EFFECT OF INTERVAL TRAINING AND SPECIFIC PACKAGE OF SKILL TRAINING ON SPEED AND AGILITY AMONG SCHOOL BOYS FOOTBALL PLAYERS

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Abstract

Interval training helps the players to adapt their bodies to racing conditions in which race-pace and high levels of lactate in the muscles are skillfully handled. While compared to other training methods, Interval training achieves the purpose of adapting to racing conditions with minimum physiological strain. In order to be successful on the football field, a football player needs to master the different skills of the game. The fundamentals of playing football effectively include practicing the various drills, so that every skill can be developed to perfection for professional competence. Beyond working hard on the drills, the method of training taken makes a deep impact on the quality of performance in a football field. This study attempts to estimate the influence of interval training and specific package of skill training on speed and agility among school football players (boys). To attain this purpose, 60 football players (boys) from various schools of Chennai District, Tamil Nadu, were randomly selected as subjects. The age of the boys ranged between 16 and 18 years. The boys were divided into four groups of equal number of 15 students each. Three of these groups were taken as three Experimental groups and the fourth group remained the Control group. Before the start of the training, the players were made to take a 'Pre-test' for speed and agility. Each group was assigned a specific method of training: Isolated Interval Training was allotted to Experimental Group I; Isolated Specific Package of Skill Training was allotted to Experimental Group II; Combined Interval Training and Specific Package of Skill Training was allotted to Experimental Group III and the last group - Control Group - was allotted no training except their daily routine. All three experimental groups were trained for a period twelve weeks. Post-Training tests were taken once

this twelve-week training period was over. The data noted in this process was analyzed using the statistical tools of ANCOVA and Scheffe's Post hoc Test. The study affirmed that Experimental Group III, that was given Combined Interval training and Specific Package of Skill Training, showed significant improvement in speed and agility when compared to other groups.

Keywords: Interval Training, Specific Package of Skill Training, Speed, Agility, ANCOVA.

I. INTRODUCTION

Football is a "simple" game and the key to good team play is to "do the simple thing quickly and do it well and again" (Csanadi *Soccer*). Football is both a recreational game and an illustrious sport with professional prospects. As a recreational club activity, the game synergizes physical and mental activities. This leads to a healthy life-style and reduces the risk of many modern-day diseases and ailments. On the other hand, many people play football as a profession and some among them gain international popularity. Like in all other sports and games, advanced technology in sport training paves the way for new opportunities for the football players to perform their best.

People who have chosen football as a way of life, seldom feel pressurized or burdened. They demonstrate exceptional life-skills and take-up work and all other activities with spirited enthusiasm. The sport transcends its dimensions as a field of entertainment in serving a medicinal purpose. Like several sports-activities, the football game protects people from several life-style diseases and can heal people from several diseases. The game has brought people out of traumatic experiences, and has rehabilitated several people from addictive behaviour.

Any skill, whether inherent or imbibed, can be perfected through periodic practice and systematic training. This is true of sports and games too. "Sports training is a goal oriented long term process of preparation of sportsmen for higher performance." Training becomes a method for improving various prerequisite performances. (Hardayal Singh, 1991). Sports-training is a process of preparing sportspersons for achieving high performance in sports competitions. It is the combination of both physical fitness and the sport-specific skills.

Physical fitness is as important as training in the sport-specific skill. "Physical fitness and wellness are one's richest possessions; they cannot be purchased, they are to be earned through regular and systematic fitness programme and positive lifestyle habits" (Uppal A K., et.al., 2004). A person with optimum physical fitness is capable enough to perform activities efficiently and also recover from tiredness quickly. In this post-global world, many food products create health-hazards and eating-habits have become erratic. In such conditions, people need more workouts to stay fit in performing their movements easily with less energy. With players, physical fitness becomes a prerequisite for improving their performance standards. There are different modules of physical fitness. For instance, "Motor-performance fitness emphasizes the development of those qualities that enhance the performance of physical activities such as sport. Moreover, motor-performance fitness is specific to the sport or activity in which the individual engages." Different combinations of motor-performance fitness components are given during trainings, depending on the specific motor activity required for a specific sport. (Wuest, Deboran A. et. al., 1992).

Systematic training is another prime factor on which success in a competitive sport depends. There are numerous ways of training, and the method of training has a great impact on the performance of players. For instance, "Interval training refers to the method of repeating stimuli of various intensities with a previously planned rest interval, during which the athlete does not fully regenerate. It should calculate the duration of the rest interval by heart rate method. The athlete could repeat the portions of distance either by time or precise distance." (Tudor, O. Bompa., 1999).

The principle of adaptation is mainly followed in interval training. This training provides many physiological advantages such as efficient functioning of cardiovascular system, higher tolerance of muscles on the production of lactic acid during the training, overall physical fitness and optimum performance. This training not only increases the speed and endurance but also reduces the chances of injuries.

Physical fitness and training methods have great impact on the performance in a game like football. "Football drills are one of the vehicles that develop great football players, whether the drills are done alone or in a team setting. Proper performance of a drill is a key to the overall

success of that particular football drill. (But) It is not the drill alone that delivers successful footballers and teams." (Owen Al., 2011) Along with the football-specific skills, fitness and consistent training influence the performance in this game.

The most exciting quality of football is that it is a quick moving and flowing game. Individual speed is defined as the ability to perform successive movements of the same pattern at a faster rate. Agility is a physical characteristic that allows a person to quickly shift body position and direction in a defined manner. "Every player should have the maneuver ability of the ball at any tempo. Even at a very fast tempo and under great pressure from the opponent, a player should not lose sight of the ball. A player, who is physically fit and technically sound, always looks around him by keeping his head up and acts decisively." (Saha,Sukumar, 2008).

This paper is a study of the effect of Interval Training and Specific Package of Skill Training on Speed and Agility among football players (boys) at schools.

II.METHODOLOGY

The purpose of the study, presented in this paper, was to evaluate the effect of interval training and specific package of skill training on speed and agility among school boys playing football. To attain this purpose, 60 football players (boys) from various schools of Chennai District, Tamil Nadu, were randomly selected as subjects and their age was between 16 and 18 years.

True random group design was implemented in this study which consisted of a pre-test and post-test. The subjects (n=60) were randomly separated into four equal groups of fifteen subjects in each group. The groups were Experimental Group I assigned as 'Isolated Interval Training Group'; Group II assigned as 'Isolated Specific Package of Skill Training'; Group III assigned as 'Combined Interval Training and Specific Package of Skill Training'; Group IV assigned as 'Control Group'. The investigator administered 50 yards Dash Test and 4 x 10 yards Shuttle Run Tests to measure speed and agility. Pre-test was conducted for all the subjects on speed and agility. The experimental groups participated in their respective isolated interval training, isolated specific package of skill training and combined interval training and specific package of skill training for a period of twelve weeks. The post-test was conducted on speed and agility after twelve weeks of respective trainings.

STATISTICAL TECHNIQUES

The following statistical techniques were used to find-out effect of interval training and specific package of skill training on speed and agility among football players (boys) between the ages 16 and 18 years.

Analysis of covariance (ANCOVA) statistical technique was used to test the adjusted post test mean differences among the experimental groups. If the adjusted post test result was significant, the Scheffe's post-hoc test was used to determine the significance of the paired mean differences (Thirumalaisamy R., 1997).

III. A RESULTS ON SPEED

TABLE I

Computation of Analysis of Covariance of Speed

(Scores in Seconds)

	Isolated Interval Training Group (IITG)	Isolated Specific Package of Skill Training Group (ISPSTG)	Combined Training Group (CTG)	Control Group (CG)	Sources of Variance	Sum of Squares	df	Mean squares	Obtained F-ratio
Pre-Test Means	6.07	6.16	6.09	6.19	Between	0.14	3	0.05	1.73
					Within	1.50	56	0.03	
Post-Test Means	5.92	6.04	5.89	6.18	Between	0.78	3	0.26	10.05*
					Within	1.46	56	0.03	
Adjusted Post-Test Means	5.97	6.01	5.94	6.13	Between	0.28	3	0.10	297.24*
					Within	0.02	55	0.001	

Table F ratio at 0.05 level of confidence for 3 and 55 (df) = 2.77, 3 and 56(df) =2.77.

*Significant at 0.05 level

Table I shows the analyzed data on speed. The pre-test mean scores of Isolated Interval Training Group (IITG), Isolated Specific Package of Skill Training Group (ISPSTG), Combined Training Group (CTG) and Control Group (CG) were 6.07, 6.16, 6.09 and 6.19 respectively. The obtained F value of pre-test means of 1.73 was less than the required table F value of 2.77, which proved that the random assignment of the subjects was successful and their scores in speed before the training were equal and there was no significant difference at 0.05 level of confidence for the degree of freedom 3 and 56.

The post-test means of the Isolated Interval Training Group (IITG), Isolated Specific Package of Skill Training Group (ISPSTG), Combined Training Group (CTG) and Control Group (CG) were 5.92, 6.04, 5.89 and 6.18 respectively. The obtained F value on the scores of post-test means of 10.05 was greater than the required table F value of 2.77. Hence, there was significant difference between the post test means at 0.05 level of confidence for the degree of freedom 3 and 56.

The adjusted post-test means of the Isolated Interval Training Group (IITG), Isolated Specific Package of Skill Training Group (ISPSTG), Combined Training Group (CTG) and Control Group (CG) were 5.97, 6.01, 5.94 and 6.13 respectively. The obtained F value of adjusted post-test means of 297.24 was greater than the required table F value of 2.77. Hence, there was significant difference between the adjusted post test means at 0.05 level of confidence for the degree of freedom 3 and 55.

TABLE II

Computation of Analysis of Scheffe's Post-Hoc Test of Speed

(Scores in Seconds)

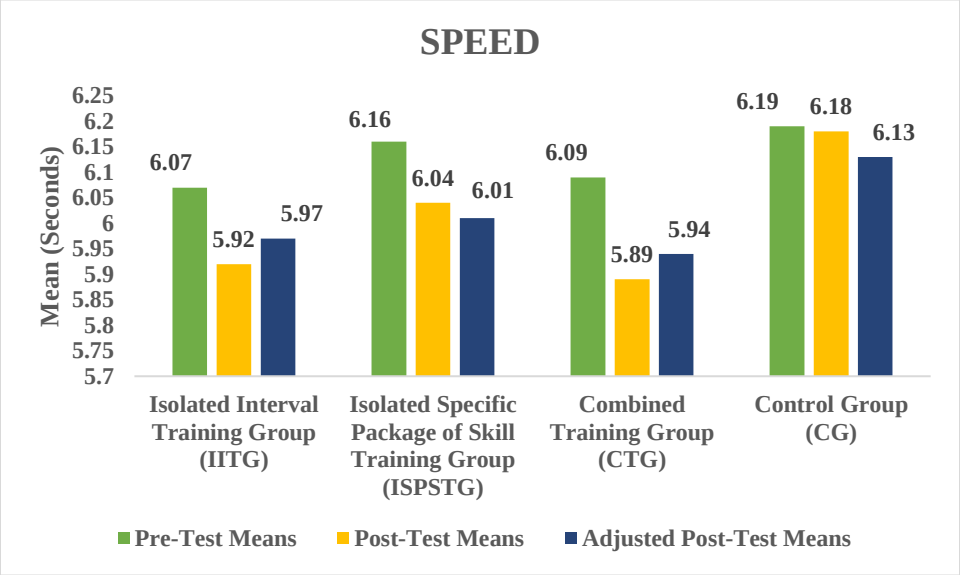
Isolated Interval Training Group (IITG)	Isolated Specific Package of Skill Training Group (ISPSTG)	Combined Training Group (CTG)	Control Group (CG)	Mean Difference (MD)	C.I. Value
5.97	6.01			0.04	0.18
5.97		5.94		0.03	
5.97			6.13	0.16	
	6.01	5.94		0.07	
	6.01		6.13	0.12	
		5.94	6.13	0.19*	

Table F ratio at 0.05 level of confidence for 3 and 55 (df) = 2.77.

*Significant at 0.05 level.

The table II showed that the adjusted post test mean difference on speed between IITG and ISPSTG, IITG and CTG, IITG and CG, ISPSTG and CTG, ISPSTG and CG were 0.04, 0.03, 0.16, 0.07 and 0.12 respectively which were lesser than the confidence interval value of 0.18 and not significant at 0.05 level of confidence. However, the adjusted post test mean difference on speed between CTG and CG was 0.19 which was higher than the confidence interval value of 0.18 and significant at 0.05 level of confidence.

Figure-1 Bar Diagram on Pre-Test Mean, Post-Test Mean and Adjusted Post-Test Mean of Speed



DISCUSSION ON THE FINDINGS OF SPEED

The result presented in the table I showed that obtained adjusted post-test means on speed among Isolated Interval Training Group (IITG) was 5.97, Isolated Specific Package of Skill Training Group (ISPSTG) was 6.01, Combined Training Group (CTG) was 5.94 and Control Group (CG) was 6.13.

The difference among pre-test, post-test and adjusted post-test mean scores of the subjects were statistically treated using ANCOVA and F value were 1.73, 10.05 and 297.24 respectively. It was found that obtained F value of pre-test means 1.73 was not significant at 0.05 level of confidence and also lesser than the required table F value of 2.77 and the obtained F values of post-test and adjusted post-test means 10.05 and 297.24 were significant and also greater than the required table F value of 2.77.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of Combined Training Group, Isolated Interval Training Group and Isolated Specific

Package of Skill Training Group significantly improved better than the Control Group, clearly indicating positive influences of Combined Training Group, Isolated Interval Training Group and Isolated Specific Package of Skill Training Group in improving the speed among school-boys football players. Further, Combined Training Group significantly improved better than the Isolated Interval Training Group, Specific Package of Skill Training Group in speed among school-boys football players.

The findings of this study on speed fell in line with the study conducted by Mahaboob Basha U. (2020) and Babu C., Ratheesh (2014) who found significant improvement in speed due to regular interval and specific skill training.

III.B RESULTS ON AGILITY

TABLE III

Computation of Analysis of Covariance of Speed

(Scores in Seconds)

	Isolated Interval Training Group (IITG)	Isolated Specific Package of Skill Training Group (ISPSTG)	Combined Training Group (CTG)	Control Group (CG)	Sources of Variance	Sum of Squares	df	Mean squares	Obtained F-ratio
Pre-Test Means	7.79	7.77	7.81	7.90	Between	0.14	3	0.05	1.12
					Within	2.34	56	0.04	
Post-Test Means	7.66	7.65	7.35	7.89	Between	2.22	3	0.74	20.86*
					Within	1.99	56	0.04	
Adjusted Post-Test Means	7.69	7.68	7.35	7.82	Between	1.80	3	0.60	139.15*
					Within	0.24	55	0.004	

Table F ratio at 0.05 level of confidence for 3 and 55 (df) = 2.77, 3 and 56(df) =2.77.

*Significant at 0.05 level

Table III shows the analyzed data on agilityThe pre-test mean scores of isolated interval training group (IITG), isolated specific package of skill training group (ISPSTG), combined training group (CTG) and control group (CG) were 7.79, 7.77, 7.81 and 7.90 respectively. The obtained F value of pre-test means of 1.12 was less than the required table F value of 2.77, which proved that the random assignment of the subjects was successful and their scores in agility before the training were equal and there was no significant difference at 0.05 level of confidence for the degree of freedom 3 and 56.

The post-test means of the Isolated Interval Training Group (IITG), Isolated Specific Package of Skill Training Group (ISPSTG), Combined Training Group (CTG) and Control Group (CG) were 7.66, 7.65, 7.35 and 7.89 respectively. The obtained F value on the scores of post-test means of 20.86 was greater than the required table F value of 2.77. Hence, there was significant difference between the post-test means at 0.05 level of confidence for the degree of freedom 3 and 56.

The adjusted post-test means of the Isolated Interval Training Group (IITG), Isolated Specific Package of Skill Training Group (ISPSTG), Combined Training Group (CTG) and Control Group (CG) were 7.69, 7.68, 7.35 and 7.82 respectively. The obtained F value of adjusted post-test means of 139.15 was greater than the required table F value of 2.77. Hence, there was significant difference between the adjusted post-test means at 0.05 level of confidence for the degree of freedom 3 and 55.

TABLE IV

Computation of Analysis of Scheffe's Post-Hoc Test of Agility

(Scores in Seconds)

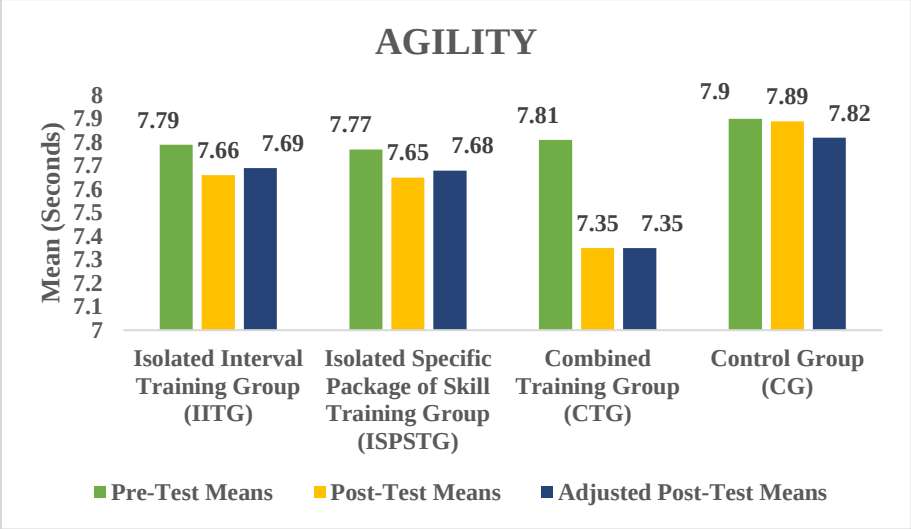
Isolated Interval Training Group (IITG)	Isolated Specific Package of Skill Training Group (ISPSTG)	Combined Training Group (CTG)	Control Group (CG)	Mean Difference (MD)	C.I. Value
7.69	7.68			0.01	0.21
7.69		7.35		0.34*	
7.69			7.82	0.13	
	7.68	7.35		0.33*	
	7.68		7.82	0.14	
		7.35	7.82	0.47*	

Table F ratio at 0.05 level of confidence for 3 and 55 (df) = 2.77.

*Significant at 0.05 level.

The table IV showed that the adjusted post-test mean difference on agility between IITG and ISPSTG, IITG and CG, ISPSTG and CG were 0.01, 0.13 and 0.14 respectively which were lesser than the confidence interval value of 0.21 and not significant at 0.05 level of confidence. However, the adjusted post-test mean difference on agility between IITG and CTG, ISPSTG and CTG, CTG and CG were 0.34, 0.33 and 0.47 which were higher than the confidence interval value of 0.21 and significant at 0.05 level of confidence.

Figure-2 Bar Diagram on Pre-Test Mean, Post-Test Mean and Adjusted Post-Test Mean of Agility



DISCUSSION ON THE FINDINGS OF AGILITY

The result presented in the table III showed that obtained adjusted post- test means on agility among Isolated Interval Training Group (IITG) was 7.69, Isolated Specific Package of Skill Training Group (ISPSTG) was 7.68, combined training group (CTG) was 7.35 and Control Group (CG) was 7.82.

The difference among pre-test, post-test and adjusted post-test mean scores of the subjects were statistically treated using ANCOVA and F value were 1.12, 20.86 and 139.15 respectively. It was found that obtained F value of pre-test means 1.12 was not significant at 0.05 level of confidence and also lesser than the required table F value of 2.77 and the obtained F values of post-test and adjusted post-test means 20.86 and 139.15 were significant and also greater than the required table F value of 2.77.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of Combined Training Group, Isolated Interval Training Group and Isolated Specific Package of Skill Training Group significantly improved better than the Control Group, clearly indicating positive influences of Combined Training Group, Isolated Interval Training Group and

Isolated Specific Package of Skill Training Group in improving the agility among school-boys football players. Further, Combined Training Group significantly improved better than the I Isolated Interval Training Group, Specific Package of Skill Training Group in agility among school-boys football players.

The findings of the study was in line with the study conducted by Babu C., Ratheesh (2014) and Manoj Kumar A. (2012) who found significant improvement in agility due to regular interval and specific skill training.

IV. CONCLUSIONS

- The study was concluded that twelve weeks of Combined Interval Training and Specific Package of Skill Training had better improvement on speed and agility than other groups.
- The research showed that Isolated Interval Training and Isolated Specific Package of Skill Training also had significant improvement on speed and agility than Control Group.

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