Yoga for Cardiovascular Diseases - Research, Facts and Programme

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The modern era industrialization and globalization have brought in a pronounced change in our lifestyle. The stress, faulty diet, wrong habits and sedentary lifestyle have given rise to metabolic problems like dyslipidemia, and obesity. This has resulted in steep rise of life style related chronic diseases such as diabetes, hypertension, and coronary artery disease (CAD).

The conventional exercise, particularly moderate intensity aerobic exercise, is known to be beneficial in primary as well as secondary prevention of ischemic heart disease (IHD). Though not practiced universally, there is increasing evidence to support the fact that forms of exercise that have been practiced in the east since times immemorial, such as yoga, are beneficial in the management of IHD.1

Increased intrinsic neurohormonal activity has been associated with increased predisposition to ischemic heart disease. This may explain how general stress in life contributes to increased risk of myocardial disease.

The stress has major effect on the autonomic nervous system (ANS). The ANS is involved with virtually all the disease conditions (Clinical autonomic disorders- by Philip A. Low). The imbalance in the ANS system can cause physio-pathological changes in human body. Balancing the sympathetic and parasympathetic systems the individual respond differently to diseases, injury and medical treatment. By regular practice of yoga ANS get regulated.2 The sympathetic overdrive in disease conditions get compensated by parasympathetic predominance in yoga practitioner. There also appears to be shift in the hemispherical electrical activity in the brain and in the electrical activity of the heart.

Control of excess sympathetic activation has become a cornerstone in the management of ischemic heart disease as well as congestive cardiac failure. Drug therapy with beta-blockers provides this facility through pharmacological means. Yoga is also shown to have the ability to control the sympathetic overdrive thus mimicking the effect of beta blockers. The physiological adaptations acquired by the practice of yogic breathing may be helpful in the care of patients with cardiovascular diseases, particularly ischemic heart disease and chronic heart failure. In cardiovascular disease and hypertension, the importance of sympathetic activation linked to respiratory dysfunction is now well recognized. The chronic hypoxia induced by chronic
heart failure can be ameliorated by breathing techniques of yogic practice. Training of respiratory muscles can also improve dyspnoea and exercise capacity. Similarly, the decrease in sympathetic activity seen with slow breathing might be beneficial in hypertension, where sympathetic activation has been linked to disturbed breathing patterns and increased chemo reflex activity.\(^3\)

Reduction in heart rate variability and baroreflex sensitivity are powerful and independent predictors of poor prognosis in IHD. Slow breathing as in yogic practice enhances heart rate variability and baroreflex sensitivity by re-synchronizing inherent cardiovascular rhythms. This down-regulatory effect has been observed not only in the respiratory signals but also in RR interval of electrocardiogram, in blood pressure, and in transcranial blood flow signals.\(^4\)

Lipid-lowering and plaque-stabilizing effects of yoga exercise seem to be similar to that of statin drugs (HMG CoA reductase inhibitors).\(^5\) There are some parallels between the pharmaco-physiological effects of statin therapy and the changes brought about in the internal milieu from neurohormonal mechanism of yoga practices. The techniques like meditation can lead to an increased self awareness producing calm, natural, and intentional present state. This state of mind can bring about the neuro-hormonal balance in the body.\(^6\) Yoga-based guided relaxation helped in the reduction of sympathetic activity with reduction in heart rate, skin conductance, oxygen consumption and increase in breath volume, thus facilitating protection against ischemic heart disease and myocardial infarction.\(^7\)

Ornish et al has showed short term and long term benefits from yoga based lifestyle on coronary lesions and clinical manifestation of the CAD.\(^8\)

Manchanda et al has shown similar benefits in Indian population. In this randomized controlled study patients with angiographically proven coronary artery disease who practiced yoga exercise for a period of one year showed a decrease in the number of anginal episodes per week and decrease in body weight.\(^9\)

Jaydeva et al,\(^10\) in a similar study done at yoga institute Mumbai with more number of Indian urban patients, has again proved the definite benefit from the yoga based life style.

**Programme:** This programme is based on above research work by Dr. Jayadeva and team at Yoga Institute Santacruz, Mumbai. In this study 72 subjects were given the yoga based life style along with yoga techniques for one year and results were compared with the 43 of control group who were on conventional medical line of treatment. The study was later published in JAPI in April 2004 edition.

**Change in life style:** Life style determines ones overall approach to life, his attitudes and habits. Life style is influenced by genes, social factors and environmental factors. The yoga based life style and the yoga techniques have been found to be very useful in these areas.

It is a four pronged programme.

1) **Achar - Right actions,**
   - Exercise,
   - Sleep,
   - Routines

2) **Vichar - Right thought process,**
   - Dharma - Sense of duty,
   - Shraddha – Faith,
   - Vairagya – Objectivity,
   - Sthitha prajna - Balance state of mind

3) **Ahar - Right food,**
   - Satvic food,
   - Rajasik food,
   - Tamasic food

Arogyadharm, MGIMS, Sevagram
4) Vihar - Right recreational activity

- Relaxation,
- Recreation,
- Relationship.

(This programme is based on Charak Samhita by Rishi Charak.)

Conclusion: Elementary yoga practice involving simple asanas, relaxation techniques and pranayamas combined with traditional pharmacotherapy in the post-myocardial infarction patients showed superior clinical benefits over those who did not practice yoga.

The sustained muscular activity with internally directed focus in yoga can produce a temporary self-contemplative mental state. Practiced for longer period such effects can be extended for prolonged period. This is evidenced by the suppression of sympathetic activity associated with yoga practice. It can be postulated that the practice of yoga triggers neurohormonal homeostasis that bring about health benefits.

References: