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Dr. D Sureshkumar

Assistant Professor, Department
of Physical Education, Thiru
Kolanjiappar Government Arts
College Grade-I, Vriddhachalam,
Tamil Nadu, India

Effect of aerobic training and selected asanas practice in lipids profile on overweight men

Dr. D Sureshkumar

Abstract

The present study was designed to find out the effect of aerobic training and selected asanas practice in lipids profile on overweight men. To achieve the purpose of the study, thirty overweight men were randomly selected from various faculties of Annamalai University, Chidambaram, Tamilnadu and their age ranges between 35 to 45 years. Selected subjects were divided into three groups with ten members of each. Group 1 served as control, Group 2 as asana training and Group 3 as aerobic training group. Aerobic exercise and asanas were performed by the specific training groups for a period 12 weeks (4 days/ week) and the control group was given no special training other than regular activities. Blood samples were collected before and after the completion of full training course. Biochemical analyses were done on lipids profile such as total cholesterol (TC), triglycerides (TG) and low density lipoproteins (LDL) and to find out the significant effect of training on overweight men. The data were collected and analyzed using ANCOVA. Further Scheffe's post hoc test was applied to know the paired mean difference if the optioned 'F' ration was significant. Level of confidence was fixed at 0.05. The resulted study shows that subjects performing aerobic and asanas group were found to be efficient in reducing the lipids levels when compared to control group.

Keywords: Aerobic, asana, overweight men and lipids profile

Introduction

Obesity increases the likelihood of various diseases, particularly heart disease, type 2 diabetes, obstructive sleep apnea, certain types of cancer, and osteoarthritis. Obesity is most commonly caused by a combination of excessive food energy intake, lack of physical activity, few cases are caused primarily by genes, endocrine disorders, medications, or psychiatric illness. Evidence to support the view that some overweight people eat little yet gain weight due to a slow metabolism is limited. On average, overweight people have greater energy expenditure than their thin counterparts due to the energy required to maintain an increased body mass. (Haslam DW and James WP, 2005) [3].

Obesity is a leading preventable cause of death worldwide, with increasing rates in adults and children. Authorities view it as one of the most serious public health problems of the 21st century. Obesity is stigmatized in much of the modern world though it was widely seen as a symbol of wealth and fertility at other times in history and still is in some parts of the world. In 2013, the American Medical Association classified obesity as a disease. (Barness LA *et al*, 2007) [1].

The main treatment for obesity consists of dieting and physical exercise. Diet programs may produce weight loss over the short term, but maintaining this weight loss is frequently difficult and often requires making exercise and a lower food energy diet a permanent part of a person's lifestyle. (Shick SM *et al*, 1998) [6].

Today's sedentary lifestyle threatens the health of every individual in every walk of life. In middle aged and senior persons such lifestyle promotes or increases the risk of hypertension, obesity, muscle weakness, postural deficiencies, diabetes and coronary heart disease. Therefore, one of the main problems of sedentary lifestyle, obesity, is a public health problem which requires intervention and treatment. To put a resolution to this problem we have overviewed the literature studies and decided to undergo comparative study to find out the effect of aerobic training and selected yoga asana exercises in overweight men.

Corresponding Author:

Dr. D Sureshkumar

Assistant Professor, Department
of Physical Education, Thiru
Kolanjiappar Government Arts
College Grade-I, Vriddhachalam,
Tamil Nadu, India

Methodology

For the purpose of the study, thirty overweight men were randomly selected as subjects from various faculties of Annamalai University, Chidambaram, Tamilnadu and their age will range between 35-45years. Selected subjects were divided into three groups with ten members in each.

Group I into aerobic training, starts their workload with 35% of aerobic training and ends with 50% (medium intensity). Group II –served as asanas training group with selected asanas includes Suryanamaskar, Paschimottanasana, Ardhalasana, Dhanurasana, Pavanamuktasana, Sarvangasana and Bhujangasana. During the training period the two experimental groups’ underwent their respective training program for 12 weeks (4 days/ week) and the training programs were given about from 45 to 60 minutes per day. Group III- acts as Control Group CG (without training) who did not participate any special training apart from the regular activities.

Blood samples were collected before and after the completion of full training course. Biochemical analyses were done on

lipids profile such as total cholesterol (TC), triglycerides (TG) and low density lipoproteins (LDL) and to find out the significant effect of training on overweight men. To biochemical analysis measured using appropriate Boehringer-Manheim and other high graded biochemical analytical kit methods. Biochemical analysis was done in the Department of Biochemistry, Raja Muthiah Medical College and Hospital, Annamalai University by the concerned Biochemist and the results were produced by them.

Biochemical variables were assessed before and after 3 months of aerobic training and asana practices. The data were collected and analyzed using ANCOVA. Further Scheffe’s post hoc test was applied to know the paired mean difference if the optioned ‘f’ ration was significant and level of confidence was fixed at 0.05

Results

The analysis of covariance for adjusted post-test data on TC, TG and LDL of aerobic, asana and control groups were analyzed presented in Table-I.

Table 1: The table value for significance at 0.05 level of confidence for df 2 and 32 was 3.3.

| Variables | Aerobic Training Group | Asanas Training Group | Control Group | SOV | SOS | df | Ms | ‘F’ Ratio |
|-------------|------------------------|-----------------------|---------------|-----|---------|----|--------|-----------|
| TC (mg/dl) | 207.57 | 213.96 | 220.5 | B | 931.48 | 2 | 465.74 | 129.12* |
| | | | | W | 100.02 | 32 | 3.12 | |
| TG (mg/dl) | 153.51 | 164.48 | 168.31 | B | 1265.09 | 2 | 632.54 | 147.46* |
| | | | | W | 72.02 | 32 | 2.25 | |
| LDL (mg/dl) | 154.98 | 160.29 | 167.45 | B | 887.59 | 2 | 443.79 | 188.24* |
| | | | | W | 64.78 | 32 | 2.02 | |

*Significant at 0.05 level of confidence.

Table 1 shows that the adjusted post-test values obtained ‘F’ ratio of on total cholesterol, triglycerides and low density lipoproteins were 129.12, 147.46 and 188.24 respectively. The obtained ‘F’ ratio was greater than the table value of 3.3 for significance with df 2 and 32 at 0.05 level. To determine the significant difference among the three paired mean, the Scheffe’s post hoc test was applied to find out the results were presented in table-II.

Table 2: Shows that the three paired mean difference between aerobic training and asana training group, aerobic training and control group, asana training and control group on TC, TG and LDL were found significant difference.

| Variables | Aerobic Training Group | Asanas Training Group | Control Group | Mean Difference | Confidence Interval |
|-----------|------------------------|-----------------------|---------------|-----------------|---------------------|
| TC | 207.57 | 213.96 | | 6.39* | 1.36 |
| | 207.57 | | 220.5 | 12.93* | |
| | | 213.96 | 220.5 | 6.54* | |
| TG | 153.51 | 164.48 | | 10.97* | 1.57 |
| | 153.51 | | 168.31 | 14.8* | |
| | | 164.48 | 168.31 | 3.83* | |
| LDL | 154.98 | 160.29 | | 5.31* | 1.49 |
| | 154.98 | | 167.45 | 12.47* | |
| | | 160.29 | 167.45 | 7.16* | |

* Significant at .05 level of confidence.

The results of the study showed that adjusted post-test means value of the study showed that aerobic and asana training were reduced on lipids profile in overweight men.

Discussions

A study reported that the combined work of yogasana and pranayama in young male students for a period of 12 weeks training showed better effect in reducing cholesterol,

triglycerides, LDL, VLDL and blood pressure. It also retained the HDL to normal (Sarvanan *et al.*, 2010) [5]. In previous studies destined that different intensity of aerobic training programme brings out the deflection in the lipid levels were based on the duration, intensity of training methods and the strain of the subjects in performance (Hartung *et al.*, 1981; Heath *et al.*, 1983) [2].

It was found that in recent research on different intensities of aerobic training among coronary heart disease on middle aged overweight men determine their effect in reducing the risk factors in medium intensity of aerobic training groups. (Narayanasami *et al.*, 2010) [4]. However this recent research also supports the present study to derive the better training programme. In our study, we found that 12 weeks of aerobic training at medium intensity significantly reduced the serum lipids and plasma lipoproteins than asana training groups in overweight males.

Conclusion

The training programs used in this study produced significant benefits on reducing such as total cholesterol, triglycerides and low density lipoproteins in level on short term period. Accordingly, the results of the current study suggest that aerobic-based training programme is found to be better than asana training. Hence, it was concluded from adjusted post-test means value of the study showed that aerobic training and asana training were reduced on TC, TG and LDL level in overweight men. Aerobic exercise was trained in all age groups and is enough to positively influence the metabolic health indicators of sedentary older women and men.

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