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A Study of Physical Fitness and Influence of Physical Exercise, Circuit Training and Yogic Practice on Speed among College Girls in Tamilnadu State

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Abstract

The purpose of the study was to find out the study of Physical Fitness and Influence of physical exercise, circuit training and yogic practice on speed among college Girls in Tamilnadu State. To achieve this purpose, eighty girl's subjects who were not involved in any vigorous physical training programme at the age ranging from 17 to 21 years were selected from in and around Tirunelveli city. The selected subjects were divided into four groups at random with 20 each. In the experimental groups twenty girls subjects would serve as control group and the remaining Twenty would undergo systematic training This study consisted of three experimental groups, physical exercise (n=20) underwent circuit training (n=20) and yogic practice (n=20) underwent Group CG (n=20) acted as control group. the analysis of covariance (ANCOVA) was used (Broota, 1989). The scheffe's test was used as post-hoc test to determine which of the paired means differed significantly where the differences in adjusted posttest means resided in univariate ANCOVA among three groups.

Keywords: physical exercise, circuit training and yogic practice

1. Introduction

Physical fitness is a general state of health and well-being or specifically the ability to perform aspects of sports or occupations. Physical fitness is generally achieved through correct nutrition, exercise, hygiene and rest. It is a set of attributes or characteristics that people have or achieve that relates to the ability to perform physical activity.

Before the industrial revolution, fitness was the capacity to carry out the day's activities without undue fatigue. However with automation and changes in lifestyles physical fitness is now considered a measure of the body's ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist hypokinetic diseases, and to meet emergency situations

Regular physical activity is one of the most important things one can do for the health. It can help Control the weight, Lower the risk of heart disease, Lower the risk for type 2 diabetes and metabolic syndrome, Lower the risk of some cancers, Strengthen the bones and muscles, Improve the mental health and mood, Improve the ability to do daily activities and prevent falls, if you're an older adult. Circuit training is a fast-paced class in which one do one exercise for 30 seconds to 5 minutes and then move on to another exercise. It's like a game of musical chairs: Everyone begins at a *station* (that is, a place where an exercise is done), and when the instructor yells "Time!" everyone moves to the next free station. Some classes alternate an aerobic activity (like stepping or stationary cycling) with a muscle-strengthening activity (like using weight machines). Others focus exclusively on muscle toning or aerobic exercise.

The circuit training comprises of 6 to 10 strength exercises that are completed one exercise after another. Each exercise is performed for a specified number of repetitions or for a set time before moving on to the next exercise. The exercises within each circuit are separated by a short rest period, and each circuit is separated by a longer rest period. The total number of circuits performed during a training session may vary from two to six depending on your training level (beginner, intermediate, or advanced), your period of training (preparation or competition) and your training objective.

The purpose of the study was find out the Influence of physical exercise, circuit training and yogic practice on speed among college Girls in Tamilnadu State. It was hypothesizes that speed may be improves due to physical exercise than circuit training and yogic practice.

Only the College girls in Tamil Nadu State and their age ranged from 17 to 20 years were selected. The dependent variables speed was selected. The three training means namely physical exercise training, circuit training and yogic practice were considered as independent variables. One hundred and twenty college girls in Tamil Nadu State, India, were selected randomly as subjects.

2. Methodology

The study was designed to study the influence of physical exercise, circuit training and yogic practice of college girls in Tamil Nadu State on selected Physical Fitness components. The variable selected as dependent variable was speed. The three training means namely physical exercise training, circuit training and yogic practice were considered as independent variables. To achieve this purpose, one hundred and twenty college girls in Tamil Nadu State, India, were selected randomly as subjects. Their age ranged from 17 to 20 years. They were assigned to three experimental groups (Group I, Group II and group III) and a control group (group IV) of thirty each. The experimental groups were subjected to their respective training programmes during morning hours namely physical training, circuit training and yogic practices over the period of six days in a week in addition to their regular schedule. However, control group was not exposed to any specific training but they participated in the regular schedule. All the subjects of four groups were tested on selected dependent variables prior to and after the treatment. The data pertaining to the variables in this study were examined by using dependent t-test to find out significant improvement and analysis of covariance (ANCOVA) for each variable separately in order to determine the differences if any among the adjusted posttest means. Whenever 'F' ratio for adjusted post-test was found to be significant, the Scheffe's test was used as post-hoc test to determine the three paired mean differences. The level of significance was fixed at 0.05 level of confidence for all the cases. The analysis of dependent 't' test on the data obtained for speed of the pre-test and post-test

means of linear speed package training and control groups has been analysed and presented in Table 1.

Table 1: Summary of Mean Standard Deviation and Dependent 't' Test for the Pre Post and Adjusted Post Tests on Speed of Experimental and control Groups

(Speed scores are expressed in 1/10th seconds)

		Physical Exercise Group	Circuit Training Group	Yogic Practice Group	Control Group
Pre test	Mean	10.530	10.510	10.462	10.580
	SD	0.277	0.232	0.264	0.279
Post test	Mean	8.941	9.877	10.101	10.572
	SD	0.179	0.446	0.063	0.225
't' test		30.004*	7.478*	7.619*	0.283

*Significant at .05 level. The table value required for .05 level of significance with df 29 is 1.699.

Table 1 shows that the pre-test mean values of physical exercise, circuit training, yogic practice and control groups on speed are 10.530, 10.510, 10.462 and 10.580 respectively and the post-test mean values on speed are 8.941, 9.877, 10.101 and 10.572 respectively. The obtained dependent t-ratio values between the pre and posttest means of physical exercise, circuit training, yogic practice and control groups on speed are 30.004, 7.478, 7.619 and 0.283 respectively. The table value required for significant difference with df 29 at .05 level is 1.699. Since, the obtained 't' ratio values of experimental groups are greater than the table value, it is understood that physical exercise, circuit training, yogic practice groups had significantly improved the performance of speed. However, the control group had not improved significantly on the performance of speed. Since the obtained 't' value is less than the table value, as they were not subjected to any specific training. The analysis of covariance on speed of physical exercise, circuit training, yogic practice and control groups has been analysed and presented in Table 2.

Table 2: Analysis of Covariance for the Data on speed among Experimental and Control Groups

Adjusted Post Test Means				Sources of Variance	Sum of Squares	df	Mean Squares	F-Ratio
Physical Exercise Group	Circuit Training Group	Yogic Practice Group	Control Group					
8.938	9.881	10.119	10.554	Between	41.900	3	13.967	214.732*
				Within	7.480	115	0.065	

* Significant at 0.05 level of confidence. (Speed scores are expressed in 1/10th seconds). The table value for significance at 0.05 with df 3 and 115 is 2.687.

Table 2 shows that the adjusted post-test means of physical exercise, circuit training, yogic practice and control groups on speed are 8.938, 9.881, 10.119 and 10.554 respectively. The obtained F-ratio value is 214.732, which is higher than the table value 2.687 with df 3 and 115 required for significance at .05 level. Since the value of F-ratio is higher than the table value, it indicates that there exist significant differences among the adjusted post-test means of physical exercise, circuit training, yogic practice and control groups on speed. To find out which of the paired means had a significant difference, the Scheffe's post-hoc test was applied and the results are presented in Table 3.

Table 3: Scheffe's Test for the Differences between the Adjusted Post Test Paired Means of Speed

Physical Exercise Group	Circuit Training Group	Yogic Practice Group	Control Group	Mean Difference	Confidential Interval
8.938	9.881			0.943*	0.187
8.938		10.119		1.181*	0.187
8.938			10.554	1.615*	0.187
	9.881	10.119		0.238*	0.187
	9.881		10.554	0.673*	0.187
		10.119	10.554	0.435*	0.187

*Significant at .05 level.

The table 3 shows that the adjusted posttest mean difference on speed between physical exercise and circuit training, physical exercise and yogic practice, and physical exercise and control group, circuit training and yogic practice, circuit training and control group, and yogic practice and control group are 0.943, 1.181, 1.615, 0.238, 0.673 and 0.435 respectively which are higher than the confidence interval value of 0.0.187 at .05 level of confidence. The result of the study indicates that, all the experimental groups were significantly differed when compared to control group on speed. However, it is further revealed that the experimental group namely physical exercise training group had improved the performance of speed better than the other three groups. The pre and posttest and adjusted posttest mean values of physical exercise, circuit training, yogic practice and control groups on speed were graphically represented in the figure 1.

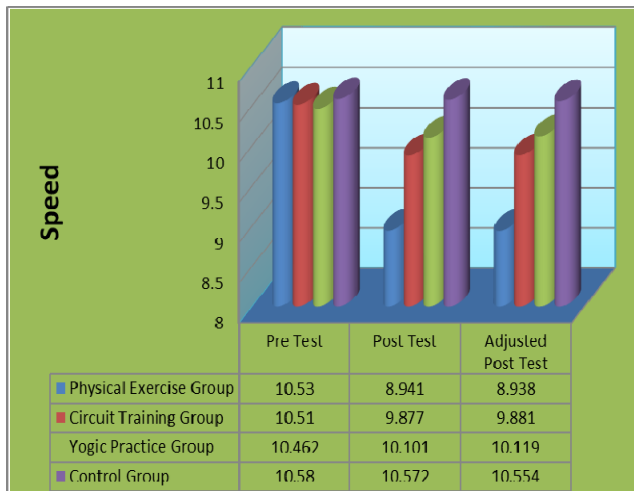


Fig 1: The pretest posttest and adjusted posttest mean values of physical exercise, circuit training, yogic practice and control groups on speed

3. Conclusions

The result of this study indicates that, the control group does not show any significant difference on speed. The dependent variables such as speed had shown significant improvement due to training effects of physical exercise, circuit training and yogic practice.

The effect of physical exercise training was greater than circuit training and yogic practice on speed among the college girls in Tamil Nadu state. The findings of this study were also in accordance with the results which suggested the existence of effect of physical exercise training on speed, endurance and agility.

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