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ORIGINAL ARTICLE

EFFECT OF YOGASANA AND SWISS BALL TRAINING ON BALANCE OF SEDENTARY MALE STUDENTS

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Abstract:

For the purpose of the study 30 sedentary male students from Pondicherry University were randomly selected and their age ranged between 19-22 years. Subjects were asked to assemble in the multipurpose hall in the morning hours and were given training. The subjects were hostlers and their food pattern was similar. Their life style and living condition were not taken into consideration. They were divided into three groups A, B and C with 10 subjects in each group. Group A was kept under control, group B was treated with yogasana training and group C were given Swiss ball training. The subjects of group B and C underwent training for twelve weeks with the duration of 45 minutes. The training was started at 6.30 am and it was given for 6 days a week. The pre test and post test on balance was measured and the data was statistically analysed by using ANCOVA to find out the significant difference among the three groups. The finding of the study revealed that there was a beneficial effect on balance for both the experimental groups when compared to the control. The training was more effective for Swiss ball training group than asana group.

KEYWORDS:

yogic asana, Swiss ball and balance.

INTRODUCTION

YOGA

The word Yoga is divided from the Sanskrit root yuj. Yoga means to “Yoke”, to “Bind”, to “Link” to “Connect” or to “Merge”. Yoga joins body and mind together. The merger of soul with god and the experience of oneness with Him – is yoga. It is possible only through the control over sense organs and through continued practice and detachment. According to the great sage patanjali, “The withdrawal of sense organs from their worldly objects and their control is yoga”, “Yoga is a system of integrate education of the body, the mind and the inner sprit. It is a way to attain salvation and to get oneself freed from the cycle of birth and death. Its main purpose is the elimination of the forces harmful to the soul”.[1]

ASANA

Asana is derived from the verb root “as” which means “to sit”, “to remain”, etc., According to Patanjali, Asana is defined as, “SITHRAM SUKHAM ASANAM”-PYS 11:46 meaning, that position which is comfortable and steady. Therefore asana means, a state of being in which one can remain physically and mentally steady, calm, quite and comfortable.[2]

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SWISS BALL

Swiss ball movements require a greater degree of coordination by the user than do conventional floor stretches. The Swiss ball also permits the execution of both static stretches (where the target body part is fully extended), as well as more demanding dynamic stretches, where the user directs force into or through the extended joint. While a Swiss ball routine may have both aerobic and anaerobic benefits, depending on the intensity, duration, and the frequency with which the exercises are performed, Swiss ball training is not a substitute for either type of exercise. The Swiss ball is an ideal supplement to an existing training program, such as yoga or Pilates, which promote greater strength and flexibility in a safe and controlled physical setting.[3]

Using the Swiss ball during training process, utilize many additional muscles to maintain stability and balance. Swiss balls are less stable than traditional fitness equipment, which may greatly improve the balance, coordination and core strength. The alignments of the body also improve when proper balance is maintained.[4]

METHODOLOGY

SELECTION OF SUBJECTS

To achieve the purpose of this study, 30 sedentary students were randomly selected from different departments in Pondicherry University, Puducherry. The subjects' age ranged between 19 to 22 years as per the university records.

INCLUSION AND EXCLUSION CRITERIA

The subjects for this study were oriented and the purpose of the study was explained. The method of performing the test on balance was explained to the subjects before conducting the test. The research scholar explained and demonstrated the stork stand test for balance to the subjects. The recordings of the measurements were made known to the subjects with a view to familiarize about their performance. The subjects of the experimental groups received personalized attention and supervision of the trainer in relation to the Swiss ball and yogasana practice. The training was carried out in the multipurpose hall in the physical education department. The training was given for forty five minutes in the morning hours at 6.30 am for twelve weeks. The subjects living condition and life style are not taken into consideration for this study.

TABLE I
MEAN AND STANDARD DEVIATION FOR PRE AND POST TEST ON BALANCE

VARIABLES	GROUPS	N	TEST	MEAN	STD. DEVIATION
Balance	Control group	10	Pre test	8.79	1.85
			Post test	9.01	1.84
	Yogasana group	10	Pre test	8.28	1.75
			Post test	14.39	1.84
	Swiss ball group	10	Pre test	8.78	1.83
			Post test	16.75	2.04

Table I shows the mean and standard deviation for pre and post test scores on balance test for control group, Yogasana group and Swiss ball group. The initial and final means for control, Yogasana group and Swiss ball group on balance test were 8.79 and 9.01, 8.28 and 14.39, 8.78 and 16.75.

TABLE II
ANOVA TABLE FOR BALANCE OF CONTROL, YOGASANA GROUP AND SWISS BALL GROUP

Variables	Source of Variance	df	Sum of squares for x	Sum of squares for y	Mean squares X	Mean squares Y	'F' ratio
Balance	Between Groups	2	1.72	314.49	0.86	154.25	54.70
	Within Groups	27	88.35	77.61	3.27	2.87	
	Total	29	90.07	392.10			

*Significant at 0.05 level of confidence with degrees of freedom for 2 and 27.
Required table value at 0.05 level is 3.35.

Table II discloses the pre and post test results of ANOVA on balance for three different groups namely control, Yogasana group and Swiss ball group. The calculated 'F' value is 54.70, which is significant at 0.05 level of confidence. This implies that there is a significant change due to the effect of selected training.

TABLE III
CALCULATION OF ANALYSIS OF COVARIANCE ON BALANCE OF YOGASANA GROUP, SWISS BALL GROUPS AND CONTROL GROUP

Variables	Source of Variance	df	Sum of Squares x	Sum of Squares y	Sum of Squares x.y	Mean Squares x.y	'F' ratio
Balance	Between Groups	2	314.49	322.77	154.25	116.38	136.06
	Within Groups	27	77.61	30.84	2.87	1.19	
	Total		392.10				

*Significant at 0.05 level of confidence with degrees of freedom for 2 and 27.
Required table value at 0.05 level is 3.35.

The above table III shows the adjusted means for the post test data of ANCOVA among the three groups on balance. The calculated 'F' value is 136.06 is greater than the required table value 3.35 at 0.05 level of confidence. This indicates that there is a significant difference among the groups which indicates that there is an effect in training programme which in turn induces changes in the post test programme.

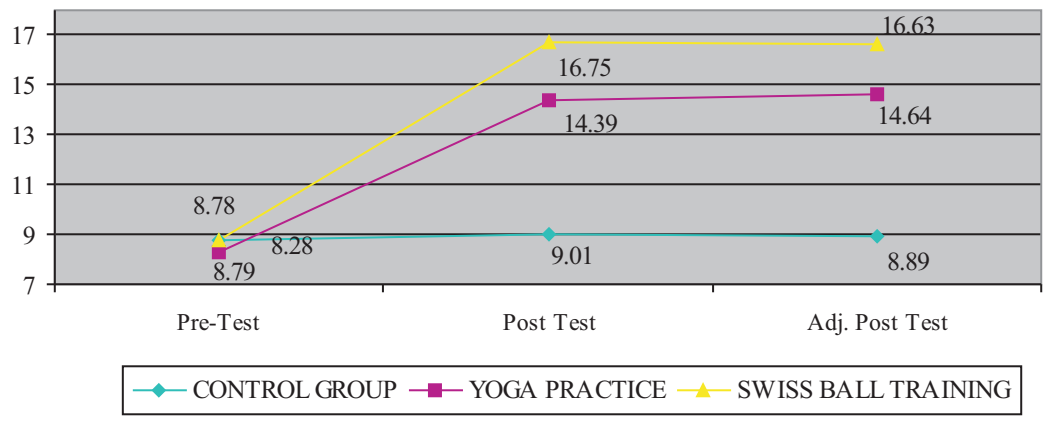
TABLE IV
ORDERED ADJUSTED MEANS AND DIFFERENCES BETWEEN MEANS FOR EXPERIMENTAL GROUPS AND CONTROL GROUP IN ANALYSIS OF COVARIANCE PROBLEM ON BALANCE

SWISS BALL TRAINING	YOGASANA GROUP	CONTROL GROUP	MEAN DIFFERENCES
16.63	14.64	-	1.99*
16.63	-	8.89	7.74*
-	14.64	8.89	5.75*

* Significant at 0.05 level. Scheffe's confidence interval at 0.05 level is 1.269.

The table IV shows the Scheffe's post-hoc method of testing the significance for the differences between the paired means following a significant analysis of co-variance for Swiss ball, yogasana practice and control groups. The adjusted mean on balance in order of magnitude and the difference between the means for the control and two experimental groups are given in the table. The mean differences between the Swiss ball group and yogasana group are 1.19, which is significant at 0.05 level of confidence. In the comparison between Swiss ball group and control group the difference are 7.74, which is significant at 0.05 level of confidence. The ordered adjusted means on flexibility and differences between Yogasana group and control group are 5.75, which is significant at 0.05 level of confidence. This indicates that the Swiss ball group had a better improvement when compared to the Yogasana group and control group. The differences in means of Swiss ball group, yogic asana group and control group is presented in fig.

MEAN DIFFERENCES AMONG EXPERIMENTAL GROUPS AND CONTROL GROUP ON BALANCE TEST



DISCUSSION

The study was framed to analyze and compare the effects of yogic asana and Swiss ball training on sedentary college men (aged 19 and 22 years). The subjects were given training on Swiss ball and yogic asana continuously for a period of 12 weeks for six days in a week. The selected physical variable is balance. The main aim of the study was to maintain and enhance the efficiency of physical fitness.
The result of the study is in consonance with the findings of the following studies by Escamilla, et. al., (May 2010) and Marshall and Murphy (February 2005).

CONCLUSION

It was observed from the pre test results, that there is no significant difference among control and experimental groups. While the post test results of control and experimental groups revealed that, there is a significant difference among the three groups. The training program has influenced the experimental groups where as there is no effect in the control group.

In the analysis of co-variance on balance among control and two experimental groups, a significant difference was revealed which throws light on the application for twelve weeks yogasana and Swiss ball training. From the statistical analysis it is clear that both the training programmes had its own effects. But the Swiss ball training showed more effects in the physical variable balance when compared to yogic asana group and control group.

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