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## Effects of yoga combined with floor aerobic exercises on high density lipo protein and low density lipo protien among school boys

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### Abstract

The purpose of the study was to effect of yoga combined with floor exercises on high lipo protein and low density lipoprotein among school boys. To achieve this purpose of the study only thirty school boys were selected in Nadar Matriculation Higher Secondary School, Usilampatti, Madurai as subjects. The selected subjects were divided into two equal groups of fifteen subjects each, such as yoga with floor aerobic exercises group and control group. The group I underwent yoga with floor exercise training programme for three days per week for twelve weeks. Group II acted as control who did not participate any special training programmes apart from their regular physical education activities as per their curriculum. The following variables namely high density lipoprotein and low density lipoprotein were selected as criterion variables. All the subjects of three groups were tested on selected dependent variables at prior to and immediately after the training programme by using blood analysis. The analysis of covariance was used to analyze the significant difference, if any between the groups. The .05 level of confidence was fixed as the level of significance to test the “F” ratio obtained by the analysis of covariance, which was considered as an appropriate. The results of the study revealed that there was a significant difference between yoga with floor exercise group and control group on high density lipoprotein and low density lipoprotein.

**Keywords:** High density lipoprotein, low density lipoprotein, ancova, yoga with floor aerobic exercises, school boys

### 1. Introduction

The word ‘Yoga’ is derived from the root “Yuj” or Yoke that means union or merger. The merger of soul with God and the experience of oneness with him are meant by yoga. Patanjali stated that “Yoga Cittavrtti nirodha”. It means stilling the minds’ movement. It is also explained as seeing yourself in yourself by yourself. Yoga is a timeless Pragmatic science evolved over thousands of years dealing with the physical and spiritual being of man as a whole.

Yoga training is a technique of harmony and also a preparation for the total integration of human personality. Yoga was first surnni.ized and systematized around the second century A.D by Patanjali and his yoga sutra is still regarded as the classic work on the subject. Hence Patanjali is known as the Father of Yoga. Yoga is a method by which one can remove ignorance and attain union with the supreme self (B.K.S. Iyengar 1983).

Yoga is a system of attaining perfect physical and mental health. The body is the temple of soul and to attain harmony of mind, body and spirit, the body must be physically fit. Yoga controls one’s senses resulting in an integrated personality. Positive changes in the life style of the people can be brought through by yoga. Behaviors can also be moulded properly leading to balanced personalities. It clearly reveals that there will be a sound mind only in a sound body. To keep our body in a good condition, it is essential that the various organs and systems of our body must be in good condition.

“Aerobics” basically means living or working with oxygen. Aerobics or endurance exercises are those in which large muscle groups are used in rhythmic repetitive fashion for prolonged periods of time.

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Aerobic is a system of exercises designed to promote the supply and use of oxygen in the body. Some of these exercises include running, dancing, rowing, skating and walking. Aerobic exercise increases cardio respiratory fitness, which is the heart's ability to pump blood and deliver oxygen throughout the body. Some benefits of cardio respiratory fitness are increased endurance and energy. Weight control decreased blood pressure, decreased heart rate, decreased cholesterol levels, and an increased ability to manage stress.

The word "aerobics" is relatively old in the context of sport and exercise. Cooper has developed an aerobics exercises programme in the spirit of preventive medicine with a view that aerobic types of exercises would be useful to develop cardiorespiratory health and fitness.

### 1.1 Review of Related Literature

Kinisler *et al.* (2001) [7] studied the effect of step aerobics and aerobics dancing training on blood lipids and lipoproteins. Forty five sedentary female college students were divided into step aerobics group (N=15), aerobics dance group (n=15) and control group (n=15), step aerobics and aerobics training were given to the two experimental groups for eight weeks, 3 days per week, 45 minutes per day with 60 – 70% of their heart rate reserve. The results indicated that there was a significant decrease ( $p < 0.01$ ) in TC levels of both the groups when compared with the control group. A significant increase ( $p < 0.05$ ) in HDL-C levels and a significant decrease ( $p < 0.01$ ) in TC: HDL-C ratio were obtained in the step aerobics group. It was concluded that step aerobics training is an effective training mode for modifying lipid and lipoprotein profile of female college aged students.

Stein *et al.*, (1990) [8] documented the effects of different exercise training intensities on lipo-protein cholesterol fractions in healthy middle aged men. Forty nine healthy men were divided into four groups and cycle ergometer exercise training was given for 12 weeks. The groups were assigned different intensities like 65%, 75%, 85% maximal heart rate and a control group. The results indicate that there was a

significant increase in HDL-C fractions in 75% and 85% groups but not in the 65% and the control group. Significant decrease in LDL fraction occurred only in the 75% group. All the three groups had an increase in the oxygen uptake. It was concluded that aerobics exercise training favourably alters plasma lipoprotein profile and a minimum training intensity equal to 75% maximal heart rate is required to increase HDL-C level.

### 2. Methodology

The purpose of the study was to effect of yoga combined with floor exercises on high lipo protein and low density lipoprotein among school boys. To achieve this purpose of the study only thirty school boys were selected in Nadar Matriculation Higher Secondary School, Usilampatti, Madurai as subjects. The selected subjects were divided into two equal groups of fifteen subjects each, such as yoga with floor aerobic exercises group and control group. The group I underwent yoga with floor exercise training programme for three days per week for twelve weeks. Group II acted as control who did not participate any special training programmes apart from their regular physical education activities as per their curriculum. The following variables namely high density lipoprotein and low density lipoprotein were selected as criterion variables. All the subjects of three groups were tested on selected dependent variables at prior to and immediately after the training programme by using blood analysis. The analysis of covariance was used to analyze the significant difference, if any between the groups. The .05 level of confidence was fixed as the level of significance to test the "F" ratio obtained by the analysis of covariance, which was considered as an appropriate.

### 3. Results

#### 3.1 High Density Lipoprotein

The analysis of covariance on high density lipoprotein of pre and post tests for yoga with floor aerobic exercises group and control group was analysed and presented in Table I.

**Table 1:** Ancova on high density lipoprotein of pre and posttest for yoga with floor aerobic exercises and control groups

test	Yoga with Floor Aerobic Exercises Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	53.27	52.40	Between	5.63	1	5.63	2.69
S.D.	1.39	1.26	Within	58.53	28	2.09	
Post Test							
Mean	56.87	52.67	Between	132.30	1	132.30	20.65*
S.D.	1.40	1.25	Within	179.37	28	6.41	
Adjusted Post Test							
Mean	56.53	53.00	Between	85.05	1	85.05	197.18*
			Within	11.65	27	0.43	

\* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively).

The table I shows that the adjusted post-test means of yoga with floor aerobic exercises group and control group are 56.53 and 53.00 respectively the obtained "F" ratio of 197.18 for adjusted post-test means is more than the table value of 4.21 for df 2 and 41 required for significance at .05 level of confidence on high density lipoprotein.

The results of the study indicated that there was a significant difference between the adjusted post-test means of yoga with floor aerobic exercises group and control group on high density lipoprotein.

#### 3.2 Low Density Lipoprotein

The analysis of covariance on low density lipoprotein of pre and post tests for yoga with floor aerobic exercises group and control group was analysed and presented in Table II.

**Table 2:** Ancova on low density lipoprotein of pre and posttest for yoga with floor aerobic exercises and control groups

test	Yoga with Floor Aerobic Exercises Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	113.60	112.47	Between	9.63	1	9.63	3.32
S.D.	1.08	1.45	Within	81.33	28	2.90	
Post Test							
Mean	104.87	111.87	Between	367.50	1	367.50	22.52*
S.D.	2.06	1.96	Within	456.97	28	16.32	
Adjusted Post Test							
Mean	104.52	112.22	Between	397.44	1	397.44	183.23*
			Within	58.56	27	2.17	

\* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively).

The table II shows that the adjusted post-test means of yoga with floor aerobic exercises group and control group are 104.52 and 112.22 respectively the obtained "F" ratio of 183.23 for adjusted post-test means is more than the table value of 4.21 for df 2 and 41 required for significance at .05 level of confidence on low density lipoprotein.

The results of the study indicated that there was a significant difference between the adjusted post-test means of yoga with floor aerobic exercises group and control group on low density lipoprotein.

#### 4. Conclusions

Based on the results of the study, the following conditions were drawn.

1. There was a significant difference between yoga with floor aerobic exercises group and control group on high density lipoprotein.
2. There was a significant difference between yoga with floor aerobic exercises group and control group on low density lipoprotein.

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