

## Effect of Yogic Practices on Coronary Heart Patients with Special Reference to Shavasana and Meditation

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**Abstract:** *In this paper we present results of the research conducted on sample made of 104 subjects. We tested coronary disease patients, 81 men and 23 women from Ahmedabad, India. There were measured initial blood pressure test, blood cholesterol, Hdl/Ldl ratio. The data of 2-D echo studies were also recorded in 6 subjects. The statistical analysis of data revealed that the experimental group showed significant difference between pretest and posttest value in systolic blood pressure ( $t = 7.835$ ) and in diastolic blood pressure, ( $t = 11.896$ ), HDL cholesterol( $t=9.0470$ ) and left ventricle ejection fraction (LVEF)  $t=7.620$  was significant. No significant change was found in case of Control group.*

**Key words:** *yoga, yoga meditation, coronary disease, Shavasana*

### Introduction

Coronary artery disease is widespread around the world. There was made significant improvement in the field of coronary artery disease research, especially with regards to its etiology, pathology and management, still the incidence of this diseases increases through the civilized world and still no preventive measures could be under taken. The present medical approaches are palliative measures and do not address the root cause of the problem.

Modern age, no doubt significantly influenced fragmentation of human personality at several levels. As a result, individual is faced with tremendous rise of inner and outer forces, making her perplexed, anxious, agitated, angry and worried due to non-fulfillment of his desires and expectations. This results in mental and emotional imbalance and immaturity, causing disharmony in his life and making him susceptible to various psychosomatic, mental and nervous ailments of functional and chronic type.

In this new mechanized and competitive era, individual is passing through a very busy life and has got little time for physical and mental relaxation. The mental worries in association with sedentary habits have contributed to a lowering of vitality and causation of many diseases including coronary artery disease.

The general causes of coronary artery disease are heredity, high blood pressure, diabetes, high serum cholesterol, smoking and sedentary life style. The way of living and the way of feeling are important factors in its rising incidence. Hostility, lack of social support, job and family stress are the major causes of heart attack amongst the young.

The key issue in the rising incidence of coronary artery disease is imbalance in the autonomic nervous system; the sympathetic tone is much higher than parasympathetic tone. The imbalance occurs due to job stress family stress, financial stress, lack of social support and the loss of control of situation resulting in isolation. Smoking, alcoholism and obesity are offshoots of the sense of isolation. Cynicism, hostility, and self-centeredness are also the sign of isolation. Increase in insulin resistance, vascular spasm increase in platelet stickiness, atherosclerosis and plaque rupture resulting in unstable angina is all the result of the increased sympathetic tone in stressful situation. Furthermore autonomic imbalance affects the ejection fraction of the left ventricle.

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Coronary artery disease is the silent killer of human kind. It is common asymptomatic, readily detectable, usually treatable and if uncured then often leads to lethal complication. Thus now a day it has become a life threatening disease. Huge amount of money are being spent per year for treatment of this disease, yet coronary artery disease incidence death rate rising by 6 to 8 fold. Every hour approx 90 Indians are dying due to heart disease. By 2020, 33% of Indian population will be dying of cardiovascular disease. Everyday 2500 new cases of heart disease are detected in India. Approximately 135 million Indians are at present suffering from heart disease. The incidence is still rising in spite of advancement in modern medicine and large number of expensive bypass-angioplasty procedures. According to WHO expert Committee estimations, by the year 2025, India will have the highest number of heart disease, diabetes and high BP in the world.

Enormous amount of work has already been done in recent years in the field of coronary artery disease, especially with regards to its etiology, pathology and management, still the incidence of this diseases increasing through the civilized world and still no preventive measures could be under taken.

The present medical approach is to dilate the coronary arteries, increases the blood flow through them and diminish the need of oxygenated blood by the heart muscles. The surgical approach is to bypass the narrowed arteries or dilate them by inflating a balloon in the narrowed artery. These are palliative measures and do not address the root cause of the problem.

Arteriosclerosis is a diffuse disease and relentlessly progresses if the risk factor is not controlled. It is proved that the most heart patients, in their coronary arteries, have several developing blockages scattered throughout the coronary arterial tree. They are not seen in on an angiogram and although non obstructive, these blockages have same high risk of causing heart attack by plaque rupture and formation. Tunnel visioned modern cardiology keeps on developing more complicated, risky and expansive operative techniques to open up only the sever blockages but neglects developing vulnerable plaques. Hence heart attack and deaths continue to occur and many patients come back with recurrence needing repeat operations which very few can afford.

Human kind has always tried to attain health and happiness through all available means. The urgency of getting an ideal method of maintaining health and attaining mental peace has become great in view of the tremendous increase in the stress and strain of life especially in urban areas. Unfortunately coronary artery disease is the direct product of stress. No doubt, the issue of coronary artery disease is a burning issue today. Therefore, it is justified to determine to researches of the effect of yoga on high coronary artery disease patients.

Yoga deals with human personality as a whole i.e. body, mind and soul together. Therefore, it has great potential of developing them and integrating the split personality - the root cause of all mental and emotional imbalance, pains and miseries. Yoga is capable of eradicating stress by stilling the turbulent mind and by harnessing the physical, mental, emotional and spiritual energies.

## **Method**

In this study participated 104 examinees, 81 male and 23 female, coronary artery disease patients from Ahmedabad in India. The age of the patients ranged from 44 to 81 with an average of 58 years. The initial systolic blood pressure varied from 126 to 180 mm. Hg. And the diastolic blood pressure from 85 to 105 mm. Hg. the average blood pressure was 160/97 mm. Hg. The average, total blood cholesterol level, LDL and HDL was 240,171 and 43 mg/dl respectively. The LVEF was 35% in average. All the patients were receiving drug therapy with satisfactory control in blood pressure and cholesterol. Drug users were under treatment for minimum 2 years and maximum 7 years.

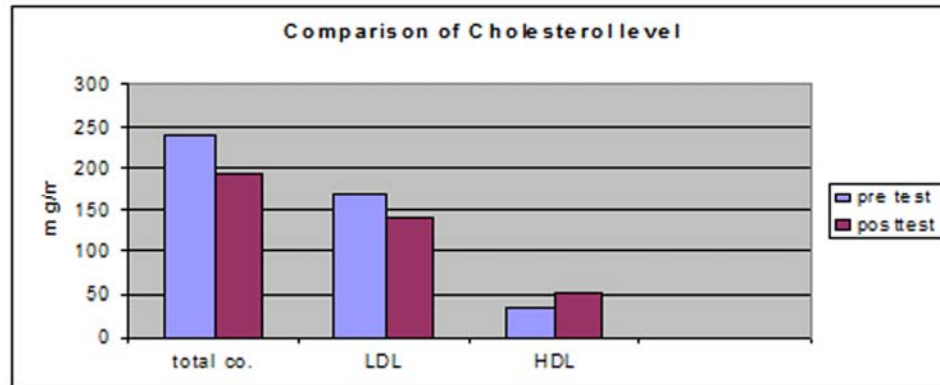
Blood pressure test was administered to all the subjects before and after the experimental period of three months. Blood cholesterol level was recorded from the medical report before and after the experimental period. The data of 2-D echo studies was also recorded from 6 subjects. After the initial test the subjects were divided into two equal groups, Experimental and Control group and the Experimental group introduced to a Yoga Program, based on the unique combination of science and philosophy, and consisting some selected yogic practices like breathing exercise, shavasana and meditation. They performed special Yoga Program, thrice in a

week regularly for three months and post test was administered. The data was analyzed using t-test. The level of significance was set at 5% level of confidence. The statistical analysis of data revealed that all the subjects showed significant difference in examines parameters: systolic blood pressure ( $t = 7.835$ ), diastolic blood pressure ( $t = 11.896$ ), Ldl ( $t = 8.720$ ), Hdl ( $t = 9.047$ ), LVEF ( $t = 7.620$ ) (the last value refers to the 6 patients).

## Results

The present study shows the following results:

1. The Yoga Program, i.e. the combination of some breathing exercise, shavasana and meditation are effective in controlling high blood pressure and in reducing total blood cholesterol level.



**Chart 1.** Level of cholesterol in the blood before and after experimental period

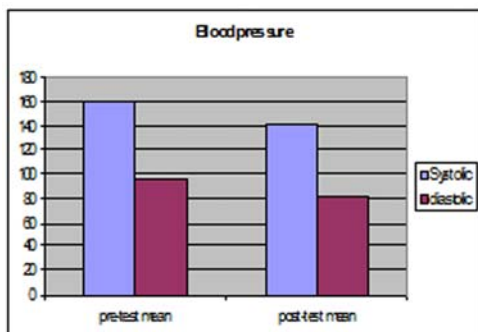
2. The yoga program is proved to be very effective in improving the level of HDL in blood and the left ventricle ejection fraction (LVEF). The level of HDL in blood is a very important factor in coronary artery disease because it's thought that HDL picks up the cholesterol and brings it back to the liver for reprocessing or excretion. HDL also removes excess cholesterol from fat-sated cells, possibly even those in artery walls. High level of HDL are associated with a decreased risk of heart attack and till now no drugs are there to improve the level of HDL but the yoga program is proved to be very effective in improving the HDL level in blood which is very encouraging.

3. The yoga program is effective in controlling blood pressure but the effect is more on systolic blood pressure than diastolic blood pressure.

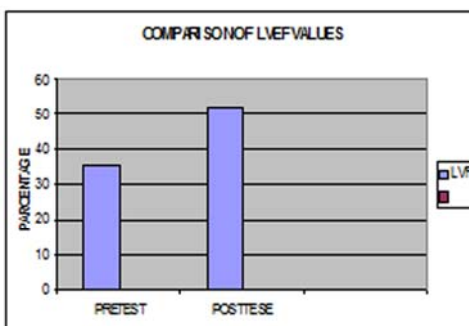
4. Apart from the physical benefits of reduction in the frequency of angina and the increased capacity to work, a very encouraging spiritual gain was observed in increased confidence and wholesome attitude towards life circumstances. Surprisingly, the fear of death almost vanished in a large number of them.

5. Most of the subjects showed subjective improvement. Symptoms like headache, nervousness, giddiness, irritability and insomnia disappeared in most subjects and became less severe in the others.

6. The doses of drugs are reduced in 36% subjects.



**Chart 2.** Value of the blood pressure



**Chart 3.** Values of the EFLK

## Discussion

The key issue in the rising incidence of coronary artery disease is imbalance in the autonomic nervous system - the sympathetic tone is much higher than parasympathetic tone. The imbalance occurs mainly due to stress. By removing stress one can remove the causative factors that have led to hypertension and coronary artery disease. This is achieved by freeing the mind of chaos and turmoil so that it can think more clearly and function more efficiently. Problems that seems insoluble in a state of tension are easily solved when the body and mind is relaxed. *Shavasana* is an excellent yogic practice, which is based on two aspects of human existence: relaxation and awareness. Relaxed awareness is the key to aware relaxation. Hypothalamus is the center for visceral function and maintains homeostasis via the autonomic nervous system. The regulatory mechanism in the hypothalamus is thus set at a higher level in stress situation. It has been shown that a low rate, low intensity, monotonous stimulation of peripheral afferent nerves brings on electroencephalographic synchronization and even sleep, by decreasing the tonic activity of the ascending reticular activating system.

## Conclusion

By doing *Shavasana*, the practitioner relaxes with slow diaphragmatic breathing. The frequency and intensity of both proprioceptive and interoceptive impulses is thus reduced. While doing *Shavasana* the person is less conscious of external environment but is alert inwardly. *Shavasana* influences the hypothalamus through continuous feedback of slow, rhythmic proprioceptive and interoceptive impulses. This sets the regulatory mechanism in the hypothalamus at a lower level and thereby helps to reduce blood pressure. When a patient is trained properly with *Shavasana*, it gradually removes not only physical stress but also mental stress from conscious, subconscious and unconscious levels of the mind. The regulatory mechanism in the hypothalamus comes back to its normal level and reduces the blood pressure.

The autonomic nervous system is linked to the hypothalamus in the brain, which in turn controlled by the limbic system in the mid brain, the center concerned with emotions and feelings. The hypothalamus feeds its information into the endocrine glands and the autonomic nervous system. Meditation directly affects the mid-brain complex, calms the hypothalamus and calms the emotions, thereby shutting off excess sympathetic stimulation and hypertension.

Yoga meditation activates the parasympathetic nervous system, which makes secretion of hormones like adrenaline, nor adrenaline and corticosteroid normal. As a result, the heart rate, blood pressure, blood sugar and cholesterol become normal. Blood becomes thin and the arteries dilate. The formation of the lactic acid is also reduced which results in reduction of the aging process. Endorphins and neuropeptides are secreted from the brain. This brings peace and joy. The regular practice of meditation is effective in reducing blood pressure, both systolic and diastolic, total blood cholesterol level and LDL. Practice of abdominal yoga breathing relaxes the mind and decreases sympathetic arousal. The oxygen level of the blood increases and the efficiency of oxygen utilization by the tissue is maximized leading to deeper relaxation and more energy. This strengthens the

nervous system and ultimately leads to better overall health. Through abdominal yoga breathing one can influence the basic cellular metabolism, with the final goal to achieve overall health.

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