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Effects of Different Types of Circuit Trainings on Selected Strength and Power Parameters

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Abstract

The purpose of this study was to find out the effects of different types of circuit trainings namely stationary circuit training and parcourse training on selected strength and power parameters such as leg strength and explosive power in terms of vertical distance. To achieve this purpose, for five men students studying in the DRBCCC Hindu College, Pattabiram, Chennai, were selected as subjects at random and they were divided into three equal groups of fifteen subjects each with age ranging from 18 to 24 years namely stationary circuit training group, parcourse training group and control group. The stationary circuit and parcourse training groups underwent their respective trainings for three days per week for twelve weeks in which the control group did not participate any special training programme apart from their regular physical education activities as per their curriculum. The following variables namely leg strength and explosive power in terms of vertical distance 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. The analysis of covariance was used to analyze the significant difference, if any among the groups. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences, if any. 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 showed that there was a significant difference among stationary circuit training group, parcourse training group and control group on selected criterion variables such as leg strength and explosive power in terms of vertical distance. And also it was found that there was a significant improvement on selected criterion variables due to stationary circuit training and parcourse training.

Keywords: Stationary Circuit Training, Parcourse Training, Strength And Power Parameters, Leg Strength, Explosive Power in Terms of Vertical Distance.

Introduction

To modern world is a world of competition. In every phase of life people have to face one or other kind of competition. In this competitive world sports and games occupy an unique position. Sports is in man's blood, sport is recreation as well as competition. Basically, sports are individual activities relating and revitalizing in nature and meant to provide opportunities to the individual to make two 'fullest' and the most intelligent use of leisure time. Training is a systematic process of repetitive progressive exercise of work involving learning and acclimatization. Training is the net summation of adaptations induced by regular exercise. Students on the exercises with reference to fitness state that it enables to tolerate more effectively, subsequently stresses of similar nature.

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Methodology

The purpose of this study was to find out the effects of different types of circuit trainings namely stationary circuit training and parcourse training on selected strength and power parameters such as leg strength and explosive power in terms of vertical distance. To achieve this purpose, for five men students studying in the DRBCCC Hindu College, Pattabiram, Chennai were selected as subjects at random and they were divided into three equal groups of fifteen subjects each with age ranging from 18 to 24 years namely stationary circuit training group, parcourse training group and control group. The stationary circuit and parcourse training groups underwent their respective trainings for three days per week for twelve weeks in which the control group did not participate any special training programme apart from their regular physical education activities as per their curriculum. The following variables namely leg strength and explosive power in terms of vertical distance 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. The analysis of covariance was used to analyze the significant difference, if any among the groups. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences, if any. 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.

Analysis of the Data

The influence of stationary circuit training and parcourse training on each criterion variables were analysed separately and presented below.

Leg Strength

The analysis of covariance on leg strength of the pre and post test scores of stationary circuit training group, parcourse training group and control group have been analyzed and presented in Table I.

Table I. Analysis of covariance of the data on leg strength of pre and post tests scores of stationary circuit training, parcourse training and control groups

Test	Stationary Circuit training group	Parcourse training group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	90.83	90.84	90.86	Between	0.01	2	0.005	0.10
S.D.	0.214	0.237	0.221	Within	2.27	42	0.05	
Post Test								
Mean	95.88	92.82	90.87	Between	191.4	2	95.70	187.65*
S.D.	0.209	0.265	0.220	Within	21.43	42	0.51	
Adjusted Post Test								
Mean	95.46	91.92	90.84	Between	169.17	2	84.59	56.39*
				Within	61.42	41	1.50	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table I shows that the adjusted post-test means of stationary circuit training group, parcourse training group and control group are 95.46, 91.92 and 90.84 respectively. The obtained "F" ratio of 56.39 for adjusted post-test means is more than the table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on leg strength. The results of the study indicated that there was a significant difference between the adjusted post-test means of stationary circuit training group, parcourse training group and control group on leg strength. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table II.

Table II. The scheffe's test for the differences between paired means on leg strength

Stationary Circuit training group	Parcourse training group	Control Group	Mean Differences	Confidence Interval Value
95.46	91.92	-	3.54*	1.04
95.46	-	90.84	4.62*	1.04
-	91.92	90.84	1.08*	1.04

* Significant at .05 level of confidence.

The table II shows that the mean difference values between stationary circuit training group and parcourse training group, stationary circuit training group and control group and parcourse training group and control group 3.54, 4.62 and 1.08 respectively on leg strength which were greater than the required confidence interval value 1.04 for significance. The results of this study showed that there was a significant difference between stationary circuit training group and parcourse training group, stationary circuit training group and control group and parcourse training group and control group on leg strength.

Explosive Power in terms of Vertical Distance

The analysis of covariance on explosive power in terms of vertical distance of the pre and post test scores of stationary circuit training group, parcourse

training group and control group have been analyzed and presented in Table III.

Table III. Analysis of covariance of the data on explosive power in terms of vertical distance of pre and post tests scores stationary circuit training and parcourse training and control groups

Test	Stationary Circuit training group	Parcourse training group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	0.40	0.40	0.41	Between	0.018	2	0.0009	1.80
S.D.	0.01	0.01	0.02	Within	0.21	42	0.005	
Post Test								
Mean	0.45	0.43	0.41	Between	0.013	2	0.0065	32.50*
S.D.	0.01	0.02	0.02	Within	0.007	42	0.0002	
Adjusted Post Test								
Mean	0.45	0.43	0.41	Between	4.51	2	2.25	17.31*
				Within	5.49	41	0.13	

* Significant at .05 level of confidence.
(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table III shows that the adjusted post-test means of stationary circuit training group, parcourse training group and control group on explosive power in terms of vertical distance are 0.45, 0.43 and 0.41 respectively. The obtained "F" ratio of 17.31 for adjusted post-test means is more than the table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on explosive power in terms of vertical distance. The results of the study indicated that there was a significant difference between the adjusted post-test means of stationary circuit training group, parcourse training group and control group on explosive power in terms of vertical distance. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table IV.

Table IV. The scheffe's test for the differences between paired means on explosive power in terms of vertical distance

Stationary Circuit training group	Parcourse training group	Control Group	Mean Differences	Confidence Interval Value
0.45	0.43	-	0.02*	0.19
0.45	-	0.41	0.04*	0.19
-	0.43	0.41	0.02*	0.19

* Significant at .05 level of confidence.

The table IV shows that the mean difference values between stationary circuit training group, stationary circuit training group and control group and parcourse training group, parcourse circuit training group and control group 0.02, 0.04 and 0.02 on explosive power in terms of vertical distance which were greater than the required confidence interval value 0.19. The results of this study showed that there was a significant difference between circuit training group and moving circuit training group, circuit training group and control group and moving circuit training group and control group on explosive power in terms of vertical distance.

Conclusions

1. There was a significant difference among circuit training group, moving circuit training group and control group on leg strength.
2. There was a significant difference among circuit training group, moving circuit training group and control group on explosive power in terms of vertical distance.
3. There was a significant improvement on leg strength and explosive power in terms of vertical distance due to circuit training and moving circuit training.

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