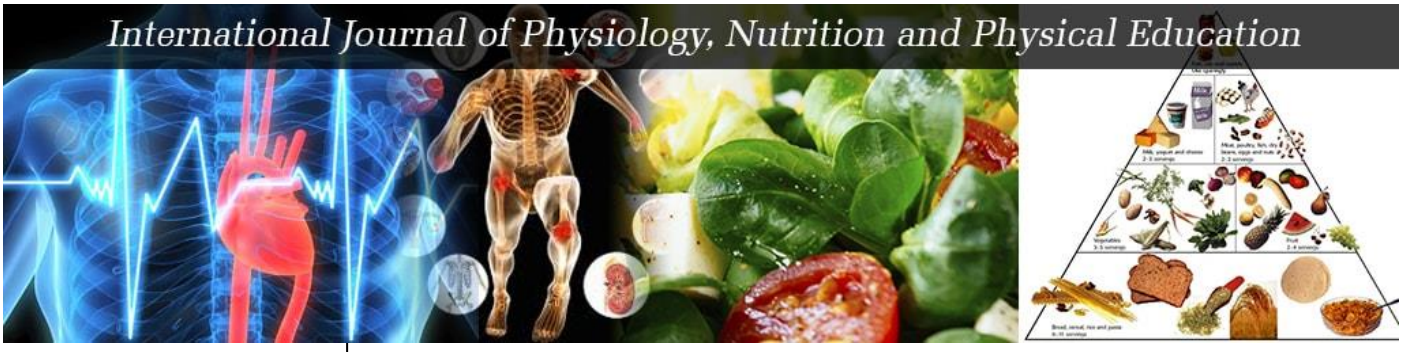

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S Pavithran
Ph.D. Research Scholar, Sri Ramakrishna Mission Vidyalaya Maruthi College of Physical Education, Coimbatore, Tamil Nadu, India

N Tharamadurai Pandiyan
Ph.D. Research Scholar, Department of Physical Education, Annamalai University, Annamalai Nagar, Chidambaram Tamil Nadu, India

Corresponding Author:
S Pavithran
Ph.D. Research Scholar, Sri Ramakrishna Mission Vidyalaya Maruthi College of Physical Education, Coimbatore, Tamil Nadu, India

Combined effects of cross training and fartlek training on selected physical fitness variables of male inter mediate football players

S Pavithran and N Tharamadurai Pandiyan

Abstract
The purpose of the study was to find out the combined effects of cross training and fartlek training on selected physical fitness variables of male intermediate football players from vannivedu united football club, walajapet, Ranipet. This study was restricted to male and their age ranged from 16 to 21 years. Combined effects of cross training and fartlek training was selected as independent variables and agility, speed and cardio respiratory endurance were selected as dependent variables. The training period was consists of twelve weeks. The pre-test and the post-test were conducted for all the subjects before and after the combined effects of cross training and fartlek training for twelve weeks. It concluded that the physical fitness variables namely speed, agility and cardio respiratory endurance were significantly improved due to the treatment of combined effects of cross training and fartlek training of intermediate male football players.

Keywords: Cross training, fartlek training, speed, agility, cardio respiratory endurance

1. Introduction
Sports training aims at education and performance enhancement based on scientific principles through physical exercise. It is a basic groundwork of sportsman for elite performance. The development of physical fitness includes organic functions and increasing the strength and stability of the musculoskeletal system. The concept of cross training is an approach to training and conditioning for a specific sports that involves substitution of alternative activities that have some carryover value to that sports. (Sharad Chandra Mishra 2009) [4]. Fartlek, which means "Speed play "in Swedish, is a training method that blends continuous training with interval training. Fartlek runs are a very simple form of a long distance run. Fartlek training is simply defined as periods of fast running intermixed with periods of slower running (Sharda Shakya 2017) [6]. Agility is often represented by the terms "maneuverability" and mobility. It is the ability to change direction of the body and its parts rapidly. (ClayneR.Jensen&A. Garth 1972) Speed is the performance pre-requiste to do motor action under given condition in minimum of time (Rajesh Vaidhya, 2006) [5]. Cardio respiratory fitness is the ability of the heart and lungs to supply oxygen-rich blood to the working muscle tissues and the ability of the muscles to use oxygen to produce energy for movement. (Sharad Chandra Mishra 2009) [4].

1.1. Statement of the problem
The purpose of the study was to find out the combined effects of cross training and fartlek training on selected physical fitness variables of male inter mediate football players.

2. Methodology and Materials
2.1. Selection of subjects: To achieve the purpose of this study 30 men inter mediate football players playing in Vannivedu United Football club, Walajapet, Ranipet District.

2.2. Criteria for inter mediate football players
- Their age group ranged from 16 to 21years.
- Represented minimum inter school football tournament or.
- Represented minimum inter collegiate football tournament or.

- Represented minimum district level rural Football tournament.

2.3. Selection of variables

Independent Variables

- Cross training.
- Fartlek training.

Dependent Variables

- Agility.
- Speed.
- Cardio Respiratory Endurance.

Table 1: Criterion Measures

S. No	Variables	Test Items	Units of Measurement
1	Agility	Zig-Zag run	In 1/10th Seconds
2	Speed	50 m dash	In 1/10th Seconds
3	Cardio respiratory endurance	Copper 's 12 minutes Run/Walk Test	In Metres

2.4. Experimental design

The study is formulated as a true random group design, consisting of a pre-test and post-test. The combined effect of Cross training and Fartlek training on variables namely agility, speed and cardio respiratory endurance. After twelve weeks (three alternative days) of training, post-test was conducted and the reading were carefully recorded as were tested before the training pre-test score. The selected subjects were divided into 2 groups Experimental Group A, Control Group B, each group of 15. The experimental treatment of Cross training and Fartlek training assigned to the experimental Group A

2.5. Statistical technique: The following statistical techniques were adopted to treat the collected data in connection with established hypothesis and objectives of this study. They researcher used t-ratio for interpreting results as recommended by Clarke and Clarke. The data were analysis with the computer using of SPSS statistics package. The level of confidence was fixed at 0.05 level of significance.

3. Result of the study

Table 2: computation of t-ratio between the pre-test and post-test means on agility of experimental group and control group

S. No	Variables	Group	Mean Difference	Standard deviation	Standard error of Mean	T-Ratio
1	Agility	Exp.	0.39	0.33	0.86	4.58 *
		Con	0.13	0.34	0.08	1.50

*Significance level of 0.05, Table value 2.14 with DF (14)

An examination of table 2 indicates that the obtained t-ratio for Agility of experimental group was 4.58*. The obtained t-ratio on agility was found to be more than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. This indicates that the combined effect of cross training and fartlek training had significant effect upon their performance. The obtained t-ratio for Agility of control group was 1.50. The obtained t-ratio on agility was found to be lesser than the required table value of 2.14 at 0.05 level of significance for 14 degree of freedom. So it was found to be insignificant.

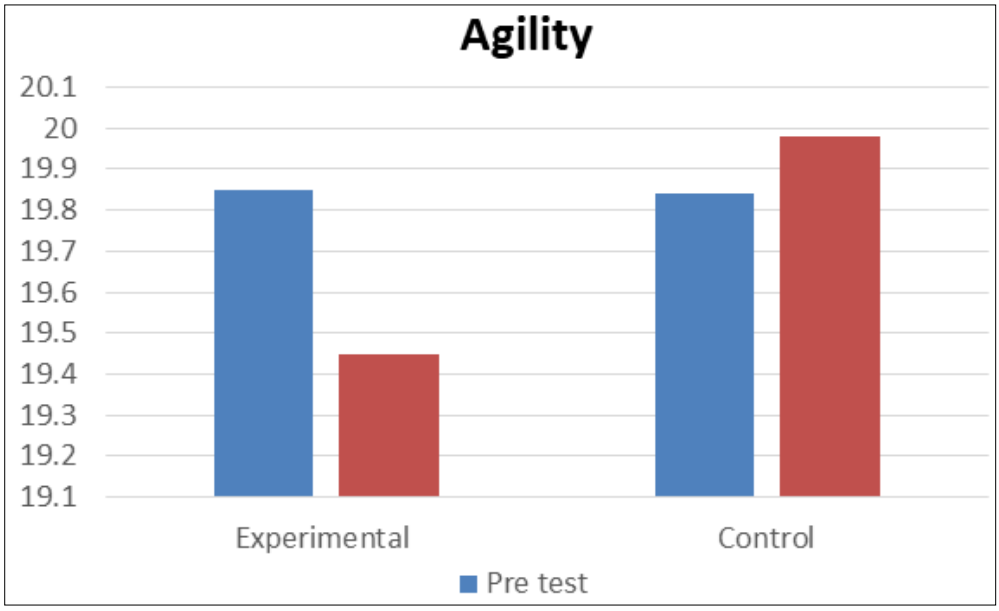

Fig 1: Bar diagram show in the pre-test mean and post-test mean on agility of experimental group and control group

Table 3: Computation of t- ratio between the pre-test and post-test means on speed of experimental group and control group

S. No	Variables	Group	Mean Difference	Standard deviation	Standard error of Mean	T-Ratio
1	Speed	Exp	0.36	0.24	0.06	5.89 *
		Con	0.01	0.22	0.05	0.26

*Significance level of 0.05 Table value 2.14 with DF (14)

An examination of table 3 indicates that the obtained t-ratio for speed of experimental group was 5.89*.The obtained t-ratio on speed was found to be more than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. This indicates that the combined effect of cross training and fartlek training had significant effect upon their performance. The obtained t-ratio for speed of control group was 0.26. The obtained t-ratio on speed was found to be lesser than the required table value of 2.14 at 0.05 level of significance for 14 degree of freedom. So it was found to be insignificant.

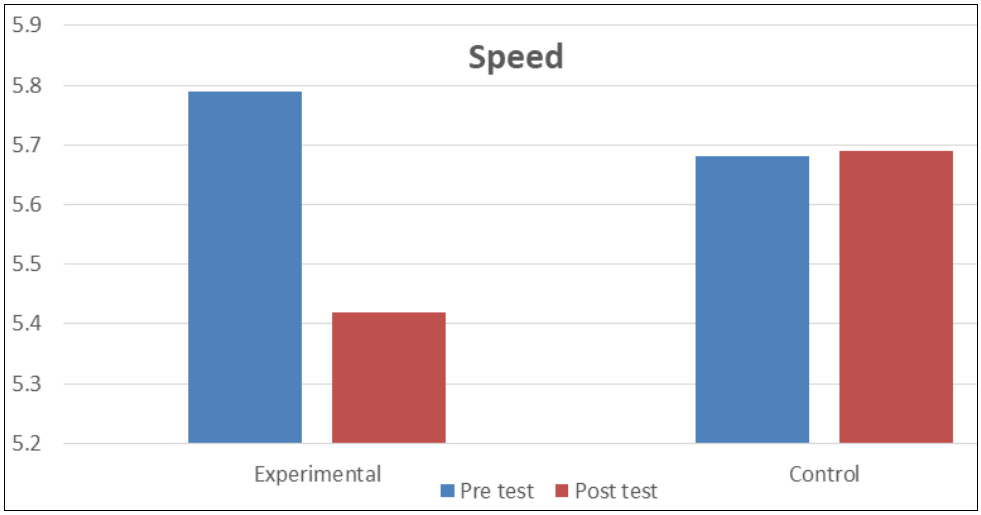

Fig 2: Bar diagram show in the pre-test mean and post-test mean on speed of experimental group and control group

Table 4: Computation of t-ratio between the pre-test and post-test means on cardio respiratory endurance of experimental group and control group

S. No	Variables	Group	Mean Difference	Standard deviation	Standard error of Mean	T-Ratio
1	Cardio respiratory endurance	Exp.	0.26	0.11	0.30	8.51 *
		Con	0.02	0.33	0.08	0.23

*Significance level of 0.05, Table value 2.14 with DF (14)

An examination of table 4 indicates that the obtained t-ratio for cardio respiratory endurance of experimental group was 8.51*. The obtained t-ratio on cardio respiratory endurance was found to be more than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. This indicates that the combined effect of cross training and fartlek training had significant effect upon their performance. The obtained t-ratio for cardio respiratory endurance of control group was 0.23. The obtained t-ratio on cardio respiratory endurance was found to be lesser than the required table value of 2.14 at 0.05 level of significance for 14 degree of freedom. So it was found to be insignificant.

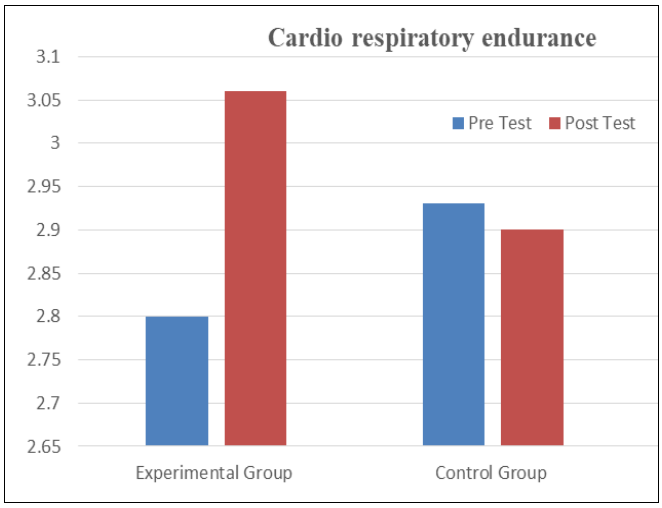

Fig 3: Bar diagram show in the pre-test mean and post-test mean on cardio respiratory endurance of experimental group and control group

3.1. Discussion on findings

The results of the study indicates that the combined effect of Cross Training and fartlek training selected physical fitness variables of intermediate male football players for Twelve weeks of training had significantly improved the selected physical fitness variables of (agility, speed, and cardio respiratory endurance). The results line with that effect of Cross Training and fartlek training would be improved on physical fitness variables Madhan Kumar T (2014) [1] and Periyadurai V, *et al*., (2019) [2], Sridhar Thangadurai (2019) [3].

4. Conclusions

It was concluded that the experimental group shows significantly improvement on physical fitness variables were Agility, Speed and Cardio respiratory endurance due to the twelve weeks of cross training and fartlek training of inter mediate male football players.

5. Reference

1. Madhan Kumar T. Effects of continuous running and fartlek training on selected physical physiological and skill related variables of football player; c2014.
2. Periyadurai V. A study of the effects of intensive training and fartlek training on selected physical and physiology variables of football players; c2019.
3. Sridhar Thangadurai J. Combined and individualized effects of cross training and game specific exercises on selected physical physiological anthropometric and performance variables of men university handball players in Tamil Nadu; c2019.
4. Dr. Sharad Chandra Mishra. Sports Training, sports publication; c2009. p. 80, 38. ISBN: 81.7879.312.1.

5. Dr. Rajesh Vaidhya. Physical Fitness and Wellness Prena Prakashan Delhi; c2006. p. 191-193. ISBN: 81-89102-49-4.
6. Dr. Shardashakaya. Scientific principles of sports training Asian off set printers; c2017. p. 111. ISBN: 978-81-7524-893-9
7. Clayner Jensen. Agrath Fisher. Henry Kimpton publishers, London; c1972. p. 199. ISBN: 0-8121-0633-4
8. Yogarajthani. Coaching successfully Sprinting, Sports publication; c2002. ISBN: 81-7878-028-9
9. Dr. Gopalakrishna RW. Physical Fitness exercise and Health Sports, Khel Sahitya KENDRA, New Delhi. 2012;2:30. ISBN: 978-81-7879-719-9.

Appendix

Training Schedule
The training period consists of twelve weeks (afternoon 4.30 to 5.30)

Table 1: First, Fifth and Nineth week training plan

Day	Stretching (10 min)	Fartlek training (20 min)	Cross training (25 min)	Warming down (5 min)
Monday	Active stretching	Shuttle run 10*5*3(5 rep)	Pranayama	Passive stretching
Wednesday	Dynamic stretching	Sprint fartlek 50 m dash (8 rep)	Cycling	PNF stretching
Friday	Ballistic stretching	Hill fartlek 50m Run-50 walk	Downward sprint	Isometric stretching

Table 2: Second sixth and tenth week of training plan

Day	Stretching (10 min)	Fartlek training (20 min)	Cross training (25 min)	Warming down (5 min)
Monday	Active stretching	1min on 1 min off (10 rep)	Weight training	Passive stretching
Wednesday	Dynamic stretching	3min on min off (4 rep)	Yoga	PNF stretching
Friday	Ballistic stretching	Sand running 100*10	Swimming	Isometric stretching

Table 3: Third, Seventh and Eleventh week of training plan

Day	Stretching (10 min)	Fartlek training (20 min)	Cross training (25 min)	Warming down (5 min)
Monday	Active stretching	Side shuffle run 10*5*3(5 rep)	Pranayama	Passive stretching
Wednesday	Dynamic stretching	Acceleration sprint 50 m dash (8 rep)	Cycling	PNF stretching
Friday	Ballistic stretching	Up and Down slope 60 m Run-40m walk	Downward stride sprint	Isometric stretching

Table 4: Fourth, Eight and Twelfth week of training plan

Day	Stretching (10 min)	Fartlek training (20 min)	Cross training (25 min)	Warming down (5 min)
Monday	Active stretching	1.20 min on 40 sec off (5)	Weight training	Passive stretching
Wednesday	Dynamic stretching	3min on 2 min off (4 rep)	Yoga	PNF stretching
Friday	Ballistic stretching	Sand running 150*7	Swimming	Isometric stretching

Table 5: Control group data

S. No	Name	Agility		Speed		Cardio respiratory endurance	
		Pre Test	Post Test	Pre Test	Post Test	Pre Test	Post Test
1	Siva	19.7	19.79	5.55	5.55	2700	2800
2	Komu	20.12	20.14	5.54	5.56	2800	2900
3	Sarath	20.8	20.01	6.11	6.14	3300	3500
4	Sathish	20.11	20.01	6.20	6.21	2700	2900
5	Anil	19.78	20.01	5.24	5.20	3200	3400
6	Bala	19.74	19.80	5.30	5.35	2900	3300
7	Gopi	21	21.4	6.15	6.20	2800	3200
8	Johnson	19.14	19.2	6.25	6.18	2400	2600
9	Karthik	19.48	19.60	6.00	6.30	2600	2900
10	Babul	19.5	20.1	5.00	5.40	2500	2700
11	John	18.45	18.3	5.30	5.90	2700	3100
12	Vetri	19.11	19.29	5.45	6.00	2900	3300
13	Gowtham	19.44	19.88	6.00	6.00	2900	3300
14	Vimal	20.45	21	5.48	5.40	2800	2900
15	Kali	20.99	21	5.70	5.90	2900	3200

Table 6: Experimental Group Data

S. No	Name	Agility		Speed		Cardio respiratory endurance	
		Pre Test	Post Test	Pre Test	Post Test	Pre Test	Post Test
1	Vimal	19.7	18.97	5.55	5.55	2700	2800
2	Jaisuriya	20.12	19.87	5.59	5.40	2800	2900
3	Keerthi	21	20.47	6.10	6.00	3300	3500
4	Jagadesh	20.11	20.1	6.20	5.50	2700	2900
5	Dhushan	19.77	18.91	5.24	5.1	3200	3400
6	Siva	20.1	20.1	5.30	5.15	2900	3300
7	Prasanth	19.11	18.91	6.15	5.50	2800	3200
8	Akash	20.44	20.14	6.20	5.55	2400	2600
9	Balaji	19.14	18.5	5.9	5.4	2600	2900

10	Bondma	19.57	18.5	5.98	5.2	2500	2700
11	Arul	19.19	19.00	6.1	5.8	2700	3100
12	Vijay	20.12	20.07	6	5.7	2900	3300
13	Bala	20.14	20.14	5.4	5.2	2900	3300
14	Rajesh	20.15	19.50	5.5	5.2	2800	2900
15	Sooka	19.11	18.77	5.7	5.2	2900	3200