Comparable Effects ofIsolated and CombinedAssisted and Resisted Sprint Training Programmes on Cardio Vascular Fitness among College Women Athletes

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KEYWORDS	ABSTRACT:
Assisted Sprint Training, Resisted Sprint Training, Combined Training, Cardio Vascular Fitness, Coopers Test	The present study was designed to find out the effects of isolated and combinedassisted and resisted sprint training programmeson cardio vascular fitness among collegewomen athletes. For this purpose,sixty(N=60) college female athletes who were studying various colleges affiliated to Bharathidasan University, Tiruchirappalli,Tamilnadu India were selected randomly as subjects. The age of the subjects was ranged between 18-21 years. The subjects were assigned at random into four groups of fifteen each (n=15) namely, Assisted Sprint Training Group (ASTG), Resisted Sprint Training Group (RSTG), Combined Assisted and Resisted Sprint Training Group (ARSTG), and Control Group (CG).Group-I underwent Assisted Sprint Training, Group-II underwent Resisted Sprint Training, Group-III underwent Combined Assisted and Resisted Sprint Trainingand Group-IV acted as Control. For all three experimental groups, the training period was limited to twelve weeks, and there could be no more than three sessions each week. The training schedule for mixed assisted and resisted sprint training was limited to alternate weeks for a total of twelve weeks. Cooper's 12-minute run/walk test were used to measure the dependent variable of cardiovascular fitness. Every subject was tested for every one of the chosen factors both before and right after training. The pre and post assessment developments in the groups were analyze with t-test and analysis of covariance. The Scheffe's post hoc test was also calculated for pair wise comparisons. For all cases 0.05 level of confidence was fixed. The study's findings demonstrated that there was a significant difference in cardiovascular fitness between all three experimental group such as Assisted Sprint Training Group (ASTG), Resisted Sprint Training Group (RSTG), and Combined Assisted and Resisted Sprint Training Group (ARSTG). Additionally, the study's findings supported that the Combined Assisted and Resisted Sprint Training Group (ARSTG) outperformed the Assisted Sprint Training Group (ASTG) and Resisted Sprint Training Group (RSTG) in terms of cardiovascular fitness.

1. Introduction

Sports are organized competitive events that demand a great deal of physical exertion or the application of highly developed physical skills by players motivated by both internal and external rewards. Sports are any physical activity that aim to use, maintain, or improve physical fitness while also providing people with entertainment through unstructured or structured participation. The word "training" has been used in speech since the beginning of time. It alludes to the act of preparing to execute something. This process always takes a few days, but occasionally it takes months or even years. (Bompa 1997)

Customary actual activity characterized as a particular subset of actual work keeps up with and creates actual wellness, wellbeing, and health. For example, it has much of the time been shown that various sorts of obstruction preparing can possibly further develop wellbeing and ability related parts of actual wellness (Kraemer et al., 2002).

Assisted and resisted training are explicit sorts of assistance and over-burden. They are ideas that are broadly utilized in different kinds of preparing like entire body vibration (assistance) and weight training (over-burden). Speed of development can best be achieved by

rehearsing speed with lighter weight, while further developed strength can best be accomplished with a most extreme over-burdening of a muscle.

Sprinting can be characterized as the capacity to run at most extreme speed for a brief term. Maximum running speed is a significant variable for outcome in many games. Various modalities of preparing have been utilized in the advancement of greatest running rate. Two regularly utilized types of speed preparing are helped (or over speed) and opposed running. During helped running, the competitor runs while being pulled along by a gadget, frequently a flexible line or a rope-and-pulley arrangement of some sort (Sunilkumar et al., 2020).

2. Methodology

For this purpose,sixty (N=60) college female athletes who were studying various colleges affiliated to Bharathidasan University, Tiruchirappalli, Tamilnadu India were selected randomly as subjects. The age of the subjects was ranged between 18-21 years. The subjects were assigned at random into four groups of fifteen each (n=15) namely, Assisted Sprint Training Group (ASTG), Resisted Sprint Training Group (RSTG), Combined Assisted and Resisted Sprint Training Group (ARSTG), and Control Group (CG).Group-I underwent Assisted Sprint Training, Group-II underwent Resisted Sprint Training, Group-III underwent Combined Assisted and Resisted Sprint Training and Group-IV acted as Control. For all three experimental groups, the training period was limited to twelve weeks, and there could be no more than three sessions each week. The training schedule for mixed assisted and resisted sprint training was limited to alternate weeks for a total of twelve weeks. Cooper's 12-minute run/walk test was used to measure the dependent variable.All the subjects were tested prior to and immediately after the training for the entire selected variable. The pre and post assessment developments in the groups were analyze with t-test and analysis of Covariance. The Scheffe's post hoc test was also calculated for pair wise comparisons. For all cases 0.05 level of confidence was fixed.

3. Results and Discussions

The results were presented in the following tables.

Table 1. Showing the Dependent 't' Test for the Pre and Post Assessment on Cardiovascular Fitness (Measures in Meters)

Mean/SD	ASTG	RSTG	CARSTG	CG
Initial Assessment	2108.67±107.76	2139.33±122.23	2090.67±88.65	2143.33±88.67
Post Assessment	2527.33±82.50	2354.67±141.51	2553.33±103.64	2097.33±253.55
't'-test	11.95*	4.46*	13.14*	0.66

Significant at 0.05 level, Table value for df 14 is 2.15.
ASTG =Assisted Sprint Training Group, RSTG = ResistedSprint Training Group, CARSTG= Combined Assisted and Resisted sprint Training Group, CG- Control Group

The table -1 shows the pre-assessment mean on cardiovascular fitnessfor, ASTG RSTG, CARSTG and CG are 2108.67±107.76, 2139.33±122.23, 2090.67±88.65 and 2143.33±88.67 respectively. The post-assessment mean are2527.33±82.50, 2354.67±141.51 2553.33±03.64 and 2097.33±253.55 respectively. The statistical results of dependent t-ratio values between the pre and post assessment means on hip flexibility for ASTG, RSTG, CARSTG and CG are 11.95, 4.46, 13.14 and 0.66 respectively. The table t-value at 0.05 level is 2.15. It was concluded that experimental groups such as cardiovascular fitnessfor ASTG, RSTG and CARSTG had registered significant improvement in cardiovascular fitness.

Table 2.Values showing the Analysis of Covariance for ASTG RSTG, CARSTG and CGon Cardiovascular Fitness (Measures in Meters)

Assessment	ASTG	RSTG	CARSTG	CG	SV	SS	df	MS	F-ratio
Pre-Assessment Mean	2108.67	2139.33	2090.67	2143.33	BG	28591.67	3	9530.56	0.84
					WG	634093.33	56	11323.10	
PostAssessment Mean	2527.33	2354.67	2553.33	2097.33	BG	1983805	3	661268.00	24.24*
					WG	1527893.33	56	27283.80	
Adjusted PostAssessment Mean	2534.22	2343.70	2570.70	2084.04	BS	2159334.86	3	719778.00	30.15*
					WS	1313051.32	55	23873.70	

* Significant at.05 level of confidence

Table value for df (3, 56) at 0.05 level = 2.76 Table value for df (3, 55) at 0.05 level = 2.78
*(ASTG =*Assisted Sprint Training Group, RSTG = ResistedSprint Training Group, CARSTG= Combined Assisted and Resisted sprint Training Group, CG- Control Group)

The statistical end results of pre assessment, post assessment, and adjusted post assessment showed that different groups. The results of the study showed that, the pre assessment mean value (0.84) is below the table value so it proved that it is insignificant. Further the results of the study showed that, the mean value (post assessment =24.24 and adjusted post assessment =30.15) are above the table value so it proved that it is significant. Finally, the analysis indicated that there was a significant difference among the groups on cardiovascular fitness.

Table 3.Pair wise comparisons on Cardiovascular Fitness (Measures in Meters)

Certain Variables	ASTG	RSTG	CARSTG	CG	Mean Difference	Confidence Interval
Cardiovascular Fitness	2534.22	2343.70			190.52*	162.64
	2534.22		2570.70		36.48	162.64
	2534.22			2084.04	450.18*	162.64
		2343.70	2570.70		226.99*	162.64
		2343.70		2084.04	259.66*	162.64
			2570.70	2084.04	486.66*	162.64

* Significant at.05 level of confidence

The table-3 shows the pair wise comparison on cardiovascular fitness of different groups.
- The results indicated that there were significant differences were found in ASTG and RSTG (190.52), ASTG and CG (50.18), RSTG and CARSTG (226.99), RSTG and CG (259.66)& CARSTG and CG (486.66).
- The results indicated that there were no significant differences were found in ASTG and CARSTG (36.48).

The graphical representation ofpre and post assessment meansvalues are represented in the Fig.1.The graphical representation of adjusted post assessment means values are represented in the Fig.2.
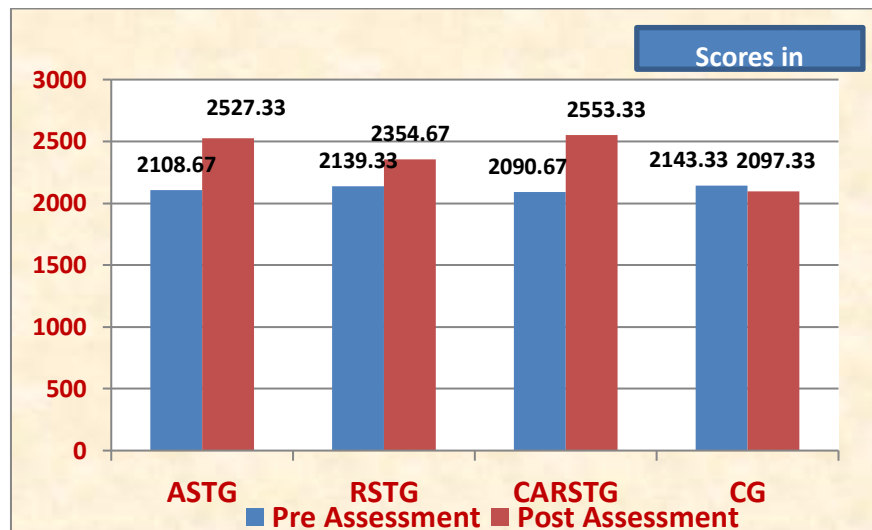

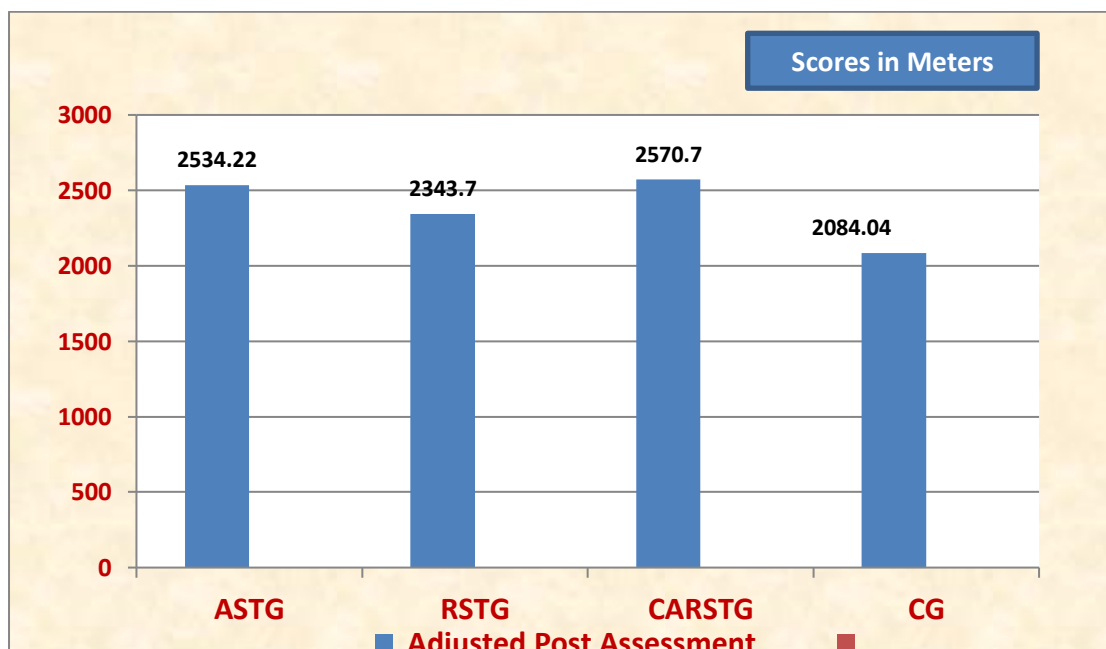**Fig-1: Pre and Post Test Means Diagram on Cardiovascular Fitness**

Fig-2: Adjusted Post Test Means Diagram on Cardiovascular Fitness

4. Conclusions

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

1. Significant differences in achievement were found between AST group, RST group, CARST group and CG in Cardiovascular Fitness.
2. The experimental groups namely, AST group, RST group, and CARST grouphad significantly improved in Cardiovascular Fitness.
3. The CARST group was found to be better than the AST group, RST groupand Control groupin increasing Cardiovascular Fitness.

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