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Influences of Floor Aerobics, Step Aerobics and Combined Training on Motor Fitness Variables of Women Students

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Abstract

The purpose of the study was to find out the influences of floor aerobics, step aerobics and combined training on motor fitness variables of women students. To achieve the purpose of the present study, one hundred and twenty women students from Annai Veilananni's college in Chennai, Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 22 years. The subjects were divided into four equal groups of twenty each. Group I acted as Experimental Group I (Floor aerobics training), Group II acted as Experimental Group II (Step aerobics training), Group III acted as Experimental Group III (Combined training) Group IV acted as and Control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The study was formulated as a true random group design, consisting of a pre-test and post-test. One hundred and twenty women students from the colleges in Chennai, Tamilnadu, India was selected as subjects at random and their ages ranged from 18 to 22 years. The subjects (N=120) were randomly assigned to four equal groups of twenty subjects each. Pre test was conducted for all the subjects on selected motor fitness and performance variables. This initial test scores formed as pre test scores of the subjects. The groups were assigned as Experimental Group I, Experimental Group II, Experimental Group III and Control Group in an equivalent manner. Experimental Group I was exposed to floor aerobics training, Experimental Group II was exposed to step aerobics training, Experimental Group III was exposed to combined training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. After the experimental treatment, all the subjects were tested on their motor fitness variables. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant; Scheffe's post hoc test was used. In all cases 0.05 level of confidence was fixed to test hypotheses. The floor aerobics training had shown significant improvement in all the selected motor fitness variables among women students after undergoing floor aerobics training for a period of twelve weeks. The step aerobics had shown significant improvement in all the selected motor fitness variables among women students after undergoing the step aerobics for a period of twelve weeks. The combined training group had shown better performance on motor fitness variables among women students than the other groups.

Keywords: Floor Aerobics, Step Aerobics, Motor Fitness, Women.

Introduction

The physical education program is a vital part of the total education program, which is designed to maximize the potential for self-fulfilling living in the community. It has long argued that participation in sports develops social characteristics of participants. Participation alone may not, however, benefit takes place from the individual to society. Aerobics is a form of physical exercise that combines rhythmic aerobic exercise with stretching and strength training routines with the goal of improving all elements of fitness such as flexibility, muscular strength, and cardio-vascular fitness. It is usually performed to music and may be practiced in a group setting led by an instructor (fitness professional), although it can be done solo and without musical accompaniment. With the goal of preventing illness and promoting physical fitness, practitioners perform various routines comprising a number of different dance-like exercises. Formal aerobics classes are divided into different levels of intensity and complexity. Aerobics classes may allow participants to select their level of participation according to their fitness level. Many gyms offer a variety of aerobic classes. Each class is designed for a certain level of experience and taught by a certified instructor with a specialty area related to their particular

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class. Floor aerobics is a form of aerobic power distinguished from other types of aerobic exercise performed on the plain floor. The floor must be safe without any protrude and safe in manner. Step aerobics is a form of aerobic power distinguished from other types of aerobic exercise by its use of an elevated platform (the step). The height can be tailored to individual needs by inserting risers under the step.

Methodology

The purpose of the study was to find out the influences of floor aerobics, step aerobics and combined training on motor fitness variables of women students. To achieve the purpose of the present study, one hundred and twenty women students from the colleges in Chennai, Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 22 years. The subjects were divided into four equal groups of twenty each. Group I acted as Experimental Group I (Floor aerobics training), Group II acted as Experimental Group II (Step aerobics training), Group III acted as Experimental Group III (Combined training) Group IV acted as and Control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The study was formulated as a true random group design, consisting of a pre-test and post-test. One hundred and twenty women students from the colleges in Chennai, Tamilnadu, India was selected as subjects at random and their ages ranged from 18 to 22 years. The subjects (N=120) were randomly assigned to four equal groups of twenty subjects each. Pre test was conducted for all the subjects on selected motor fitness and performance variables. This initial test scores formed as pre test scores of the subjects. The groups were assigned as Experimental Group I, Experimental Group II, Experimental Group III and Control Group in an equivalent manner. Experimental Group I was exposed to floor aerobics training, Experimental Group II was exposed to step aerobics training, Experimental Group III was exposed to combined training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. After the experimental treatment, all the subjects were tested on their motor fitness variables. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant; Scheffe's post hoc test was used. In all cases 0.05 level of confidence was fixed to test hypotheses.

Results

Table I. Computation of analysis of covariance of floor aerobics training step aerobics training combined training and control groups on speed

	FATG	SATG	CTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	8.92	8.92	8.93	8.89	**BG**	0.02	3	0.008	0.77
					WG	1.22	116	0.01	
Post-Test Means	8.72	8.73	8.50	8.88	**BG**	2.17	3	0.72	65.81*
					WG	1.27	116	0.01	
Adjusted Post-Test Means	8.72	8.73	8.50	8.88	**BG**	2.18	3	0.72	66.13*
					WG	1.26	115	0.01	

An examination of table - I indicated that the pre test means of floor aerobics training, step aerobics training, combined training and control groups were 8.92, 8.92, 8.93 and 8.89 respectively. The obtained F-ratio for the pre-test was 0.77 and the table F-ratio was 2.68. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 116. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test means of the floor aerobics training, step aerobics training, combined training and control groups were 8.72, 8.73, 8.50 and 8.88 respectively. The obtained F-ratio for the post-test was 65.81 and the table F-ratio was 2.68. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 116. This proved that the differences between the post test means of the subjects were significant. The adjusted post-test means of the floor aerobics training, step aerobics training, combined training and control groups were 8.72, 8.73, 8.50 and 8.88 respectively. The obtained F-ratio for the adjusted post-test means was 66.13 and the table F-ratio was 2.68. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 115. This proved that there was a significant difference among the means due to the experimental trainings on speed. Since significant

differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-II.

Table II. The scheffe's test for the differences between the adjusted post test means on speed

Adjusted Post-Test Means				Mean Difference	Confidence Interval
FATG	SATG	CTG	CG		
8.72	8.73	---	---	0.01	0.07
8.72	---	8.50	---	0.22*	
8.72	---	---	8.88	0.16*	
---	8.73	8.50	---	0.23*	
---	8.73	---	8.88	0.15*	
---	---	8.50	8.88	0.38*	

**** Significant at 0.05 level of confidence***

The multiple comparisons showed in Table II proved that there existed significant differences between the adjusted means of floor aerobics training with combined group (0.22), step aerobics training with combined group (0.16), floor aerobics training with control group (0.23), step aerobics training with control group (0.15) and combined group with control group (0.38). There was no significant difference between floor aerobics training and step aerobics training group (0.01) at 0.05 level of confidence with the confidence interval value of 0.07. The pre, post and adjusted means on speed were presented through bar diagram for better understanding of the results of this study in Figure-I.

Figure I. Pre post and adjusted post test differences of the, floor aerobics training step aerobics training combined training and control groups on speed

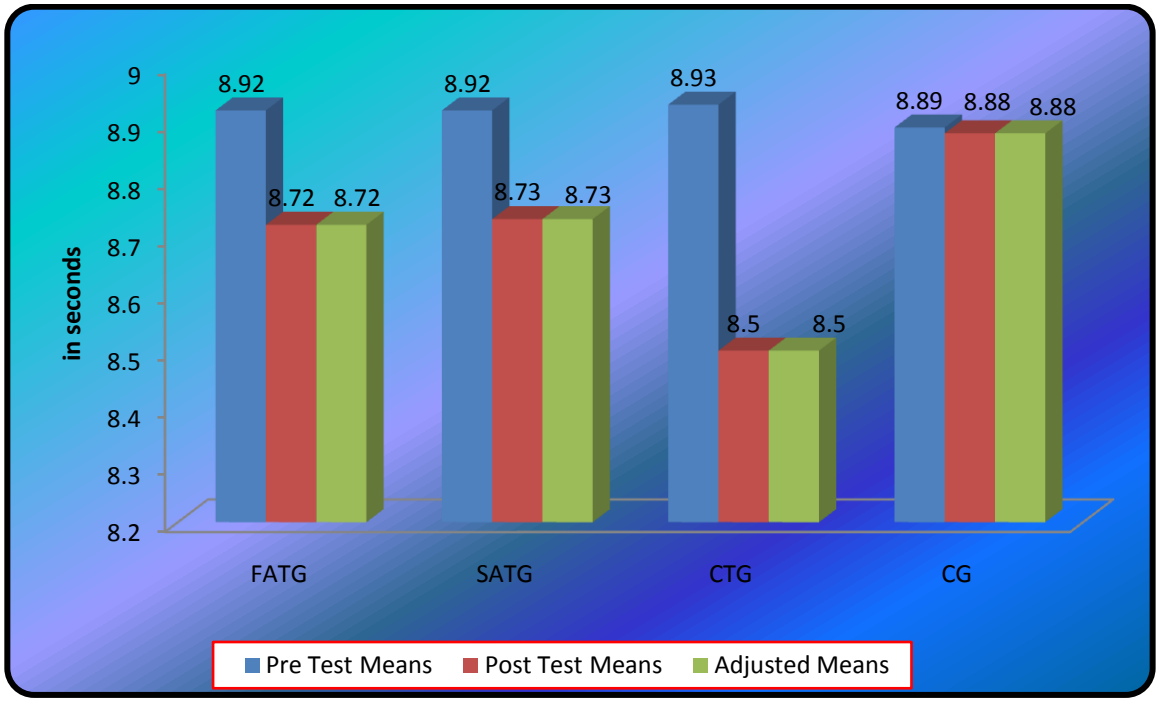


Table III. Computation of analysis of covariance of floor aerobics training step aerobics training combined training and control groups on agility

	FATG	SATG	CTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	13.87	13.88	13.85	13.91	**BG**	0.06	3	0.02	1.01
					WG	2.28	116	0.02	
Post-Test Means	13.15	13.18	12.71	13.85	**BG**	19.58	3	6.53	360.23*
					WG	2.10	116	0.01	
Adjusted Post-Test Means	13.15	13.18	12.72	13.85	**BG**	19.05	3	6.35	347.68*
					WG	2.10	115	0.01	

An examination of table - III indicated that the pre test means of floor aerobics training, step aerobics training, combined training and control groups were 13.87, 13.88, 13.85 and 13.91 respectively. The obtained F-ratio for the pre-test was 1.01 and the table F-ratio was 2.68. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 116. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test means of the floor aerobics training, step aerobics training, combined training and control groups were 13.15, 13.18, 12.71 and 13.85 respectively. The obtained F-ratio for the post-test was 360.23 and the table F-ratio was 2.68. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 116. This proved that the differences between the post test means of the subjects were significant. The adjusted post-test means of the floor aerobics training, step aerobics training, combined training and control groups were 13.15, 13.18, 12.72 and 13.85 respectively. The obtained F-ratio for the adjusted post-test means was 347.68 and the table F-ratio was 2.68. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 115. This proved that there was a significant difference among the means due to the experimental trainings on agility. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-IV.

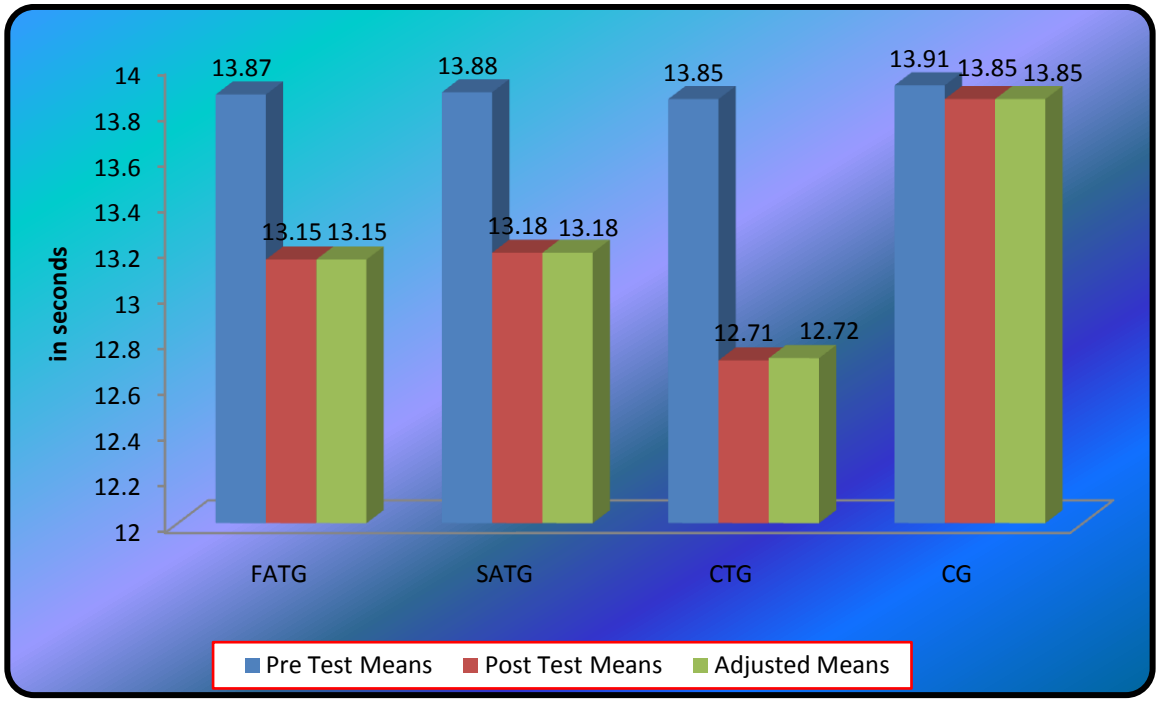
Table IV. The scheffe's test for the differences between the adjusted post test means on agility

Adjusted Post-Test Means				Mean Difference	Confidence Interval
FATG	**SATG**	**CTG**	**CG**		
13.15	13.18	---	---	0.03	0.07
13.15	---	12.72	---	0.43*	
13.15	---	---	13.85	0.70*	
---	13.18	12.72	---	0.46*	
---	13.18	---	13.85	0.67*	
---	---	12.72	13.85	1.13*	

**** Significant at 0.05 level of confidence***

The multiple comparisons showed in Table IV proved that there existed significant differences between the adjusted means of floor aerobics training with combined group (0.43), step aerobics training with combined group (0.70), floor aerobics training with control group (0.46), step aerobics training with control group (0.67) and combined group with control group (1.13). There was no significant difference between floor aerobics training and step aerobics training group (0.03) at 0.05 level of confidence with the confidence interval value of 0.07. The pre, post and adjusted means on agility were presented through bar diagram for better understanding of the results of this study in Figure-II.

Figure II. Pre post and adjusted post test differences of the, floor aerobics training step aerobics training combined training and control groups on agility



Conclusions

From the analysis of the data, the following conclusions were drawn:

1. The floor aerobics training had shown significant improvement in all the selected motor fitness variables among women students after undergoing floor aerobics training for a period of twelve weeks.
2. The step aerobics had shown significant improvement in all the selected motor fitness variables among women students after undergoing the step aerobics for a period of twelve weeks.
3. The combined training group had shown better performance on motor fitness variables among women students than the other groups.

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