

EFFECT OF DIFFERENT YOGA PRACTICE ON PHYSICAL AND PHYSIOLOGICAL VARIABLES AMONG COLLEGE LEVEL WOMEN

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ABSTRACT

The purpose of the present study was to find out the effect of different yoga practice on physical and physiological variables among college level women. For this purpose, forty five college women residing around chinnasalem town, Salem district, Tamilnadu, were selected as subjects. The age of the subjects were ranged from 18 to 25 years. They were divided into three equal groups, each group consisted of fifteen subjects, in which experimental group - I underwent Bihar School of yoga practice, experimental group - II underwent B.K.S. Iyengar yoga practice and group - III acted as control that did not participate in any special activities apart from their regular curricular activities. The training period for the study was six days (Monday to Saturday) in a week for six weeks. Prior and after the experimental period, the subjects were tested on percent of body fat, Flexibility, high density lipoprotein and Low density lipoprotein. Percent of body fat was assessed by applying the Deurenberg et al formula. High density lipoprotein and Low density lipoprotein were tested after taking 5 ml of blood samples by venous puncture method, by using Boehringer Mannheim Kit Method. The Analysis of Covariance (ANCOVA) was applied to find out any significant difference between the experimental groups and control group on selected criterion variables. The result of the study shows that the Bihar School of Yoga practice group and B.K.S. Iyengar Yoga practice group were decreased the Low density lipoprotein, percent of body fat, Flexibility, and increased the high density lipoprotein significantly. It was concluded from the results of the study that Bihar School of Yoga practice and B.K.S. Iyengar Yoga practice has bring positive changes in percent of body fat, high density lipoprotein and Low density lipoprotein as compare to the control group. Moreover it was also concluded that there was no significant difference was found between the experimental groups in all criterion variable.

Keywords: Yoga, women. Physiological and Physical Variables, Training

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INTRODUCTION

The inactive method of life had negative impact on human body and has been related to several serious health issues. Psychological science is that the scientific study of human mind and behavior. Psychological science worries with all aspects of behavior and with the thoughts, feeling and motivation underlying that behavior. it's each a thriving educational discipline and a significant skilled follow. Psychological science as a scientific discipline may be a science and psychologists study human behavior by observant, measurement and testing, then inbound at conclusions that are unmoving in sound scientific methodology. Applied psychologists facilitate individuals with all kinds of downside, operating with them to achieve modification for the higher. organic chemistry ways of assessment of dietary standing will offer knowledge which will mirror a person's recent dietary intake or long term intake or it's going to not mirror intake in the slightest degree. several variables will impact nutrient levels in body fluids. These embody activity level, stress, age, gender and therefore the standing of different nutrients. there's nobody definitive price that properly identifies actual deficiency state and it's not perpetually clear if a deficiency state in due to that nutrient. All our physiological processes are controlled by the system. One branch of the nervous known as the sympathetic system (SNS), is tormented by however we tend to breathe. speedy and shallow respiration depletes dioxide, that cause the sympathetic system to

become activated. This leads to multiplied pulse rate and vital sign, that results in sweating palms and feet, high levels of tension (Fight syndrome) and more. Yoga respiration is a good

technique that helps restore and maintain traditional dioxide levels

Recent scientific studies of the consequences of yoga and meditation on health validates its ability to enhance nearly each side of our performing— brain function, secretion perform, sleep, mood, balance, etc. a lot of active practices followed by restful ones cause deeper relaxation than restful practices alone, documented by analysis from Hindoo Vivekananda yoga analysis foundation close to Bangalore town and risk of Neuro-plasticity conveyance regarding changes within the hypo-pituitary-pancreatic axis. the advance within the super molecule levels when yoga may be due to multiplied internal organ enzyme and conjugated protein enzyme at cellular level, that affects the metabolism of conjugated protein and therefore increase uptake of denseness conjugated protein by fat tissues.

Jimenez et al, (2009) investigated the effect of yoga on physiological parameters i.e. cardiovascular fitness, anthropometric variables and biochemical and dietary parameters of women. Ray et al, (2001) indicated the improvement in performance at sub-maximal level of exercise and in anaerobic threshold in the yoga group. Shoulder, hip, trunk and neck flexibility improved in the yoga group. Pal, et al, (2011) indicated that the BMI, fat % , fat free mass, SBP, DBP, heart rate, total cholesterol, triglycerides, HDL and low density lipoprotein were changed significantly. Reduction of SBP, DBP, heart rate, body fat%, total cholesterol, triglycerides and LDL after regular yogic practices is beneficial for cardiac and hypertensive patients. Chen T.L. et.al (2009) showed that yoga exercise indeed improved BMI, flexibility, and muscular endurance. After 2 weeks of self-practice at home, yoga exercise continued to improve BMI, flexibility,

muscular strength and cardio-pulmonary fitness. Madanmohan and associates (2005) concluded that different types of pranayama produce different physiological responses in normal young volunteer Barshankar et al., (2003) indicated that yoga reduced the age related deterioration in cardiovascular functions. Selvanayaki (2002) concluded that systolic and diastolic blood pressure were not significantly improved by the influence of asana, pranayama and the combination of asana and pranyama. Murugesan, Govindarajulu and Bera (2000). revealed that both the treatment stimuli (i.e. yoga and drugs) were effective in controlling the variables of hypertension. Madan Mohan, et al., (2000) concluded that after yoga training a given level of exercise leads to a midler cardiovascular response, suggesting better exercise tolerance. Schell, Allolio and Schoake (1994) investigated that the heart rate was significantly different in yoga group having a significant decrease in heart rate during the yoga practice. Kosuri M and Sridhar GR. (2009) expressed that the yoga practice for 40 days resulted in reduced BMI, improved wellbeing, and reduced anxiety. Hafner-Holter, Kopp and Gunter (2009) showed significant improvement in social competence in both training groups; the gym-group show a reduction in summarization and body-related anxiety as well as an improvement in physical and emotional well-being.

METHODOLOGY

Selection of Subjects:

Thirty college women residing around Chinnasalem city, District-Salem (Tamilnadu) were hand-picked as subjects. The age of the respondents were ranged from eighteen to twenty three years. The chosen subjects were divided into 3 equal teams, every cluster consisted of 10 subjects, during which cluster - I (n = 15) underwent

Bihar college of Yoga practice, experimental cluster - II (n = 15) underwent B.K.S. Iyengar Yoga practice and cluster - III (n = 15) acted as control, that failed to participate in any special activities with the exception of their regular info activities. Totally different modes of yoga practices were conducted six days (Monday to Saturday) per week for 6 weeks.

Testing Procedure:

For the aim of assortment of information from the respondents were asked to report at early morning, someday previous and someday when experimental period, in abstinence condition. Five millimeter unit of blood was collected from every subject by blood vessel puncture methodology and therefore the blood collected was hold on in little bottles for pre and post-test for measuring the high and low density lipoprotein.

Criterion Variables:

The investigator consulted with the yoga specialists and selected the subsequent variables as criterion variables: 1. percent of body fat, 2. Flexibility, 3. high density lipo-protein and four -low density lipo-protein. Percentage of body fat was assessed by applying the Deurenberg et al[11] formula. The high density lipo-protein and low density lipo-protein were assessed by exploitation the Boehringer metropolis Kit methodology.

Statistical Analysis:

Analysis of variance (ANCOVA) was applied to seek out the numerous distinction if any, among the experimental teams and control cluster on hand-picked criterion variables severally. In all cases, .05 level of confidence was mounted to check the importance, that was thought of as applicable.

RESULTS AND DISCUSSION

The data collected on percent of body fat, Flexibility, high density lipoprotein and low density lipoprotein

among experimental and control groups were analyses and the results were presented in Table 1 and 2 and depicted in Figure 1.

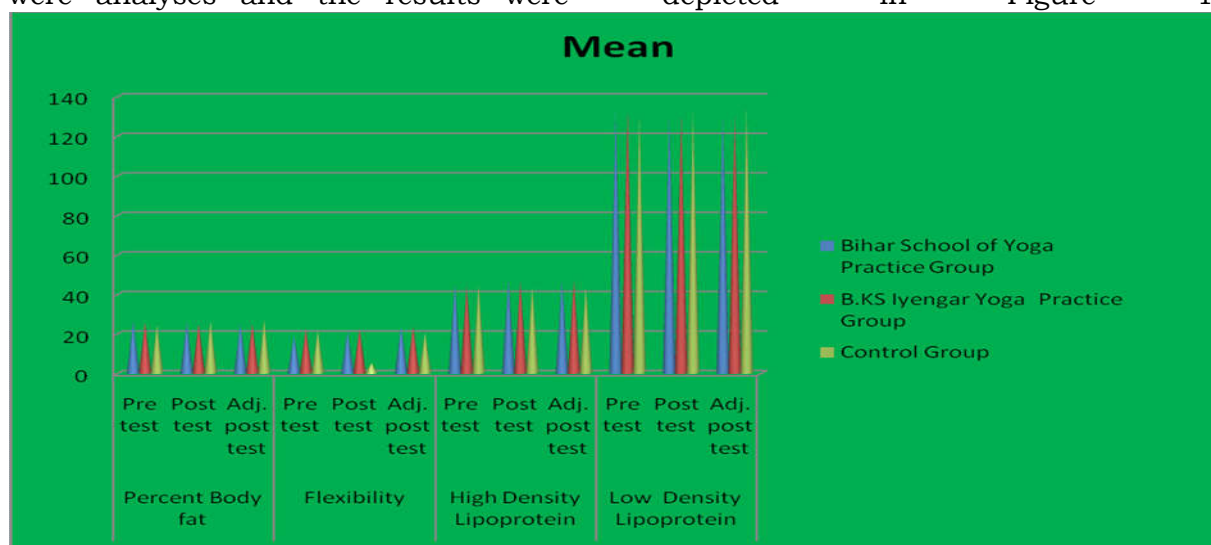


Figure-1: Illustration of Comparative analysis of selected physical and physiological variables

TABLE I
ANALYSIS OF COVARIANCE ON SELECTED CRITERION VARIABLES AMONG EXERCISE GROUPS AND CONTROL GROUP

Variables	Group Name	Bihar School of Yoga Practice Group	B.KS Iyengar Yoga Practice Group	Control Group	F-Ratio
Percent Body fat	Pre test Mean $\pm$ SD	26.57 $\pm$ 3.12	25.75 $\pm$ 2.414	24.5 $\pm$ 2.48	0.314
	Post test Mean $\pm$ SD	25.87 $\pm$ 2.94	25.24 $\pm$ 2.56	26.62 $\pm$ 2.47	1.128
	Adj. post test	25.16	25.327	26.774	65.69*
Flexibility	Pre test Mean $\pm$ SD	19.13 $\pm$ 4.12	22.67 $\pm$ 7.18	21.35 $\pm$ 5.23	1.978
	Post test Mean $\pm$ SD	21.48 $\pm$ 4.35	22.60 $\pm$ 5.20	5.12	2.41
	Adj. post test	23.69	23.78	20.67	33.87*
High Density Lipoprotein	Pre test Mean $\pm$ SD	45.07 $\pm$ 2.463	44.53 $\pm$ 3.021	44.87 $\pm$ 2.95	0.137
	Post test Mean $\pm$ SD	47.60 $\pm$ 2.772	46.80 $\pm$ 3.189	44.00 $\pm$ 2.80	6.253*
	Adj. post test	47.357	47.088	43.956	77.42*
Low Density Lipoprotein	Pre test Mean $\pm$ SD	133.13 $\pm$ 4.84	133.73 $\pm$ 3.65	131.80 $\pm$ 4.44	0.780
	Post test Mean $\pm$ SD	131.13 $\pm$ 4.94	131.67 $\pm$ 3.83	132.67 $\pm$ 4.56	0.455
	Adj. post test	130.888	130.820	133.759	39.23*

*Significant at .05 level. F.05 (2, 42)=3.22, F.05 (2, 41)=3.21

% Body Fat:

It is observed from Table 1 that the pre-test means on percentage of body fat of the two experimental groups and control group were 26.57, 25.75 and 24.50 respectively. The obtained -F -ratio value 0.314 for the pre-test means was less than the required F.05 (2,42)=3.22. This reveals that there is no significant difference among the three groups on body fat % before the commencement of the experimental training. It is inferred that the selection of the sample for the three groups was successful.

The post test means on body fat % of the two experimental groups and control group were 25.87, 25.24 and 26.62 respectively. The obtained F-value 1.128 for the post test data was less than the required F.05 (2,42)=3.22. It discloses that there was no significant improvement among the experimental groups and control group on body fat % after the 6 week training.

The adjusted post test means on body fat % of the two experimental groups and control group were 25.16, 25.327 and 26.774 respectively. The obtained F-value of 65.69 for the adjusted post test data was greater than the required F.05 (2,41)=3.21. It reveals that there was significant change on body fat % as a result of the experimental training.

Flexibility:

It is also observed from Table 1 that the pre-test means on flexibility of the two experimental groups and control group were 26.57, 25.75 and 24.50 respectively. The obtained -F -ratio value 0.314 for the pre-test means was less than the required F.05 (2,42)=3.22. This reveals that there is no significant difference among the three groups on body fat % before the commencement of the experimental training. It is inferred that the selection of the sample for the three groups was successful.

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High Density Lipoprotein:

It is also observed from Table 1 that the pre-test means on high density of lipoprotein of the two experimental groups and control group were 26.57, 25.75 and 24.50 respectively. The obtained -F -ratio value 0.314 for the pre-test means was less than the required F.05 (2,42)=3.22. This reveals that there is no significant difference among the three groups on body fat % before the commencement of the experimental training. It is inferred that the selection of the sample for the three groups was successful.

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Low Density Lipoprotein:

It is also observed from Table 1 that the pre-test means on low density of lipoprotein of the two experimental groups and control group were 26.57, 25.75 and 24.50 respectively. The obtained -F -ratio value 0.314 for the pre-test means was less than the required F.05 (2,42)=3.22. This reveals that there is no significant difference among the three groups on body fat % before the commencement of the experimental training. It is inferred that the selection of the sample for the three groups was successful.

The post test means on low density of lipoprotein of the two experimental groups and control group were 25.87, 25.24 and 26.62 respectively. The obtained F- value 1.128 for the post test data was less than the required F.05 (2,42)=3.22. It discloses that there was no significant improvement among the experimental groups and control group on body fat % after the 6 week training.

The adjusted post test means on low density of lipoprotein of the two experimental groups and control group were 25.16, 25.327 and 26.774 respectively. The obtained F-value of 65.69 for the adjusted post test data was greater than the required F.05 (2,41)=3.21. It reveals that there was significant change on body fat % as a result of the experimental training.

TABLE 2
SIGNIFICANCE OF DIFFERENCE BETWEEN ORDERED PAIRED MEANS OF BODY FAT %, FLEXIBILITY, HIGH AND LOW DENSITY LIPOPROTEIN OF COLLEGE LEVEL WOMEN IN EXPERIMENTAL GROUPS AND CONTROL GROUP

Adjusted Post – Test Mean on Percent of Body Fat				
Experimental Group-I	Experimental Group-II	Control Group	Mean Difference	Confidence Interval (C.I.)
25.16	-	26.77	1.61*	0.35
25.16	25.32	-	0.16	
-	25.32	26.77	1.45*	
Adjusted Post – Test Mean on Flexibility				
23.69		20.67	3.02*	0.35
23.69	23.78		0.09	
	23.78	20.67	3.11*	
Adjusted Post – Test Mean on High Density Lipoprotein				
47.36	47.09	-	0.27	0.74
47.36	-	43.96	3.40*	
-	47.09	43.96	3.13*	
Adjusted Post – Test Mean on Low density lipoprotein				
130.89	130.82	-	0.07	1.17
130.89	-	133.76	2.87*	
-	130.82	133.76	2.94*	

**Significant at .05 level

%Body Fat:

Table 2 shows that the Scheffé's Test of Post-hoc Comparison for mean differences of college level women between adjusted post-test mean on percent of body fat of experimental group-I - control group and between experimental group II-control group were found statistically significant, as the obtained mean differences of 1.61 and 1.45 respectively were higher than the C.I. of 0.35. The significant difference was not observed among college women between experimental group-I – experimental group-II, as the obtained paired mean differences of 0.16 was less than the confidence interval.

Flexibility:

The Scheffé's Test of Post-hoc Comparison for mean differences of college level women between adjusted post-test mean on flexibility of experimental group-I - control group and between experimental group II-control group were found statistically significant, as the obtained mean differences of 3.02 and 3.11 respectively were higher than the C.I. of 0.35. The significant difference was not observed among college women between experimental group-I – experimental group-II, as the obtained paired mean differences of 0.90 was less than the confidence interval.

High Density Lipoprotein:

The Scheffé's Test of Post-hoc Comparison for mean differences of college level women between adjusted post-test mean on high density lipoprotein of experimental group-I - control group and between experimental group II-control group were found statistically significant, as the obtained mean differences of 3.40 and 3.13 respectively were higher than the C.I. of 0.74. The significant difference was not observed among college women between experimental group-I – control , as the obtained

paired mean differences of 0.27 was less than the confidence interval

High Density Lipoprotein:

The Scheffé's Test of Post-hoc Comparison for mean differences of college level women between adjusted post-test mean on low density lipoprotein of experimental group-I - control group and between experimental group II-control group were found statistically significant, as the obtained mean differences of 2.87 and 2.94 respectively were higher than the C.I. of 1.17. The significant difference was not observed among college women between experimental group-I – control , as the obtained paired mean differences of 0.07 was less than the confidence interval.

CONCLUSIONS

The experimental groups such as, Bihar School of Yoga practice group and B.K.S. Iyengar Yoga practice group have achieved a significant improvement in high density lipoprotein and a significant reduction in percent of body fat, Flexibility and Low density lipoprotein when compared with the control group. It was also found that there was no significant difference was found between the Bihar School of Yoga practice group and B.K.S. Iyengar Yoga practice group on selected criterion variables

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