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# Analysis on the effect of 4 months moderate brisk walk and yogasana's on bio chemical variables among pre retirement age group men

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**Abstract**
The purpose of the study was to compare the analysis on the effect of 4 months moderate brisk walk and yogasana's on bio chemical variables among pre-retirement age group men. The selected subjects (N=60) were divided in to three groups equally and randomly i.e. Experimental Group – I underwent Brisk Walking, Experimental group – II underwent Yogasana's practices and Group III is called as Control Group. The researcher analyzed the data with help of ANCOVA taking the pretest and posttest scores of the different physiological variable scores of the subjects to know if there was any significant difference among the two groups on brisk walk because of the experimental protocols. Scheffe's Post hoc test was conducted for those factors if there was significant difference among the groups to find out the source of significant. The results revealed that the Total cholesterol, Low density Lipoprotein cholesterol and Triglycerides levels were decreased through brisk walk group and Yogasana's Group when compared to Control group. The scheffe's Post hoc test stated that the brisk walk group is more effective in reducing the Total cholesterol, LDL-C and Triglycerides when compared to Yogasana's group and Control group.

**Keywords:** Brisk walk, yogasana's, total cholesterol, ldl-cholesterol and triglycerides

## Introduction

Modern Technology has enabled the present-day society to exist in a world where the concept of hard or even moderate physical work is almost obsolete. People are continuously looking for different ways to make life even easier. Particularly after the Second World War, in the past seven decades or so the rapid development of technology enabled man to lead almost an effortless life resulting in his Sedentary Life Style.

Physical fitness is one's richest possession. It has to be earned through a daily routine of physical exercise. Physical exercises can be classified as aerobic exercises and anaerobic exercises. Aerobic exercise is a physical exercise that intends to improve the oxygen system. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy generating process. Anaerobic exercises are intense and trigger anaerobic metabolism.

## Experimental Design

The selected subjects (N=60) were divided in to three groups equally and randomly i.e. Experimental Group – I underwent Brisk Walking, Experimental group – II underwent Yogasana's practices and Group III is called as Control Group. The 2 experimental groups were engaged with their respective training protocols for one hour per day and these activities according to the groups were restricted three days per week.

## Administration of Training program

The experimental group had to undergo moderate brisk walking every day for a period of 16 week. The training was on the age group of 55-60 years. The walking program included warm up (10 minutes), workout (40 minutes) and cool down (10 minutes) sessions for duration of 60 minutes. The intensity of walking was increased after every two weeks.

### Warm up (10 minutes)

Walking a few steps on the toe, heal, outside and inside of the foot, neck rotation, shoulder rotation, arms rotation, side bends, body twist, hip rotation, hamstring stretch, knee lift, trunk rotation, alternate toe touch, calf stretch, ankle rotation.

### Workout (20-40 minutes)

The workout was done for 20 minutes to 40 minutes. Brisk walking was done for 20 minutes continuously in the early stages of training. In the later stages the intensity and duration of the walk were increased bi-weekly.

**Table 1:** Bi-Weekly Schedule of Brisk Walking Program

| Week | Distance in kilometers | Duration in minutes |
|---|---|---|
| First 2 weeks | 2 | 20 |
| 2-4 weeks | 2.5 | 25 |
| 4-6 weeks | 3 | 30 |
| 6-8 weeks | 3.5 | 35 |
| 8-10 weeks | 4 | 40 |
| 10-12 weeks | 4.5 | 45 |
| 13-16 weeks | 4.5 to 5 | 50 |

### Cool down (10 minutes)

Sternocleidomastoid muscles will helps in Neck stretching's, Trapezius, Deltoid, Rhomboid, Teres Major, Latissimus Dorsi, Tricep muscles will helps in arms stretching's, Rectus Abdominus, External Oblique, Serratus Anterior muscles will helps in forward, backward, sideward, bending of upper body, Gluteus Maximus, Gluteus Medius, Rectus Femoris, Sartorius, Gastronemius, Abductor Longus, Bicep Femoris and soleus muscles will helps in hip rotation, calf stretching, hamstring stretching, heel walking, side step, lounge forward and sideward, heel up and down stretch, leg stretch and ankle rotation.

**Table 2:** Sixteen Week Schedule of Yogasana's

| Postures | Repetitions | Set | Frequency Per Week | Each Asana in (Sec) | Rest In between Asana in (Sec) | Total Time Excluding Rest Time in Minutes |
|---|---|---|---|---|---|---|
| Standing posture asana's | | | | | | |
| Tadasana | 4 | 4 | 3 days | 10-15 | 15 | 4 |
| Vrksasana | 4 | 4 | 3 days | 10-15 | 15 | 4 |
| Pada-hastasana | 4 | 4 | 3 days | 10-15 | 15 | 4 |
| Ardachakrasana | 4 | 4 | 3 days | 10-15 | 15 | 4 |
| Sitting posture asana's | | | | | | |
| Ardha ustrasana | 2 | 4 | 3 days | 30 | 15 | 4 |
| Sasankasana | 2 | 4 | 3 days | 30 | 15 | 4 |
| Vakrasana | 2 | 4 | 3 days | 30 | 15 | 4 |
| Vajrasana | 2 | 4 | 3 days | 30 | 15 | 4 |
| Prone posture asana's | | | | | | |
| Bhujangasana | 2 | 3 | 3 days | 30 | 15 | 3 |
| Salabhasana | 2 | 3 | 3 days | 30 | 15 | 3 |
| Makarasana | 2 | 3 | 3 days | 30 | 15 | 3 |
| Supine posture asana's | | | | | | |
| Setubandasana | 2 | 4 | 3 days | 30 | 15 | 3 |
| Pavanamuktasana | 2 | 4 | 3 days | 30 | 15 | 3 |
| Savasana | 2 | 2 | 3 days | 30 | 15 | 2 |
| Pranayama | | | | | | |
| Nadisodhana | 4 | 1 | 3 days | 60 | 15 | 4 |
| Bhramari type-i | 4 | 1 | 3 days | 60 | 15 | 4 |
| Bhramari type-ii | 3 | 1 | 3 days | 60 | 15 | 3 |

**Statistical Analysis**

The researcher analyzed the data with help of ANCOVA taking the pretest and posttest scores of the different physiological variable scores of the subjects to know if there was any significant difference among the two groups on brisk walk because of the experimental protocols. Scheffe's Post hoc test was conducted for those factors if there was significant difference among the groups to find out the source of significant.

**Result & Analysis of The Data**

**Table 3:** Analysis of covariance for the data on total cholesterol, Ldl-c & triglycerides of yogasana group, brisk walking group and control group.

| S. No | Variable | Source | Ss | Df | Ms | F |
|---|---|---|---|---|---|---|
| 1 | Total Cholesterol | Adjusted Means | 729.38 | 2 | 364.69 | 15.48* |
| | | Adjusted Covariance | 1319.2 | 56 | 23.59 | |
| | | Adjusted Total | 2048.6 | 58 | | |
| 2 | Ldl-C | Adjusted Means | 450.21 | 2 | 225.11 | 6.89* |
| | | Adjusted Covariance | 1830.06 | 56 | 32.68 | |
| | | Adjusted Total | 2280.27 | 58 | | |
| 3 | Triglycerides | Adjusted Means | 402.32 | 2 | 201.16 | 29.02* |
| | | Adjusted Covariance | 388.23 | 56 | 6.93 | |
| | | Adjusted Total | 790.55 | 58 | | |

The results of the study indicate that the experimental groups i.e., yogasana group and brisk walking group has shown significant difference from the selected bio chemical variable i.e., total cholesterol when compared to the yogasana group and control group. The study clearly indicating that the significant reduction in total cholesterol in brisk walking group when compared with yogasana group and control group. This study also stating that yogasana group also shown significant reduction in total cholesterol when compared to control group.

The results of the study indicate that the experimental groups i.e., yogasana group and brisk walking group has shown significant difference from the selected bio chemical variable i.e., LDLC when compared to control group. The results stating that the brisk walking group has shown reduction in LDLC when compared to yogasana group and control group. The yogasana group also has shown that significant reduction in LDLC when compared to control group.

The results of the study indicate that the experimental groups i.e., yogasana group and brisk walking group has shown significant difference from the selected bio chemical variable i.e., Triglycerides when compared to control group**.** The results stating that the brisk walking group has shown significant reduction in Triglycerides when compared to yogasana group and control group. This results also stating that the yogasana group also has shown that significant reduction in Triglycerides when compared to control group.

**Scheffe's Posthoc Test for The Differences Between the Adjusted Post Test Paired Means on Total Cholesterol, Ldl-C & Tiglycerides**

| **Total Cholestrol** | | | |
|---|---|---|---|
| | YG 184.03 | BWG 182.29 | CG 190.4 |
| CG 190.4 | 6.32 sig | 8.2 sig. | |
| BWG 182.29 | 1.83n.sig. | | |
| Ldl Cholesterol | | | |
| | YG 113.21 | BWG 112.12 | CG 118.40 |
| CG 118.40 | 5.19 sig. | 6.29 sig. | |
| BWG 112.12 | 1.09 n.sig. | | |
| Triglycerides | | | |
| | YG 101.19 | BWG 99.48 | CG 105.68 |
| CG 105.68 | 4.51 sig. | 6.2 sig. | |
| BWG 99.48 | 1.69n.sig. | | |

According to the differences, it's clearly stating that, the brisk walk shows more effect in reducing the Total cholesterol levels when compared to brisk walk group and control group. Yogasana's group also shown some effect in reduction of cholesterol when compared to control group and further its clearly identified that big muscle activity like walking will reduce the total cholesterol levels effectively when compared to the yogasana's group.

The scheffe's post hoc test analysis is clearly indicating that the difference between brisk walk group and control group is significant when compared to the other group. This difference stated that the through big muscle activity will decrease low density lipoprotein which is known as bad cholesterol. The yogasana's also helps in decrease of LDL – C when compared to the control group.

The scheffe's post hoc test analysis is clearly indicating that the difference between brisk walk group and control group is significant when compared to the other group. This difference stated that the through big muscle activity will decrease Triglycerides. The yogasana's also helps in decrease of Triglycerides (TG) when compared to the control group.

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