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Effect of Various Yogic and Fitness Training Programme on Health Related Physical Fitness of School Children

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Abstract

The purpose of the study was to find out the plyometric training and resistance training on physiological variables namely systolic and diastolic blood pressure of college level football players. To achieve the purpose of the present study, forty five football players from Madurai, Tamilnadu were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of fifteen football players each. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (N=45) were randomly assigned to three equal groups of fifteen football players each. The groups were assigned as plyometric training, resistance training and control group in an equivalent manner. The group I underwent plyometric training, group II underwent resistance training and group III acted as a control group. The two experimental groups were participated the training for a period of twelve weeks to find out the outcome of the training packages and the control group did not participated in any training programme. The variable to be used in the present study was collected from all subjects before they have to treat with the respective treatments. It was assumed as pre-test. After completion of treatment they were tested again as it was in the pre-test on all variables used in the present study. This test was assumed as post-test. Analysis of covariance (ANCOVA) was applied because the subjects were selected random, but the groups were not equated in relation to the factors to be examined. Hence the difference between means of the four groups in the pre-test had to be taken into account during the analysis of the post-test differences between the means. This was achieved by the application of the analysis of covariance, where the final means were adjusted for differences in the initial means, and the adjusted means were tested for significance. When ever the adjusted post-test means were found significant, the scheffe's post-hoc test was administer to find out the paired means difference. To test the obtained results on variables, level of significance 0.05 was chosen and considered as sufficient for the study. The plyometric training and resistance training produced significant improvement in physiological variables.

Keywords: Plyometric, Resistance, Systolic Blood Pressure, Diastolic Blood Pressure, Football.

Introduction

The modern world is a world of competition. In every phase of life, people have to face one or other kind of competition. Sports and games occupy an unique position in this competitive world. Top class international sports meets are considered by the international ambassadors for world supermodel in various sports and games. Games and sports have been part of human life almost, since the time in memorial. The games and sports have been indispensable to mankind and have become part of his culture. The games and sports are great unifying force and have tremendous effect on the national and international integration of people. Today, life style mostly depends upon science and technology. In such circumstance, people need more exercise to keep the body and mind fit to execute the activities efficiently. Sport is the way which we use our physical capacities to play. Sports have assumed worldwide importance in this shrinking world, which is coming nearer and nearer and day by day. It is playing an important role in bringing people together at national and international level. It doesn't distinguish between religion, caste, race and it embraces every sport and region of the world.The competitiveness of athletics has dictated that the athletes become faster, stronger and bigger to keep up with the demands of their sport. Plyometric exercise is one such area that has been shown to increase strength and explosiveness in athletes. Various sports such as football, tennis, golf, soccer, volleyball, running and basketball, as well as others use this as a tool for physical training (Chu, 1998).

The primary objective of strength is not to learn to lift as much weight as possible but to increase strength for application to the relevant sports. This is possible only, when the coaches and physical education teachers

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use the correct and the most beneficial and economical means to train their sportsmen (Kraemer & Fleck, 2005). The modern soccer relies on the ability of all players to attack and defend whenever necessary Analysis of the physical and physiological characteristics of the players and determination of the specific requirements for optimal performance are thus a necessity. A player must therefore, develop his skill and should understand his contribution according to the situation demands in the team play.

Methodology

The purpose of the study was to find out the plyometric training and resistance training on physiological variables namely systolic and diastolic blood pressure of college level football players. To achieve the purpose of the present study, forty five football players from Madurai, Tamilnadu were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of fifteen football players each. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (N=45) were randomly assigned to three equal groups of fifteen football players each. The groups were assigned as plyometric training, resistance training and control group in an equivalent manner. The group I underwent plyometric training, group II underwent resistance training and group III acted as a control group. The two experimental groups were participated the training for a period of twelve weeks to find out the outcome of the training packages and the control group did not participated in any training programme. The variable to be used in the present study was collected from all subjects before they have to treat with the respective treatments. It was assumed as pre-test. After completion of treatment they were tested again as it was in the pre-test on all variables used in the present study. This test was assumed as post-test. Analysis of covariance (ANCOVA) was applied because the subjects were selected random, but the groups were not equated in relation to the factors to be examined. Hence the difference between means of the four groups in the pre-test had to be taken into account during the analysis of the post-test differences between the means. This was achieved by the application of the analysis of covariance, where the final means were adjusted for differences in the initial means, and the adjusted means were tested for significance. When ever the adjusted post-test means were found significant, the scheffe's post-hoc test was administer to find out the paired means difference. To test the obtained results on variables, level of significance 0.05 was chosen and considered as sufficient for the study.

Results and Discussion

Table I. Computation of Analysis of Covariance of Mean of Plyometric Training, Resistance Training and Control Groups on Systolic Blood Pressure (PTG, RTG & CG)

	PTG	RTG	CG	Source of Variance	Sum of Squares	Df	Means Squares	F-ratio
Pre-Test Means	123.80	123.46	124.00	**BG**	2.17	2	1.08	0.78
				WG	58.13	42	1.38	
Post-Test Means	120.73	120.53	123.93	**BG**	109.20	2	54.60	57.90*
				WG	39.60	42	0.94	
Adjusted Post-Test Means	120.72	120.58	123.89	**BG**	102.66	2	51.33	55.30*
				WG	38.05	41	0.92	

Table – I reveals that the indicated that the obtained 'F'-ratio for the pre-test means among the groups on systolic blood pressure were 123.80 for experimental group – I, 123.46 for experimental group – II and 124.00 for control group. The obtained 'F'-ratio 0.78 was lesser than the table 'F'-ratio 3.21. Hence the pre-test mean 'F'-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. The post-test means were 120.73 for experimental group – I, 120.53 for experimental group – II and 123.93 for control group. The obtained 'F'-ratio 57.90 was higher than the table 'F'-ratio 3.21. Hence the post-test mean 'F'-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. The adjusted post-test means were 120.72 for experimental group – I, 120.58 experimental group – II and 123.89 for control group. The obtained 'F'-ratio 55.30 was higher than the table 'F'-ratio 3.22. Hence the adjusted post-test mean 'F'-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. It was concluded that there was a significant mean difference among plyometric training group, resistance training group and control group, in developing systolic blood pressure of the football players.

Figure I. Adjusted Post Test Differences of the Plyometric Training, Resistance Training and Control Groups on Systolic Blood Pressure (PTG, RTG & CG)

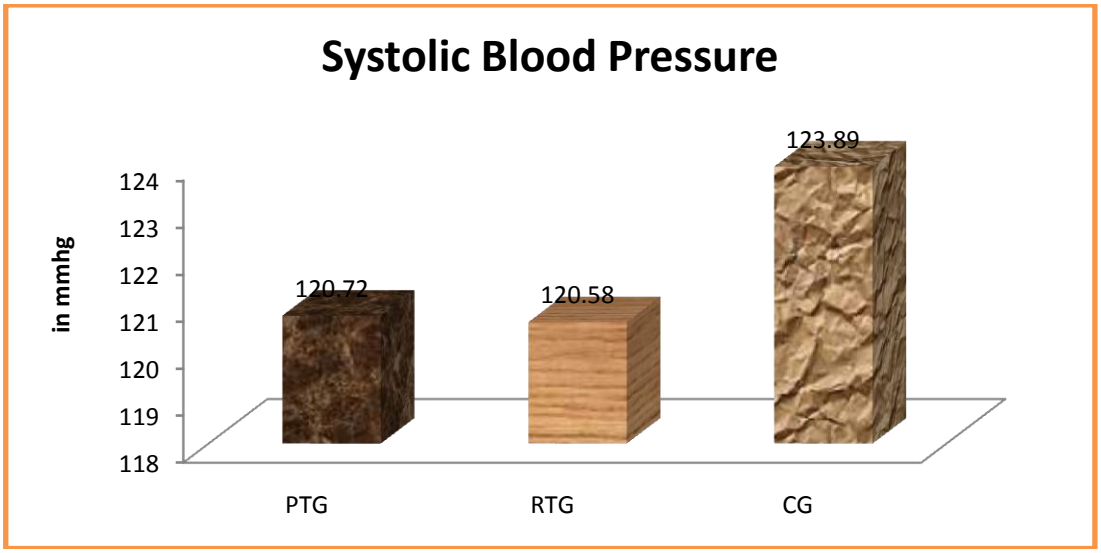

Table II. The Scheffe's Test for the Differences between the Adjusted Post Test Means on Systolic Blood Pressure

Adjusted Post-test means			Mean Difference	Required CI
Plyometric Training	Resistance Training	Control Group		
120.72	120.58	---	0.14	0.88
120.72	---	123.89	3.17*	
---	120.58	123.89	3.31*	

**** Significant at 0.05 level of confidence***

Table II shows the post hoc analysis obtained on adjusted post test means. The mean difference required for the confidential interval to be significant was 0.88. It was observed that the plyometric training group significantly improved systolic blood pressure better than the control group. The resistance training group significantly improved systolic blood pressure better than the control group.

Table III. Computation of Analysis of Covariance of Mean of Plyometric Training, Resistance Training and Control Groups on Diastolic Blood Pressure (PTG, RTG & CG)

	PTG	RTG	CG	Source of Variance	Sum of Squares	Df	Means Squares	F-ratio
Pre-Test Means	83.53	83.00	83.46	**BG**	2.53	2	1.26	0.92
				WG	57.46	42	1.36	
Post-Test Means	79.40	79.73	82.86	**BG**	109.73	2	54.86	37.00*
				WG	62.26	42	1.48	
Adjusted Post-Test Means	79.37	79.78	82.84	**BG**	107.79	2	53.89	36.26*
				WG	60.93	41	1.48	

Table – III reveals that the indicated that the obtained 'F'-ratio for the pre-test means among the groups on diastolic blood pressure were 83.53 for experimental group – I, 83.00 for experimental group – II and 83.46 for control group. The obtained 'F'-ratio 0.92 was lesser than the table 'F'-ratio 3.21. Hence the pre-test mean 'F'-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. The post-test means were 79.40 for experimental group – I, 79.73 for experimental group – II and 82.86 for control group. The

obtained 'F'-ratio 37.00 was higher than the table 'F'-ratio 3.21. Hence the post-test mean 'F'-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. The adjusted post-test means were 79.37 for experimental group – I, 79.78 experimental group – II and 82.84 for control group. The obtained 'F'-ratio 36.26 was higher than the table 'F'-ratio 3.22. Hence the adjusted post-test mean 'F'-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. It was concluded that there was a significant mean difference among plyometric training group, resistance training group and control group, in developing diastolic blood pressure of the football players.

Figure II. Adjusted Post Test Differences of the Plyometric Training, Resistance Training and Control Groups on Diastolic Blood Pressure (PTG, RTG & CG)

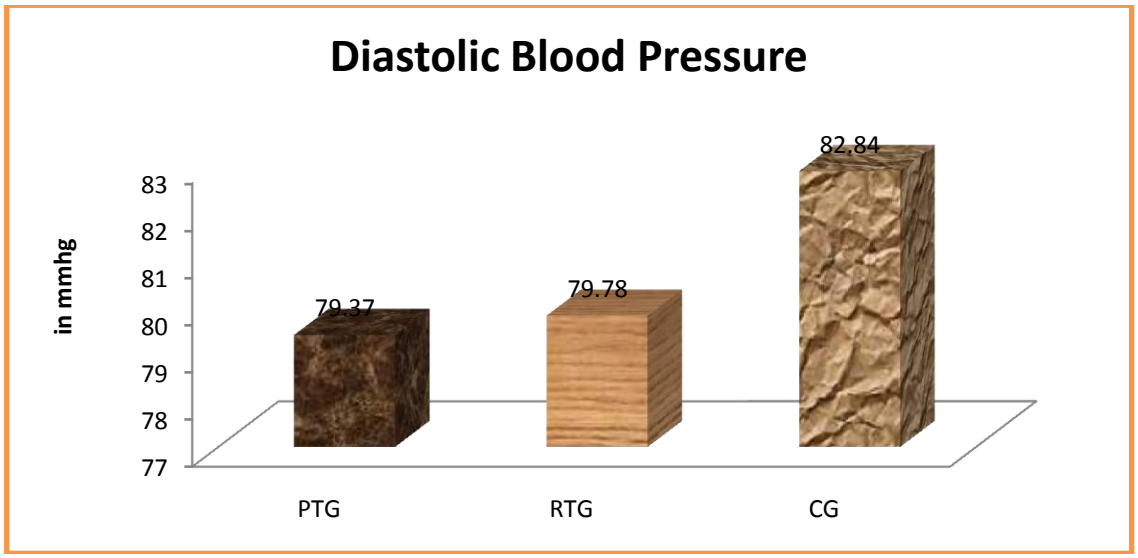

Table IV. The Scheffe's Test for the Differences between the Adjusted Post Test Means on Diastolic Blood Pressure

Adjusted Post-test means			Mean Difference	Required CI
Plyometric Training	Resistance Training	Control Group		
79.37	79.78	---	0.41	1.12
79.37	---	82.84	3.47*	
---	79.78	82.84	3.06*	

**** Significant at 0.05 level of confidence***

Table IV shows the post hoc analysis obtained on adjusted post test means. The mean difference required for the confidential interval to be significant was 1.12. It was observed that the plyometric training group significantly improved diastolic blood pressure better than the control group. The resistance training group significantly improved diastolic blood pressure better than the control group.

Conclusion

1. The plyometric training group produced significant improvement in physiological variables. The 'f' values of the selected variables have reached the significant level.
2. The resistance training group produced significant improvement in physiological variables. The 'f' values of the selected variables have reached the significant level.
3. In the control group the obtained 'f' value on all the variables were failed to reach the significant level.

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