

Study of Effect of Meditation on Lipid Profile in Healthy Adults

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Research Article

Abstract: The present study was carried out to find out the effect of Meditation in reducing the severity of risk factors in CHD. It is attempted to assess the magnitude of risk factors like lipid profile level. Seventy four subjects were included in the study. All the subjects were in the age group of 45-55 years. Meditation contributes as a mechanism which results in decrease in sympathetic activity and improvement in lipid profile. Estimation of serum total cholesterol, Serum TG, serum LDL and serum HDL of all healthy adults was done before and after meditation. The present study shows decrease in serum cholesterol and serum TG level after Meditation and it was found to be statistically significant ($p < 0.001$) and increase in serum HDL level after Meditation and it was found to be statistically significant ($p < 0.001$). Meditation helps in reducing the risk factors like stress in cardiovascular diseases.

Introduction

Life in modern society is complex and often tension filled. Hour by hour, day by day the autonomic nervous system is mobilized to help us to deal with the interpersonal and impersonal stresses we encounter. Fabulous feats of relaxation have been claimed and sometimes demonstrated by persons seeking Meditation. Meditation might be described as a condition of inner tranquility and attaining of a "higher" state of consciousness. The promoters of meditation claim that it is easy to learn and that produces great relaxation, heightened awareness, and more efficient performance. India is a rapidly developing country in the world. The population in India has to face both communicable and non communicable diseases. Medical management for these diseases has side effects, is very expensive and need to be taken for lifetime. Surgical procedures are too expensive "Meditation" is not only medically effective but also cost effective in significantly reducing the health care expenditure. In this method, breathing exercises and mental concentration help the individual to attain control over the autonomic nervous system, resulting in optimization of homeostatic functions of the body and improving mental health. The techniques once learned, call for self-training and constant practice and they do not require specific instrument or other equipment. The cost is therefore negligible. Meditation practices are ideal for

protecting and promoting health.¹ The present study was undertaken to find out the effect of Meditation in reducing the severity of risk factors in CHD. It is attempted to assess the magnitude of risk factors like lipid profile level before and after "Meditation" two months programme. The body is ultimately controlled by the CNS through its relationship with the autonomic nervous system (ANS) and the neuroendocrine processes. Meditation practices have a tremendous influence on the central nervous system. It helps an individual to gain control over the ANS resulting in homostatic functioning of body.

Meditation and Biochemical change

The benefits of Meditation are accompanied by biochemical changes. After three months of Meditation practices, a significant increase in the level of creatinine phosphokinase and decrease in pyruvate to lactate ratio indicating increased muscular activity with anaerobic metabolism was noted. A decrease in lactate, catecholamine, dopamine beta hydroxylase, cholinesterase, monoamine oxidase, blood glucose, and cholesterol has been reported.²

Materials and methods

74 subjects in the age group of 45-55 years, of either sex were included in the study.

Criteria for exclusion

Subjects with addictions (smoking, tobacco chewing, and alcohol intake), hypertension, diabetes mellitus, unstable angina pectoris, left ventricular failure, cardiomegaly, ventricular arrhythmia or any other systemic diseases were excluded.

Investigations

(A) Lipid Profile

a) Sr. cholesterol

Instrument Used: Semi-auto analyser

Method: CHOD - PAP method.³ Principle: Enzymatic determination of total cholesterol.

b) Sr. HDL

Instrument used: Semi-auto analyser

Method: CHOD - PAP method.⁴

Principle: Precipitating reagent for the determination the HDL. Cholesterol with CHOD PAP method.

c) Sr. Triglyceride

Instrument used: Colorimeter.

Method: Enzymatic colorimetric method (GPO-PAP).⁵

lipid profile estimation was carried out at biochemistry laboratory at study place, same as before and after Meditation camp.)

Meditation

Meditation consisted of following interventions

1st day (special activities) Introduction Meditation intervention programme and dietary counseling.

2nd day Health check up and investigations

3rd day onwards Meditation was taught and practiced for one hour daily for two months. Lecture was given on Coronary heart disease and its risk factors i.e. Diabetes, Obesity, and Hypertension, dyslipidemia.

-Separate lecture was given on Diet and diseases.

Group discussion daily for 10 minutes (Before/after Meditation)

Dietary counseling The subjects were advised to take their regular diet avoiding excess quantity of sweets, meat, oily, spicy foods.

Following instructions were given before start of Meditation

-To wear loose and comfortable clothes.

-To keep the bowel and bladder empty.

-To keep the body parts relaxed which are not involved in Meditation.

-To stop and relax if one experiences adverse symptoms like physical strain, sprain, breathlessness, fatigue, chest pain etc. while practicing Meditation.

Observation

Table 1: Comparison of Average Serum Cholesterol before and After Meditation in Females (N=41), In Males (N=33) and Combined (N=74)

Parameter	Before Meditation mean ± SD	After Meditation mean ± SD	't'	'p'	Significance
Blood Cholesterol (mg%) in females (n=41)	187.8±12.07	169.78±14.8	12.58	<0.001	Highly significant
Blood Cholesterol (mg%) in males (n=33)	186.76±12.69	168.39±18.36	11.69	<0.001	Highly significant
Blood Cholesterol (mg%) combined (n=74)	187.33±12.27	169.16±14.89	17.14	<0.001	Highly significant

Table 2: Comparison of Average Serum Triglyceride before and After Meditation in Females (N=41), In Males (N=33) And Combined (N=74)

Parameter	Before Meditation mean ± SD	After Meditation mean ± SD	't'	'p'	Significance
Blood Triglyceride(mg%) in females(n=41)	155.6±6.35	136.92±15.91	8.97	<0.001	Highly significant
Blood Triglyceride(mg%) in males(n=33)	156.23±5.96	138.6±13.38	9.1	<0.001	Highly significant
Blood Triglyceride(mg%) combined(n=74)	155.78±6.14	137.67±14.76	12.6	<0.001	Highly significant

Table 3: Comparison of Average Serum HDI Before and After Meditation in Females (N=41), In Males (N=33) and Combined (N=74)

Parameter	Before Meditation Mean ± SD	After Meditation Mean ± SD	't'	'p'	Significance
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-To take meals 1 hour after completion of Meditation.

Method of meditation

Meditation will be performed in peaceful place, asking the subjects to Sit their silently in a comfortable position with closed eyes and take some deep breath. Ask them to focus their entire attention on the breathing and follow it as it travels inside your body and comes out. Follow the breath in its entire route pf inhalation and exhalation at least for 15-20minutes initially for 10 days and increasing time periods up to 1 hr. daily afterwards till the end of the camp. Method will be taught to the participants and evaluated during the camp by an expert teacher of Meditation.⁶

-All the subjects practiced these Meditations for 40 to 60 minutes on each day for two months.

-Subjects were told to practice each Meditation for minimum 30 minutes on each day early in the morning at their home before coming to the training center each day.

Follow-up

Subjects were assessed for weight and BMI, Vital parameters (PR, RR, BP) Lipid profile and work done by muscle were estimated before and after two months Meditation programme.

Data analysis

In order to determine effectiveness of Meditation breathing exercises, the data before and after the two months programme were analyzed by Microsoft excel software for significant differences using paired 't' tests. A 'p' value < 0.05 was considered significant and 'p' value < 0.001 was considered highly significant.

Blood HDL (mg%) in females (n=41)	53.36±10.65	60.41±8.94	9.7	<0.001	Highly significant
Blood HDL (mg%) in males (n=33)	52.21±10.96	58.72±8.62	5.74	<0.001	Highly significant
Blood HDL (mg%) combined (n=74)	52.85±10.73	59.66±8.78	12.24	<0.001	Highly significant

The values are observed before and after 2 months meditation session. The values are also observed separately for males, females and as combined. Paired 't' test was applied to before and after readings of each parameters and 'p' value was found out.

Lipid profile (Table-1, 2, 3)

In the female subjects mean serum cholesterol level before Meditation practices was 187.80±12.07 and after Meditation practices was 169.78±14.8. In male subjects, before Meditation it was 186.75±12.69 and after Meditation it was 168.39±15.18. In combined effect, before Meditation it was 187.33±12.27 and after it was 169.16±14.89. The average fall in serum cholesterol level was 18.02, 18.37, and 18.17mg% in females, in males and as combined respectively. This indicates decrease in serum cholesterol level after Meditation and it was found to be statistically significant (p<0.001). (Table 1)

In females the mean serum triglyceride level before Meditation practices was 155.6±6.35 and after Meditation practices was 136.92±15.91. In male subjects, before Meditation it was 156.23±5.96 and after Meditation it was 138.6±13.38. In combined effect, before Meditation it was 155.78±6.14 and after it was 137.67±14.76. The average fall in serum triglyceride level was 18.68, 17.63, and 18.11 mg% in females, in males and as a combined respectively. This indicates decrease in serum triglyceride level after Meditation and it was found to be statistically significant (p<0.001). (Table 2)

In females the mean serum HDL level before Meditation practices was 53.36±10.65 and after Meditation practices was 60.41±8.94. In male subjects, before Meditation it was 52.21±10.96 and after Meditation it was 58.72±8.62. In combined, before Meditation it was 52.85±10.73 and after it was 59.66±8.78. The average increase in serum HDL level was 7.05, 6.51, and 6.81 mg% in females, in males and as a combined respectively. This indicates increase in serum HDL level after Meditation and it was found to be statistically significant (p<0.001). (Table 3)

The improvement in lipid profile may be due to following reasons

A combination of stress management training like Meditation and low fat vegetarian diet may be responsible for decrease in serum cholesterol improvement of lipid profile.^{7,11} The mechanism by which Meditation acts could be many ways:-Increased physical activity alone is associated with more favorable lipid profile, the effect continues with passage of time. Diet, exercise and weight loss, leading to an increase in HDL levels, also affect the activity of hepatic lipase and lipoprotein lipase at the cellular level. This could affect metabolism of lipoprotein and lead to an increased uptake of triglyceride by the adipose tissue.⁸ Meditation is believed to bring about a stable autonomic balance and hypo metabolic state and improve the biochemical and hormonal profile.¹

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