

Efficacy of Different Endurance Training on Blood Leucocyte Count Among the District Level Football Players of Tripura

Prasenjit Debnath¹ Kuldeep Kumar Battan¹ Ankan Sinha²

¹Department of Physical Education, CT University, Ludhiana, Punjab, India.

²Department of Physical Education, Govt. Degree College Dharmanagar.

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Abstract:

This study sought to determine how well the Blood Leucocyte Count of district-level football players in Tripura was affected by Fartlek training (FT), Slow Continuous Training (SCT), Combine Endurance Training (CET), and the control group (CG). Specifically, 120 male football players from various regions of Tripura were chosen to participate in the study. An equal number of people ($n = 30$) were randomly assigned to each of the experimental groups (Fartlek, Slow Continuous, and their combinations, as well as the Controlled Group). Data on physiological reaction, or Blood Leucocyte Count, was obtained using the blood test on venous blood samples that were drawn from a forearm antecubital vein in simple evacuated tubes. The data were analysed using covariance and mean difference. The results of the study show that among football players in the Tripura district, none of the endurance training has significant impact on raising or maintaining Blood Leucocyte Count as that calculated F value (2.59) is smaller than the tabulated F value (2.68). However, Fartlek training has the highest adjusted mean value (6.790) among all the training groups.

Keywords: Fartlek training, Slow Continuous, Blood Leucocyte Count and Control group.

Introduction:

Football is a game of cooperation and resistance between players and teams, creating a complex and unexpected dynamic. [1, 2] As in football, the players put in ninety minutes of physical work, continuously changing up the intensity during the game, [3] which may cause fatigue and affect the overall performance of the player. Sports performance is a major topic of concern. Many studies are being conducted to determine the variables that could affect a player's success in a particular sport. The players' endurance is a crucial factor in the game of football. [4]

Repeated exercise sessions over time create multiple physiological changes that lead to improved performance in the exercise activity. The degree of the training response is determined by the duration, intensity, and frequency with which the exercises are performed and executed. [5]

Endurance is defined as the ability to maintain a certain velocity or power output for the longest possible duration. Performance in endurance sports is thus strongly dependent on the aerobic resynthesis of ATP; this requires an appropriate delivery of oxygen from the environment to cytochrome oxidase in the mitochondrial electron transport chain, and the provision of fuels in the

form of carbs and lipids. [6, 7]

Endurance exercise may be defined as activity of at least 20 minutes duration in which heart rate is elevated to 60–80% of maximum. Endurance exercise is a physiological perturbation that significantly affects autonomic nervous activity. Research has indicated that long-term endurance training increases parasympathetic activity and decreases sympathetic activity directed to the human heart at rest.[8-15] These training-induced autonomic changes, coupled with a possible reduction in intrinsic heart rate, decrease resting heart rate and increase heart rate variability at rest.[10,12,13,16-18]

Methodology

One Hundred Twenty (120) male footballers from different districts of Tripura were purposively selected as the subjects for the study. Those individuals who had any sort of extra training programs were not included in the study. The health examination of the subjects was carried out to ensure that the subjects were medically fit to undergo different types of endurance training programmes. The age of the subjects was ranged from 18 to 30 years.

Prior to the pre-test, a meeting of all the selected subjects were conducted and the tester explained in detail regarding the requirement of the study, testing procedures and endurance training schedules, so that they may have a clear concept regarding the work load and effort they have to put in. Then the subjects were randomly be assigned to the experimental groups (Fartlek training, Slow continuous training, their combination & Controlled Group) in equal numbers i.e., (n=30).

Experimental Design

Pre-test Post-test randomized group design was used in this study. The subjects were divided into three experimental and a control group of 30 (Footballer) subjects each. The subjects were randomly assigned to the training programs in each four of the groups.' The subjects were selected at random by drawing lots and assignment of treatment was also at random. **Collection of Data**

The scores regarding functional response, i.e. Blood Leucocyte Count of district-level football players in Tripura were gathered using plain evacuated tubes to collect venous blood samples from a forearm antecubital vein by the technicians working in the Health Cure Nursing Home, Dharmanagar . Before and after the test administrations, adequate rest was taken in order to collect all of the data. The experimental programmes were planned for six days in a week for 12 weeks and only around one and half hours in a day for each group.

Pre-test and Post- test were conducted for each of the four groups prior and after completion of the experimental program where applicable

Administration of endurance training

Firstly, 90 minutes of Fartlek session is given to the subjects of group a six days a week for 12 weeks. The sessions were consisting of warm up jogs, few drills, jog, moderate jog, moderate- hard jog, hard jog and cool down for every training day. Whereas, 90 minutes of slow continuous session is given to the subjects of group B six days a week for 12 weeks. The sessions were consisting of warm up, walking, jogging, running and cool down for every training day. On the other hand, a combine

endurance session (Fartlek & Slow Continuous) of 90 minutes is given to the subjects of group C six days in alternate manner in every week for 12 weeks. For combine sessions investigator followed the training schedule of Fartlek and Slow continuous in every alternate training days.

Findings

The mean and standard deviation of district level football players pertaining to Blood Leucocyte Count in fartlek training group for different experimental conditions are as follows:

Table- 1 Descriptive Analysis Of Blood Leucocyte Count Of District Level Footballers After Fartlek Training

Variables	Experimental Conditions	Mean	S.D	Minimum	Maximum	Range
Blood Leucocyte Count	Pre test	6.47	1.695	4.3	10.5	6.2
	Post test	6.54	1.698	4.6	10.6	6

The mean and standard deviation of district level football players pertaining to Blood Leucocyte Count in slow continuous training group for different experimental conditions are as follows:

Table- 2 Descriptive Analysis Of Blood Leucocyte Count Of District Level Footballers After Slow Continuous Training

Variables	Experimental Conditions	Mean	S.D	Minimum	Maximum	Range
Blood Leucocyte Count	Pre test	6.92	1.60	4.5	10	5.5
	Post test	6.99	1.59	4.8	10.2	5.4

The mean and standard deviation of district level football players pertaining to Blood Leucocyte Count in combine training group (Fartlek and Slow Continuous training groups) for different experimental conditions are as follows

Table- 3 Descriptive Analysis Of Blood Leucocyte Count Of District Level Footballers After Combine Endurance Training (Fartlek And Slow Continuous Training Groups)

Variables	Experimental Conditions	Mean	S.D	Minimum	Maximum	Range
Blood Leucocyte Count	Pre test	7.02	1.56	4.5	10.2	5.7
	Post test	7.08	1.55	4.6	10.2	5.6

The mean and standard deviation of district level football players pertaining to Blood Leucocyte Count in control group for different experimental conditions are as follows:

Table- 4 Descriptive Analysis Of Blood Leucocyte Count Of District Level Footballers For Control Group

Variables	Experimental Conditions	Mean	S.D	Minimum	Maximum	Range
	Pre test	6.47	1.69	4.3	10.5	6.2
Blood Leucocyte Count	Post test	6.49	1.67	4.4	10.5	6.1

Findings pertaining to Blood Leucocyte Count of district level football players among all the four groups namely; Fartlek Training (FT), Slow Continuous Training (SCT), Combine Endurance Training (CET) and control group (CG) which were subjected to analysis of covariance and mean difference method which have been presented in the following tables:

Table- 5 Analysis Of Covariance Of Blood Leucocyte Count Of District Level Footballers

	FT	SCT	CET	CG	SOV	df	SS	MSS	F-ratio
Pre Means	6.47	6.92	7.02	6.47	B	3	7.66	2.55	0.91
					W	116	322.3	2.78	
Post Means	6.54	6.99	7.08	6.49	B	3	8.24	2.74	0.99
					W	116	319.3	2.75	
Adjusted Post Means	6.790	6.789	6.783	6.740	B	3	0.05	0.0171 16	2.59
					W	115	0.76	0.0065 97	

*Sig. at .05 levels Tab. F. 05 (3, 115) = 2.68

The above table- 5 revealed that the adjusted calculated F (2.59) is smaller than tabulated F (2.68). Hence, there were no significant effects on all the four groups namely; Fartlek Training (FT), Slow Continuous Training (SCT), Combine Endurance Training (CET) and control group (CG) in relation to Blood Leucocyte Count. It is concluded that all the training programs are not having any significant effect in improving the Blood Leucocyte Count among the District level football players of Tripura.

Conclusion

All three of the endurance training regimens were not significantly effective for Tripura's district football players in improving their Blood Leucocyte Count. However, the fartlek is

having highest values of adjusted mean of **6.79**. Hence, we can say that fartlek training is marginally more effective in improving their Blood Leucocyte Counts.

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