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Relative Effects of Isolated and Combined Interval Training and Continuous Running on Selected Speed Components among State Level Women Kabaddi Players

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Abstract

The purpose of the study was to find out the relative effects of isolated and combined interval training and continuous running on selected speed components among state level women Kabaddi players. To achieve the purpose of the present study, sixty state level women Kabaddi players from Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into four equal groups of fifteen each. Group I acted as Experimental Group I (Interval Training), Group II acted as Experimental Group II (Continuous training) Group III acted as Experimental Group III (Combined Interval & Continuous Training) and Group IV acted as Control Group. The duration of experimental period was 12 weeks. After the experimental treatment, all the sixty subjects were tested on their selected speed components. 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 significance was fixed to test hypotheses. The combined interval & continuous training group had shown better performance on speed components among the state level women kabaddi players than the interval training, continuous training and control groups.

Keywords: Interval Training, Continuous Training, Speed, Women, Kabaddi.

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Introduction

The concept of interval training has existed for a number of years in one form or another. The famous German coach, Woldemar Gerschler, with the formalization of a structured system of interval training in the 1930s. With interval training, short to moderate periods of work are alternated with short to moderate periods of rest, or reduced activity. The concept has a firm foundation in physiological principles. Researchers have demonstrated that athletes can perform a considerably greater volume of work by breaking the total work into short, intense bouts with rest, or reduced activity, intervals interspersed between consecutive work bouts. The intervals of work and rest are usually equal and can vary from several seconds to five minutes or more. Continuous training is when low to mid intensity exercises are performed for more than 20 minutes without resting intervals. Generally, this type of training is used to prepare the body for sustained workouts such as marathons and triathlons, but can also be effective for more casual athletes. It allows the body to work from its aerobic energy stores to improve overall fitness and

endurance. Chief benefits of continuous training include fat burning, muscle building, and increasing maximum aerobic potential. Continuous training also refers to non-stop physical activity for a specific duration. It is a style of training often used by some athletes, such as runners who are training for a marathon. Interval training is the opposite, where the individual takes several breaks during the workout. Kabaddi is a game of 2 teams of 12 players each, where one team becomes the raiders and the other team anti raiders. Seven players shall take the ground at a time and the remaining five players shall be reserved.

Methodology

The purpose of the study was to find out the relative effects of isolated and combined interval training and continuous running on selected speed components among state level women Kabaddi players. To achieve the purpose of the present study, sixty state level women Kabaddi players from Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into four equal groups of fifteen each. Group I acted as Experimental Group I (Interval Training), Group II acted as Experimental Group II (Continuous training) Group III acted as Experimental Group III (Combined Interval & Continuous Training) and Group IV acted as Control

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Group. The duration of experimental period was 12 weeks. After the experimental treatment, all the sixty subjects were tested on their selected speed components. 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 significance was fixed to test hypotheses.

Results

Table 1

Computation of analysis of covariance of interval training continuous training combined interval and continuous training and control groups on speed

	ITG	CTG	CICTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	8.57	8.58	8.58	8.56	BG	0.004	3	0.001	0.978
					WG	0.083	56	0.001	
Post-Test Means	8.30	8.32	8.17	8.53	BG	1.023	3	0.341	87.101*
					WG	0.219	56	0.004	
Adjusted Post-Test Means	8.30	8.32	8.17	8.54	BG	1.021	3	0.340	88.799*
					WG	0.211	55	0.004	

An examination of table 1 indicated that the pre test means of interval training, continuous training, combined interval and continuous training and control groups were 8.57, 8.58, 8.58 and 8.56 respectively. The obtained F-ratio for the pre-test was 0.978 and the table F-ratio was 2.76. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 56. 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 interval training, continuous training, combined interval and continuous training and control groups were 8.30, 8.32, 8.17 and 8.53 respectively. The obtained F-ratio for the post-test was 87.101 and the table F-ratio was 2.76. Hence the post-test mean F-ratio was significant at 0.05

level of confidence for the degree of freedom 3 and 56. This proved that the differences between the post-test means of the subjects were significant. The adjusted post-test means of the interval training, continuous training, combined interval and continuous training and control groups were 8.30, 8.32, 8.17 and 8.54 respectively. The obtained F-ratio for the adjusted post-test means was 88.799 and the table F-ratio was 2.77. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 55. 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 2.

Table 2

The scheffe's test for the differences between the adjusted post-test means on speed

Adjusted Post-Test Means				Mean Difference	Confidence Interval
ITG	CTG	CICTG	CG		
8.30	8.32	---	---	0.02	0.06
8.30	---	8.17	---	0.13*	
8.30	---	---	8.54	0.24*	
---	8.32	8.17	---	0.15*	
---	8.32	---	8.54	0.22*	
---	---	8.17	8.54	0.37*	

* Significant at 0.05 level

The multiple comparisons showed in table 2 proved that there existed significant differences between the adjusted means of interval training and combined interval and continuous training (0.13), interval training with control group (0.24), continuous training with combined interval and continuous training (0.15), continuous training with control group (0.22) and

combined interval and continuous training and control group (0.37). There was no significant difference between interval training and continuous training group (0.02) at 0.05 level of confidence with the confidence interval value of 0.06. 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, interval training continuous training combined interval and continuous training and control groups on speed

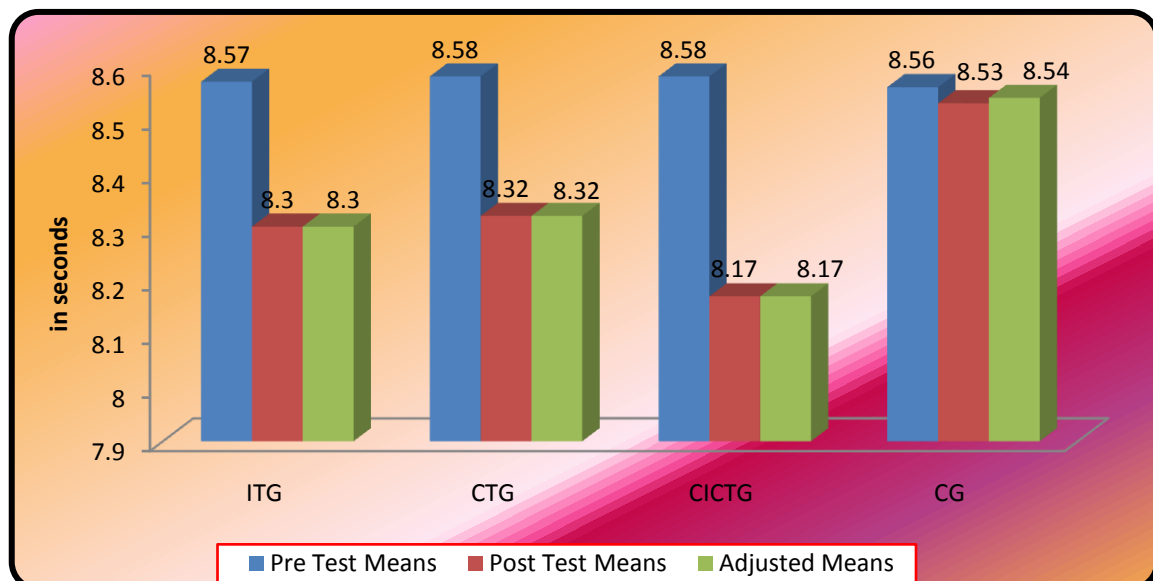


Table 3

Computation of analysis of covariance of interval training continuous training combined interval and continuous training and control groups on stride length

	ITG	CTG	CICTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	0.94	0.93	0.95	0.94	BG	0.002	3	0.001	1.161
					WG	0.025	56	0.0001	
Post-Test Means	1.12	1.12	1.17	0.95	BG	0.402	3	0.134	172.185*
					WG	0.044	56	0.001	
Adjusted Post-Test Means	1.13	1.12	1.17	0.95	BG	0.401	3	0.134	169.060*
					WG	0.043	55	0.001	

An examination of table 3 indicated that the pre test means of interval training, continuous training, combined interval and continuous training and control groups were 0.94, 0.93, 0.95 and 0.94 respectively. The obtained F-ratio for the pre-test was 1.161 and the table F-ratio was 2.76. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 56. 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 interval training, continuous training, combined interval and continuous training and control groups were 1.12, 1.12, 1.17 and 0.95 respectively. The obtained F-ratio for the post-test was 172.185 and the table F-ratio was 2.76. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 56. This proved that the differences between the post-test means of the subjects were significant. The adjusted

post-test means of the interval training, continuous training, combined interval and continuous training and control groups were 1.13, 1.12, 1.17 and 0.95 respectively. The obtained F-ratio for the adjusted post-test means was 169.060 and the table F-ratio was 2.77. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3

and 55. This proved that there was a significant difference among the means due to the experimental trainings on stride length. 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 3.

Table 4

The scheffe's test for the differences between the adjusted post-test means on stride length

Adjusted Post-Test Means				Mean Difference	Confidence Interval
ITG	CTG	CICTG	CG		
1.13	1.12	---	---	0.01	0.03
1.13	---	1.17	---	0.04*	
1.13	---	---	0.95	0.18*	
---	1.12	1.17	---	0.05*	
---	1.12	---	0.95	0.17*	
---	---	1.17	0.95	0.22*	

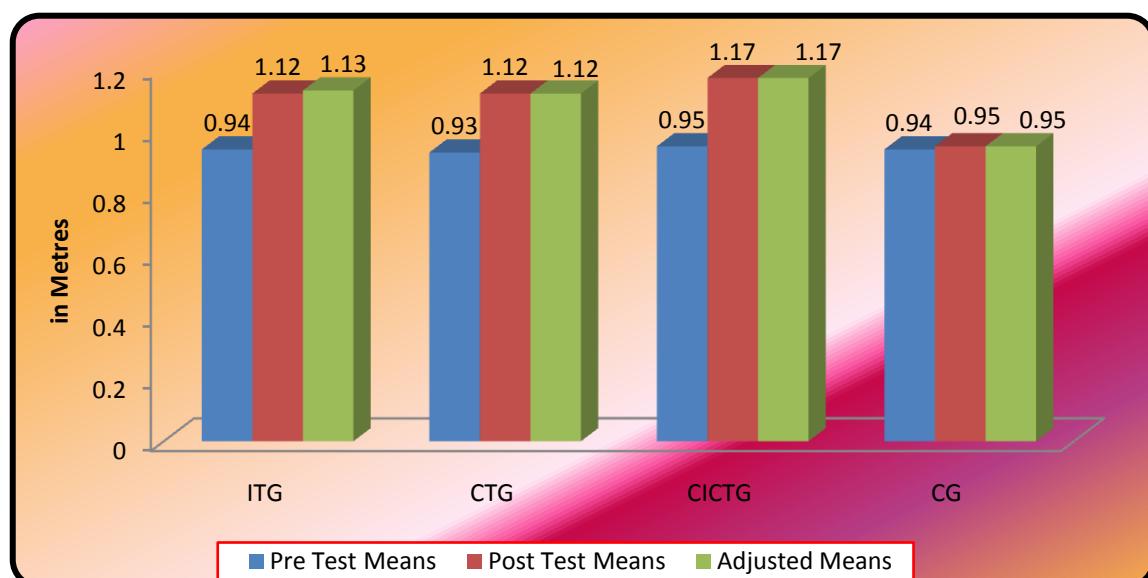
* Significant at 0.05 level

The multiple comparisons showed in table 4 proved that there existed significant differences between the adjusted means of interval training and combined interval and continuous training (0.04), interval training with control group (0.18), continuous training with combined interval and continuous training (0.05), continuous training with control group (0.17) and combined interval and continuous training and control

group (0.22). There was no significant difference between interval training and continuous training group (0.01) at 0.05 level of confidence with the confidence interval value of 0.03. The pre, post and adjusted means on stride length 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, interval training continuous training combined interval and continuous training and control groups on stride length



Conclusions

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

1. The interval training group had shown significant improvement in all the selected speed components among state level women kabaddi players after undergoing interval training group for a period of twelve weeks.
2. The continuous training group had shown significant improvement in all the selected speed components among state level women kabaddi players after undergoing the continuous training group for a period of twelve weeks.
3. The combined interval & continuous training group had shown better performance on speed components among the state level women kabaddi players after undergoing the interval & continuous training group for a period of twelve weeks.
4. The combined interval & continuous training group had shown better performance on speed components among the state level women kabaddi players than the interval training, continuous training and control groups.

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