotions ranging from anxiety to grieving. "All these things come into play when you've got a potentially chronic disease to manage for the rest of your life."

REFERENCES

1. Shovlin CL. Pulmonary arteriovenous malformations. *Am J Respir Crit Care Med* 2014;190:1217-28.
2. Alzheimer's Association. 2018 Alzheimer's disease facts and figures. *Alzheimers Dement* 2018;14:367-429.
3. Liu Y, Wang X, Hou Y, Yin Y, Qiu Y, Wu G, *et al.* Roles of amino acids in preventing and treating intestinal diseases: Recent studies with pig models. *Amino Acids* 2017;49:1277-91.
4. Vyas-Doorgapersad S, Surujlal J. Gender-based yoga for conflict resolution. *Int J Bus Manag Stud* 2016;8:169-85.
5. Khanna S, Greeson JM. A narrative review of yoga and mindfulness as complementary therapies for addiction. *Complement Ther Med* 2013;21:244-52.
6. Gard T, Noggle JJ, Park CL, Vago DR, Wilson A. Potential self-regulatory mechanisms of yoga for psychological health. *Front Hum Neurosci* 2014;8:770.
7. Kopalle PK, Lehmann DR, Farley JU. Consumer expectations and culture: The effect of belief in karma in India. *J Consum Res* 2010;37:251-63.
8. Aird WC. Phenotypic heterogeneity of the endothelium: II. Representative vascular beds. *Circ Res* 2007;100:174-90.
9. Naragatti S. Management of hypertension through yogic practices. *Int J Ayush* 2018;7:41-54.
10. Naragatti S, Hiregoudar NK. Brahma Kumaris Sahaj Raj-yoga meditation as a tool to manage various levels of stress. *J Adv Res Ayurveda Yoga Unani Siddha Homeopathy* 2019;6:1-9.
11. Natsoulas T. The concept of consciousness₂: The personal meaning. *J Theory Soc Behav* 1991;21:339-367.
12. Nagarathna R, Nagendra HR. Yoga for bronchial asthma: A controlled study. *Br Med J (Clin Res Ed)* 1985;291:1077-9.
13. Sodhi C, Singh S, Dandona PK. A study of the effect of yoga training on pulmonary functions in patients with bronchial asthma. *Indian J Physiol Pharmacol* 2009;53:169-74.
14. Haider T, Sharma M, Branscum P. Yoga as an Alternative and Complimentary Therapy for Cardiovascular Disease: A Systematic Review. *J Evid Based Complementary Altern Med* 2017;22:310-6.
15. Chu P, Gotink RA, Yeh GY, Goldie SJ, Hunink MG. The effectiveness of yoga in modifying risk factors for cardiovascular disease and metabolic syndrome: A systematic review and meta-analysis of randomized controlled trials. *Eur J Prev Cardiol* 2016;23:291-307.