



Impact of Soccer Specific Conditioning on Speed and Kicking Abilities of High Altitude Adolescent Soccer Players

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Abstract

The study was designed to investigate the impact of Soccer specific conditioning on speed and kicking ability of high altitude adolescent soccer players. Thirty adolescent soccer players who were studying in the high altitude area at The High Range School Munnar, Idukki district of Kerala state were selected as subjects and segregated into two groups of fifteen subjects each as experimental group and control group following random procedure. The experimental group underwent soccer specific conditioning over a period of twelve weeks at high altitude area where as control group did not participate in any of the training except their regular play. Speed and Kicking ability were assessed before and after the experimental period by using 50yard sprint and Mor Christian Soccer Shooting test respectively. ANCOVA was used to analyze the collected data. The results of this study showed that there was a significant difference between experimental group and control group on speed and kicking abilities of adolescent soccer players.

Keywords: Soccer, Speed, kicking, Analysis of Co variance (ANCOVA).

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Introduction

Soccer is the most popular sport in the world and is played in most countries. It is a team sport, involving 11 players on each side who use their legs, head and torso to pass a ball and score goals. The nature of the game means that players may be sprinting, running fast or slow, and sometimes may be standing around. Soccer players need a high level of fitness to cope with the physical demands of a game and to allow for their technical skills to be utilized throughout a match. Therefore, fitness training is an important part of the overall training programme. Common to all types of fitness training in soccer that the exercise performed should resemble match-play as closely as possible. This is one of the main reason why the majority of fitness training should be performed with a ball. Other advantages of conducting training as a drill or game are that the players develop technical and tactical skills under conditions similar to those encountered during a match, and that this form of training usually provides greater motivation for the players compared to training without a ball.

Studies investigating the health-related physical fitness benefits of regular physical activity participation

have focused primarily on aerobic exercise, including treadmill or outdoor running and cycle ergometry. However, adherence to these modes of physical activity (e.g., continuous running) in the general population, and especially in adolescents, is relatively low, perhaps because such activities are perceived as isolating and boring. There is, therefore, a need to find more enjoyable modes of training that elicit great adherence by optimizing intrinsic motivation while offering health benefits that match those accomplished by treadmill and cycle ergometry programs. In this context, recreational soccer may be a popular alternative for those seeking to improve their cardiovascular, metabolic, and musculoskeletal fitness (Tabka, et al. 2006). A growing body of research has highlighted the health benefits of recreational soccer training in sedentary but otherwise healthy adults and obese (Bousk el al 2006) or various patient populations. Recent reviews suggest that regular participation in recreational soccer can enhance both physical fitness and health status in untrained individuals. It has been shown for example, that a period of 12-24 weeks of soccer training caused a 7%-15% increase in the maximum amount of oxygen utilized (VO_{2max}) in previously untrained participants. Moreover, 12 weeks of soccer training in young and middle-aged men led to a significant decrease (15%) in low-density lipoprotein cholesterol. Only few studies have investigated the health effects of soccer-based training in adolescence. In these studies, it was reported that obese

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adolescent boys improved a range of health markers, such as a reduction in body fat and blood pressure, an increase in high-density lipoprotein cholesterol, and VO_{2max} after 12 weeks of organized recreational soccer training. To the best of our knowledge, no data exist on the effects of recreational soccer in untrained normal-weight adolescents. Moreover, no data exist on the acute effects of different forms of small-sided games on perceived enjoyment for adolescent boys. Aerobic training increases the ability to exercise at an overall higher intensity during a match, and minimizes a decrease in technical performance induced by fatigue towards the end of a game. Anaerobic training elevates a player's potential to perform high-intensity exercise during a game. Muscle strength training, combined with technical training, improves a player's power output during explosive activities in a match. Fitness training should mainly be performed with a ball. This ensures that the specific muscles used within soccer are trained. Equally important is that players should develop their technical skills under conditions similar to those encountered during competition.

Methodology

To achieve the purpose of the study, thirty adolescent football players from The High Range School, Munnar, Idukki district of Kerala state were selected as subjects. Their age ranged between 15 and 18 years and they were divided into two equal groups of fifteen subjects each as experimental group and control group. The experimental group underwent soccer specific conditioning over a period of twelve weeks where as control group did not participate in any of the training except their regular play. The selected variables such as speed and kicking ability were assessed by using 50 yards sprint and Mor Christian soccer shooting test respectively. The collected data were statistically analyzed for significant difference, if any, by applying analysis of covariance (ANCOVA). In all cases 0.05 level was fixed as confidence interval to test the significance.

Analysis of Data Speed

The analysis of covariance on Speed of pre and post test scores of soccer conditioning group and control group have been analyzed and presented in Table I

Table 1

Analysis of covariance on speed of soccer conditioning and control groups

Test	SSCG	Control Group	Source of variance	Sum of Squares	Df	Mean squares	'F' ratio
Pretest Mean	5.70	5.77	Between	0.040	1	0.040	2.40
SD	0.141	0.116	Within	0.469	28	0.017	
Posttest Mean	5.34	5.72	Between	1.045	1	1.045	66.32*
SD	.124	.126	Within	0.441	28	0.016	
Adjusted Posttest Mean	5.37	5.68	Between	0.669	1	0.669	173.87*
			Within	0.104	27	0.004	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for degree of freedom 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively)

The table-1, shows that the pre-test mean value of speed for soccer conditioning group and control group are 5.70 and 5.77 respectively. The obtained "F" ratio of 2.40 for pre – test scores which were less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence. The post-test mean value of speed for soccer conditioning group and control group are 5.34 and 5.72 respectively. The obtained "F" ratio of 66.32 for post –test scores which were higher than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence. The adjusted post-test mean value of speed for soccer conditioning and control group are 5.37 and 5.68 respectively. The

obtained "F" ratio of 173.87 for adjusted post –test scores which were more than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence. The results of the study showed that there was a significant difference between the adjusted post test means of soccer conditioning group and control group on speed.

Kicking

The analysis of covariance on kicking of pre and post test scores of soccer conditioning group and control group have been analyzed and presented in Table 2.

Table 2

Analysis of covariance on kicking of soccer conditioning and control groups

Test	SSCG	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	'F' ratio
Pretest Mean	18.42	18.28	Between	0.147	1	0.147	2.59
SD	0.251	0.224	Within	1.588	28	0.057	
Posttest Mean	18.61	18.31	Between	0.666	1	0.666	12.54*
SD	0.232	0.228	Within	1.48	28	0.053	
Adjusted Posttest Mean	18.54	18.37	Between	0.192	1	0.192	50.83*
			Within	0.102	27	0.004	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for degree of freedom 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively)

The table-II, shows that the pre-test mean value of kicking for soccer conditioning group and control group are 18.42 and 18.28 respectively. The obtained "F" ratio of 2.59 for pre –test scores which were less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence. The post-test mean value of kicking for soccer conditioning group and control group are 18.61 and 18.31 respectively. The obtained "F" ratio of 12.54 for post –test scores which were higher than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence. The adjusted post-test mean value of kicking for soccer conditioning group and control group are 18.54 and 18.37 respectively. The obtained "F" ratio of 50.83 for adjusted post –test scores which were more than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of the study showed that there was a significant difference between the adjusted post test means of soccer conditioning group and control group on kicking.

Results and Discussion

There was a significant difference existed between soccer specific conditioning group and control group due to twelve weeks of experimental training on speed, and kicking abilities of adolescent soccer players.

In high performance sports it has been well documented that the maximum benefits are achieved when the training stimuli are similar to competitive demands. In order to reproduce the physical, technical and tactical requirements of real match play coaches often use soccer specific conditioning in their training programs. The intensity of these soccer-specific training drills with the ball can be affected or manipulated to provide different physical, technical and tactical responses by several factors.

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