

The Effects of Skill Related Physical Fitness on the Development of Technical Ability in the Case of Amanuel City Under-17 Male Football Project Players

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Abstract

The purpose of this study was to investigate the effects of skill related physical fitness on the development of technical ability in the case of Amanuel city under -17 Football project players. Explosive leg power, speed, agility physical fitness components and accurate shooting and speed dribbling technical components of Football project players were the main target of the study. They were 24 in number but due to sport injuries 1 player was excluded whereas the remaining all 23 players were selected by using purposive sampling method. The average ages of the participants were 16 ± 0.546 years. The physical fitness variables selected for this study were standing long jump test for explosive leg power, 30m acceleration test for speed and Illinois agility run field test was conducted to measure the selected physical fitness variables and counting accurate and non-accurate shooting was used to measure accurate shooting and time of performance recorded was used to measure speed dribbling. The data was analyzed through multivariate and simple linear regression statistics method. The results of this study showed that most of the players had very poor level of power performance, excellent level of speed and agility performance when we compared with the international standard level of physical fitness. On average accurate shooting increased by 3.241 times significantly when explosive leg power increased by 1 meter or the explosive leg power P value in the field test was 0.001, it implies that less than 0.05, therefore explosive leg power affects accurate shooting, on average speed dribbling was increased by 6.847 second times significantly when speed increased by one

second and On average speed dribbling was increased by 1.628 second times significantly when agility increased by one second or the speed and agility P value in the field test was 0,0respectively. So, speed and agility had their own effects on speed dribbling.

Keywords: -Football,Physical fitness, Technique and Skill related

Introduction

Soccer is one of the most widely played and complex sports in the world, where players need technical, tactical, and physical skills to succeed. Without good physical fitness, players are rarely able to play the game with good technique [1]. For achieving top results in this sport, it is necessary that players have an exceptionally high level of technical and tactical skills as well as significant physical fitness [2].

Fitness in soccer specific context refers to a range of individual characteristics that is a composite of many attributes and competences. Such competence by definition includes physical, physiological, and psychomotor factors [3]. Physically superior players feel less fatigued during the game played with the same intensity and, therefore, those players experience less decrement in technical performance [4].

Modern football requires the player to have high physical abilities has become one of the main pillars in training plan either daily, weekly, seasonally, and annually. Player's abilities significantly increased in the world in the recent years on looking at players now and years ago, we find that their physical abilities have grown in a remarkable way [5]. Players in competitive soccer require high levels of power, speed, and agility to perform explosive movements such as heading, shooting, sprinting, and dribbling [6]. The various codes of football played around the world have much in common in terms of their physical demand and correspondingly the importance of fitness testing [7].

Technical preparation of football players is the main precondition for efficient motion performance. More precisely, technical preparation enables that motor potential of a soccer player reaches its

maximum. We have to stress that further progress in terms of technical improvement of a soccer player is not possible without parallel work on development and maintenance of those motor abilities which are vital for the game of football [8].

But in Ethiopia football projects specifically reference in Amhara region in East Gojjam zone, Machakel Woreda in Amanuelcity under-17male football project players had a problem of distance accurate shooting and speed dribbling in different game situation, it may be due to lack of physical fitness. So, the researcher was encouraged to design the following research questions, does performance related physical fitness of Amanuel city under-17 male football project players go in line with international test standards? What is the impact of explosive leg power on distance accurate shooting? and what is the effect of speed and agility on the development of speed dribbling? Therefore, the purpose of this study was to investigate the effects of skill related physical fitness on the development of technical ability in the case of Amanuel city under -17 male football project players.

Materials and Method

The sample composed of 24 male trainees between the age of 16-17years old, who were students from public school in the city of Amanuel, north east Ethiopia, volunteered for the study. This study involves from the total number of 24 trainees only 23 participants were used as a subject but the remaining 1 trainee due to sport injury was excluded. Their average age was 16 ± 0.546 .

All testing candidates underwent a systematic medical examination which is a standard procedure. Therefore, all the testing candidates are healthy and with no visible aberrations that might affect testing results in the research. Before directly engaged to the test the participants were requested to warm up for 12 minutes prior to the test program and cooling- down for 6 minutes following the test program. Standing long jump test was applied to test trainees explosive leg power, 30 meters

accelerate runtest was applied to test trainees speed ability and Illinois agility run test was applied to test their agility.

Power test

The purpose of standing long jump test is to measure the explosive power of the legs. It is a common and easy to administer test of explosive leg power. The required materials for standing long jump were tape measure to measure distance jumped, non-slip floor for take-off, and flat football field/soft landing area Preferred. The take-off line should be clearly marked. To perform the test the players, stand and places their feet behind the edge of the marked line on the ground with feet slightly apart for the start, crouches down and using the arms and legs jumps horizontally as far as possible landing with both feet into the forward direction. The assistant measures and records the distance from the edge of the marked line for the start on the flat smooth surface to the nearest impression made by the athlete repeats the test three times. The assistant uses the longest recorded distance to assess the athlete's explosive leg power [9].

Speed test

The objective of this test is to evaluate the development of the athletes' ability to effectively and efficiently accelerate from a standing start or from starting blocks to maximum speed. To undertake this test the researcher was required the flat non-slip surface, measuring tape, stopwatch, 2 cones and assistant. To take this test measure distance of 30 meter and placed a cone\marker at the start and finish lines. The players sprint the 30meter from a sprint start. The assistance records the time the athlete takes to complete the 30meter. Repeat these test three trials per players with a fully recovery between each run and the best of 3*30 meter accelerate is record to the nearest one hundredth of a second [10].

Agility test

The objective of the Illinois agility run test is to monitor the development of the athlete's agility. This test requires the athlete to run the red line route in the diagram below as fast as possible. The athlete warms up for 10 minutes, the assistance sets up the course as detailed in the diagram, the athlete lies face down on the floor at the "Start" cone, the assistant gives the command "GO" and starts the stopwatch. To undertake this test, you will require: -Flat non-slip surface, 8 cones, Stopwatch and Assistant. The athlete jumps to his/her feet and negotiates the course around the cones following the red line route as shown in the diagram to the finish and the assistant stops the stopwatch and records the time when the athlete passes the "Finish" cone [10].

Accurate shooting test

Accuracy of shooting was measured, by kick a role ball into a 0.8×2.3 meters target constructed in the center of goal. Strike zone was constructed with dimensions of 1×1 meter then this zone 7 meters away from the target. Subjects with 5.5 meters away from this area were located. Four balls were rolled from the player right-hand side and followed by four balls from the players' left-hands side. Balls were rolled at 6 seconds intervals. Players were instructed to kick the ball with their dominant kicking foot when it reached to strike zone. Between each ball strike, player returned to a baseline position 5.5 meters behind the strike zone before approaching the next ball. Subject repeated this procedure until striking the ball eight. For every ball into the target, one score for subjects was recorded [11].

Dribbling test

Dribble test consists of five cones on a line with 1 m distance between them. The starting point was 1 meter far from the first cone. Each subject stood at the start point while holding the ball under his dominant foot. Hearing the whistle, he began the dribble test with maximum speed. As soon as passing

the last cone, he returned to the starting point with his maximum speed. Time of performance was recorded by the timer [11].

RESULT

Table 1: - Explosive leg power field test

		Frequency	Percent
Valid	Average	1	4.3
	Below average	2	8.7
	Poor	8	34.8
	Very poor	12	52.2
	Total	23	100.0

The above table: -1 indicates that 1(4.3%) of player was categorized under average level, 2(8.7%) of players were categorized under below average, 8(34.8%) of players were categorized under poor level and the remaining 12(52.2%) of players were categorized under very poor level.

Table 2: -30m acceleration Speed field test

		Frequency	Percent
Valid	Excellent	11	47.8
	Above average	8	34.8
	Average	3	13.0
	Below average	1	4.3
	Total	23	100.0

The above table: -2 shows that -11(47.8%) of players was categorized under excellent level, 8(34.8%) of players was categorized under above average level, 3(13%) of players was categorized under average level and the remaining 1(4.3%) player was categorized under below average level.

Table 3: - Illinois agility run field test

		Frequency	Percent
Valid	Excellent	10	43.5
	above average	4	17.4
	Average	8	34.8
	below average	1	4.3
	Total	23	100.0

As indicated from the above table3: -10 (43.5%) of players categorized under excellent level, 4(17.4%) of players categorized under above average, 8(34.8%) of players categorized under average level and the remaining 1(4.3%) of players categorized under below average

Table4: -The effects of explosive leg power on accurate shooting

Dependent Variable	Parameter	B	Std. Error	t	p-value
Accurate	Intercept	-3.364	1.623	-2.072	.051
	Power	3.241	.842	3.851	.001
Non-Accurate	Intercept	8.364	1.623	5.152	.000
	Power	-3.241	.842	-3.851	.001

Table 4 indicates that on average, accurate shooting increased by 3.241 times significantly when power increased by 1 meter on the other hand non-accurate shooting increased by 3.241 times significantly when power decreased by 1 meter. The explosive leg power P value in the field test was 0.001, it implies that less than 0.05, therefore explosive leg power affects accuracy shooting.

Table 5: - The effects of speed-on-speed dribbling test

Model		Unstandardized Coefficients		T	p-value
		B	Std. Error		
	(Constant)	-4.432	2.392	-1.853	.078
	Speed	6.847	.602	11.368	.000

Table 5 indicates that on average, speed dribbling was increased by 6.847 second times significantly when speed increased by one second. The speed P value in the field test was 0. So, speed had its own effects on speed dribbling.

Table 6: - The effects of agility on speed dribbling test

Model		Unstandardized Coefficients		T	p-value
		B	Std. Error		
	(Constant)	-2.993	2.946	-1.016	.321
	agility	1.628	.186	8.740	.000

Table 6 indicates that on average, speed dribbling was increased by 1.628 second times significantly when agility increased by one second. The agility P value in the pre field test was 0. So, agility had effectson speed dribbling.

Discussion

Depend on multivariate linear regression field test statistical data explosive leg power had its own effects on accurate shooting because the value of P was 0.001 and trainees who had better explosive leg power, they had better performance to demonstrate accurate shooting. Other researchers concluded that Power in its various forms (maximum and explosive power, rate of force development) plays a critical role on performance of such skills [10]. There for players who had better explosive leg power, they can demonstrate accuracy shooting. And depend on simple linear regression pre-test statistical data speed and agility had their own effects on speed dribbling because the value of P was 0 and trainees who had better speed, they had better performance to demonstrate speed dribbling and also, it consists by [12] reported that speed & agility directly affects the skill of dribbling. Therefore, dribbling had a positive relationship with speed and agility. According to [11] made conclusions from their follow-up study they showed that players with good physical fitness had better ball dribbling technique during the match. The setting of today's football requires faster and faster players that would be unpredictable and elusive for the opponent. Speed as a basic motor ability is very important in the execution of technical elements in the football game [14].

CONCLUSION

Based on the research data, it can be concluded that: -Most of the players had very poor level of explosive leg power performance, excellent level of speed and agility performance when we compared with the international standard level of physical fitness. Players who had average explosive leg power performance had good accurate shooting than those who had poor and very poor explosive leg power, players who had excellent and above average speed and agility performance had good speed dribbling technique in football than those who had average and below average speed and agility and Explosive leg power had their own effects on accuracy shooting and speed and agility had their own effects on speed dribbling.

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