

**Part 1: Dietary Guidelines for Prevention of CHD According to Ancient Texts
and Modern Texts**

**Part 2: Effect of Add-On Yogic Relaxation Techniques after CABG on
Autonomic and Psychological Variables – A Prospective Randomized Control
Study.**

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ABSTRACT

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Cardio vascular diseases are a major killer in the present day. The rising number of deaths due to cardiovascular causes has been correlated to the lifestyle of the affected people. Of the cardio vascular diseases, coronary artery disease (CAD) is the one with highest mortality rate that can be prevented by dietary and lifestyle changes. This study was done to present a comprehensive overview of various diets. Various yoga and āyurvedic texts were studied for references about diets aimed at promotion of health and prevention of CAD. Also, the recent trends in diets for CVD were studied thoroughly. Many similarities as well as differences were found in the ancient and modern texts while making the study. Similarities included the recommendation of consumption of fresh fruits, vegetables, legumes, and whole grains, and also similarities have been noticed in the yogic personality types and the personality types according to modern psychology. Also, the herbs, which have been recommended in āyurvedic texts, are recognized as cardiotonics and cholesterol lowering in nature. The major differences noted were in the consumption of ghee or clarified butter and alcohol. While ghee consumption is recommended in ancient texts, it is totally shunned by modern nutritionists, and it is totally vice-versa for alcohol. Also, vegetarianism is emphasized in ancient texts, which is not considered so important now.

It is concluded that the diet suggested by modern nutritionists aims to heal only the body whereas the ancient texts offer a more holistic approach,

healing the body and mind.

Summary

Due to the alarmingly increasing incidence of Coronary Heart Disease worldwide, a definite need has cropped up to have a second look at the present diet and lifestyle and also identify the lacunae in the present way of managing the disease. Now, with the proper analysis of the risk factors of CHD, it has been concluded that CHD is primarily a **lifestyle disorder**. Wrong lifestyle like consumption of excessively fatty food, smoking, sedentary lifestyle, lack of exercise, etc are seen as some of the most modifiable risk factors, as already discussed before.

This study has aimed to put together the key points involved in the prevention and treatment of CHD through diet according to various ancient scriptures and also texts of modern nutrition.

Ancient texts talk about conducive diets for maintenance of health and prevention of diseases. Both Yogic and Āyurvedic texts emphasize on the sāt̄tvic diet for maintaining a healthy body and mind. Bhagavad Gītā again stresses upon the Sāt̄tvic diet, as it believes that a person's character, nature and actions depend a lot upon the type of food he eats.

Yogic texts bring about the concept of Mitāhāra, a diet that is conducive for good health, which includes foods that are natural and do not cause any harm to the body or mind. The yogic diet emphasizes a lot on fresh fruits, vegetables and whole grains. This can be correlated with modern findings because these foods are rich in fiber, antioxidants and various vitamins and minerals.

Hippocrates has said that "Let food be your medicine and let medicine be your food". Āyurveda also works on a similar principle. It emphasizes on the right diet, the right place to eat, how to eat, and such regulations about diet. It also goes ahead to enumerate the various herbs and their preparations, which should be taken when one is afflicted by various types of heart disease. The herbs, which have been described for hārd roga, are basically cardiotonics and anodynes, which are seen to be helpful in conditions like cardiodynia, cardiopalmus, and cardiopathy. They are also seen to have a cholesterol

lowering effect. They also do not promote eating of animal flesh.

Modern texts on nutrition emphasize on reducing the blood cholesterol levels, reducing intake of saturated fats, and increasing the fiber intake.

The main similarities seen are that both types of diet recommend the intake of a lot of fresh fruits, vegetables, legumes, whole grains, etc, which is actually a sāt̥tvic diet according to the ancient texts, and according to modern nutrition, it is seen to be rich in fiber, antioxidants and lipid lowering agents.

Also, the yogic personality types can be correlated with the personality types described by modern psychologists. The rājasic personality is comparable to the Type 'A' personality, which is very aggressive and assertive. The tāmasic personality can be compared to those who have a very sedentary lifestyle. Both these types of personalities are at risk of heart disease. Therefore a sāt̥tvic lifestyle is advocated.

The main differences noted in the various approaches to treatment of heart disease are as follows:

There is recommendation for consumption of ghee in ancient texts for the promotion of health, whereas this is completely disagreed in modern nutrition, which totally disapproves the intake of saturated fats. It can be reasoned that ghee or clarified butter is extremely soothing to the system. Also, the diet recommended along with ghee intake in ancient texts is full of whole grains and fruits, which discourage the deposition of cholesterol in the arteries and also are rich in antioxidants. Also, there was no consumption of refined foods in those times, therefore the consumption of clarified butter cannot be considered harmful to health.

According to modern texts moderate alcohol is recommended where as this is totally shunned in yogic texts. Both Yoga and Āyurveda believe a lot on the effect of diet on the mind. Therefore it is essential that the food we take doesn't inebriate us. Therefore alcohol intake is not recommended. This might also be because of the excellent properties of the diet being consumed then, that there was no need for extra protection to be provided by alcohol. Modern nutrition allows the intake of meat except red meat and advocates the consumption of fatty fish. Patañjali in his Yoga sūtras, advocates ahimsā, the first Yama. Even Āyurveda doesn't recommend eating animals for food. It has

been proved that food of animal origin on digestion leads to the formation of free radicals whereas eating of fresh fruits and vegetables provide us antioxidants, which help to counter these free radicals. Also, the protein content of non-vegetarian foods can easily be obtained by a combination of pulses, legumes and grains.

Therefore, it can be concluded that ancient texts promote not only a diet but also a way of life, which promotes health and prevents disease, especially cardiac disease. The diet is aimed to heal not only the body, but the mind also. Thus, a very holistic approach has been adopted. Modern nutrition considers the disease as a portion of the body, which is affected, the change of mindset is not considered important. Thus, modern nutrition has failed to give a complete solution to the multidimensional problem, which is easily solved with the knowledge available in the ancient texts.

Part 2: Effect of Add-On Yogic Relaxation Techniques after CABG on Autonomic and Psychological Variables – A Prospective Randomized Control Study.

Aim: The present study was planned to assess the effect of yogic relaxation technique on their autonomic and stress measures during the first postoperative week after CABG.

Methods: 60 male patients with CAD in age range of 35-65yrs (mean \pm SD53.8 \pm 7.94) posted for CABG surgery were randomly allocated to two groups i.e. yoga (n=30) and control (n=30) after taking signed informed consent. Yoga group practiced Yogic relaxation techniques(YRT) through a pre-recorded audiocassette twice a day for six days starting from third post-operative day. 20 minutes YRT included guided deep relaxation(DRT) for all parts of the body, followed by chanting of syllables a,u,m and om in a 20 minute program called Mind sound resonance technique(MSRT). The control group continued to have the conventional therapies with education and supportive counseling. Outcome measures included (1) Galvanic Skin Resistance (GSR) and heart rate (HR), (2) Visual pain analogue scale(PVAS), and Sleep Index (SI), (3) Hospital Anxiety and Depression Scale (HADS) and Positive Affect Negative Affect Scale(PANAS). These were recorded on pre-op and 8th post operative

days.

Results: In the Yoga group, significant improvement ($P < 0.001$, paired t test) were noted in GSR (29.9%), 'Positive affect'(23.86%), with reduction in Negative affect (27.89%), pain (50.33%), sleep index (42.85%), anxiety (9.32%) and depression (11.33%). In the control group there was a non significant change in GSR, positive affect, anxiety and depression. Heart rate increased significantly in both groups.

Summary and Conclusions

Greater autonomic stability and reduced anxiety, depression and negative affect were found after yogic relaxation as compared to control group.

Cardiovascular disease is the major killer world wide, and CABG is the most performed cardiac surgery. Cardiac surgeries are known to increase the anxiety and depression scores of patients, increasing their stress. Various relaxation therapies have been tried to reduce the stress levels of CABG patients, therefore this study aimed to see the efficacy of yoga as a relaxation therapy to decrease the stress levels of CABG patients.

The randomized control study was aimed to determine the effect of Yogic relaxation techniques on autonomic variables and psychological status by assessing galvanic skin resistance and heart rate and administering questions, i.e. Hospital anxiety depression scale (HADS) and Positive affect negative affect scale (PANAS). Out of 300 male patients with Coronary Artery Disease (CAD), age ranged 35-65 years, 60 male selected patients were randomly allocated into two groups i.e., yoga (n=30) and control group (n=30). They were in age range of 35-65 years. The mean age was $53.8(SD \pm 7.94)$ years.

Yoga group practiced Mind Sound Resonance Technique (MSRT) and Deep Relaxation Technique (DRT) in the postoperative ward through headphones with a pre-recorded audiocassette for 20 minutes twice a day at 9.30a.m and a 3.30 pm for six days starting from third post-operative day. The control group continued to have normal care.

The autonomic variables, Galvanic Skin Resistance (GSR) and Heart Rate (HR) were measured using a four-channel polygraph. The duration of each session of recording was ten minutes, in supine rest position. The initial data was taken on the pre-operative day. The final data was taken on the 8th post-operative day

before the discharge.

The psychological state was measured by administering the Hospital Anxiety Depression scale (HADS) and Positive Affect Negative Affect Score (PANAS) on the preoperative day and 8th postoperative day, before the discharge.

The baseline data on all variables were normally distributed ($p > 0.05$ Shapiro Wilks test). The two groups were well matched with pre values. After the data collection, the data analysis was done by SPSS 10.0 version.

Two-tailed paired t-test was used to compare the pre and post values of yoga and control groups. The difference in the post values between the groups was assessed by independent sample t test.

The results showed that there was a significant increase in GSR, HR Positive affect, Quality of sleep, and a significant decrease in pain, depression, and negative affect in the yoga group. Thus, the yoga group showed greater autonomic stability and better psychological state. Yoga is a competent relaxation therapy for CABG patients in the immediate postoperative period.

Key words: GSR, psychological variables, Yogic relaxation Technique, CABG, post operative week