An Investigation of Physical Fitness Level of Yem Special Woreda Male Youth Football Project

Asim Khan   Wogayehu Addisu   Samsun Wondirad
Department of Sports Science, College of Natural Science, Jimma University, Ethiopia

Abstract
The purpose of the study was to investigate the physical fitness of Yem Special Woreda male youth football project trainees. Two male youth football projects were selected from Yem Special Woreda youth football projects using purposive sampling technique and from both project 50 male players were selected as the subject for this study. Cross-sectional research design was used in order to collect data, quantitative research approach was employed in order to bring a quantitative data and the collected data was analyzed and interpreted by using descriptive statistics (mean, standard deviation, percentage.) The results of this study showed that the current physical fitness level of Yem Special Woreda male youth football project trainees is average and above in the Sergeant jump test and above average and excellent in sit and reach test. However, 300 yard shuttle test, 30 meter acceleration and Illinois agility run test those youth football project trainees were below average and poor level to comparing with the average values obtained with the reference values provided by the normative data. On the bases of the findings it was concluded that current physical fitness level of male youth football project players are mostly at average and above on strength and flexibility, and those players are below and poor on endurance, speed and agility tests when comparing with the values obtained with the reference values provided by the normative data.
Keywords: Physical fitness, Youth, Agility, Acceleration, Trainee

1. Introduction
Football is a multidimensional sport involving constant changes in activity. The sport demands constant changes in movement speed that can vary from being stationary, through walking as well as low and high intensity running bouts (Withers, et al, 1982). The common aspect of the game is the necessity of team-work to complement individual skills. Since football is a physical contact sport and lots of movements and skills are involved. A high level of physical demand is required for playing the match which involves kicking, sprinting, dodging, trapping etc. The activities of football game include short sprinting as well as casual recovery movements. As the players have to cover a big area in the field during attack and defense therefore, the game demands for aerobic as well as anaerobic fitness (Reilly, 1997; Reilly et al.,2000a).

Physical fitness is a general state of health and well-being or specifically the potential to perform aspects of sports or occupations. Physical fitness is generally achieved through correct nutrition, hygiene, regular exercises and proper rest. It is a set of qualities or characteristics that people have or achieve that relates to the ability to perform physical activity. Physical fitness is a set of characteristics that are either health or skill related (Pawan, 2014).

Tanaka, (2004) stated that physical fitness is a state of well-being that comprises skill and health related components. Fitness is a condition in which an individual can work with plenty of energy without fatigue and enjoy life. Every person has a different level of physical fitness which may change with time, place of work and situation. From the physiological point of view physical fitness may state to be ability at the body to adopt and recover from strenuous exercise (Manmeet, et al, 2010). Physical fitness is a significant indicator of the health of children and adolescents and also a best predictor of health in later life (Dragan, 2013).

However, the youth football project training program, specifically the technical, tactical and fitness practical trainings, although it has been faced challenges which hinder to achieve the training effectively and efficiently. In line with the goal of national youth football project has been working for the development of football game in the country. Among tasks one of this youth training projects which have been opened in different area of the country. The training program has a limitation to achieve the intended objectives efficiently.

The less improvement of trainee's fitness has been one of the major problems seen in training areas. Hence, this study focused on the projects, which have been opened at Yem Special Woreda, Jimma, Ethiopia. And the purpose of the present study was to investigate the physical fitness variables such as flexibility, strength, endurance, speed and agility of male youth football project of Yem Special Woreda.

2. Research Methodology
2.1 Sample Size and Sampling Techniques
For the purpose of this study 50 male players were selected from two youth (Under 17) football project by using purposive sampling technique. All the subjects were ready to participate in this study. The age limited of the subjects was below17 years.

2.2 Data Collecting Instruments
The data collection includes anthropometric and physical fitness parameters: - Anthropometric parameters were age, height, weight and Body Mass Index (BMI). These physical fitness tests were five test batteries(Sergeant Jump Test for measuring Strength,300 yard Shuttle run for endurance,30 Meter Acceleration run for speed, Illinois agility run for agility and Sit and reach test for flexibility).

2.3 Procedures of data Collection
Before the test was administration the necessary information were given to the subject including material, test types, measuring instrument and administration of test. The necessary work was completed before starting the test, beside training session; times of test were administered with the help of the teachers and explain to the subjects by the researcher firmly. Any doubts of the subjects raised were clarified before taking the test, but no special training was given to the subjects. After all the information the subjects were asked to perform 300 yards running, the timing was taken in second by researcher and other officials. After completing the 300 yards running proper time was given to the players for relaxing than players were asked to ready for Sergeant Jump Test and all the subjects were performed one by one again proper time was given and the subject called for sit and reach test. Another day subjects were asked to perform 30 meter running. For this the researcher made ten groups of five subjects and they run in a group of five players the time was taken in seconds. The final test was conducted as Illinois agility run, for this a proper marking was done according to the test than researcher demonstrated after that the players performed one by one.

2.4 Methods of Data Analysis
The collected data were checked at the end of each data collection day for their completeness and consistency. As a result, the collected data were analyzed by using statistical instruments, such as:-Descriptive statistics (mean, standard deviation, percentage), Descriptive analysis is the method used for describing the characteristics of the sample and major study variables are displayed in the form of mean, standard deviation, percentage and diagrammatic representation such as table and column chart.

2.5 Analysis and Interpretation of Data
First, before the main analysis results the anthropometric data of the players in order to provide a description of the sample from which data was collected; descriptive information on age, weight, height and body mass index (BMI) as well as the means, and standard deviations are described. Second, investigate the current selected physical fitness variables of Yem Special Woreda male youth football players compare with international norms in the form of mean, standard deviation and percentage.

2. Results
Table 1. Mean and SD of age, height, weight and BMI of the players (N=50)

Statistical instrument	Age	Height	Weight	BMI
Mean	16.66 Years	1.58 Meter	52.9 Kg.	21.12
SD	0.47	0.07	3.71	0.83

Table 2.Normative/ standard data for male the age from 16 - 19

No.	Physical Fitness Components Test	Excellent	Above Average	Average	Below Average	Poor
1.	Sergeant Jump Test(cm)	> 65cm	50-65cm	40-49cm	30-39cm	<30cm
2.	300 Yard Shuttle test (sec)	< 50sec	50 – 56 sec	57 – 63sec	64 – 70 sec	> 70sec
3.	30 Meter Acceleration Test(sec)	<4.0 sec	4.2- 4.0sec	4.4 -4.3sec	4.6-4.5 sec	>4.6 sec
4.	Illinois Agility Test(sec)	<15.2 sec	15.2-16.1 sec	16.2-18.1sec	18.2-18.3sec	>18.3sec
5.	Sit and Reach (cm)	>14 cm	11-14cm	7-10cm	4-6 cm	<2 cm

Table Reference: Davis B. et al; Physical Education and the Study of Sport; 2000

Table 3.Comparison of sergeant jump test values with players normative data

Activity	Description			
		Number	Percentage	Mean ± SD
Sergeant Jump Test	Excellent	-	-	48.40 ± 11.72
	Above Average	13	26%	
	Average	22	44%	
	Below Average	10	20%	
	Poor	5	10%	
Total		50	100%	

The perusal of table 3 indicates that the mean ± standard deviation values for strength variable for Sergeant Jump test of male football project players were recorded as 48.40 ± 11.72. And establishing a comparison between the results obtained from Sergeant jump test of male football project players with normative data using the percentage, it was observed that 13(26%) of male players are in the scale of above average, 22(44%) are in scale of average, 10(20%) are in scale of below average, 5(10%) are in scale of poor. This was discovered that when comparing the values of male football project players obtained with the reference values provided by the normative data, the current level of the players on Sergeant Jump Test are average and above comparable with normative data.

Table 4.Comparison of 300 yard shuttle run test values with players normative data

Activity	Description			
		Number	Percentage	Mean ± SD
300 Yard Shuttle Run Test	Excellent	-	-	63.89 ± 4.99
	Above Average	4	8%	
	Average	12	24%	
	Below Average	28	56%	
	Poor	6	12%	
Total		50	100%	

The findings of table 4 indicates that the mean ± standard deviation values for endurance variable for 300 yard shuttle run test of male football project players were recorded as 63.89 ± 4.99. And establishing a comparison between the results obtained from 300 yard shuttle run test of male football project players with normative data using the percentage, it was observed that 4(8%) of male players are in the scale of above average, 12(24%) are in scale of average, 28(56%) are in scale of below average, 6(12%) are in scale of poor. This discovered that when comparing the values of male football project players obtained with the reference values provided by the normative data, the current level of the players on 300 yard shuttle run test are average and above comparable with normative data.

Table 5.Comparison of 30 meter acceleration test values with players normative data

Activity	Description			
		Number	Percentage	Mean ± SD
30 Meter Acceleration Test	Excellent	-	-	4.61 ± 0.31
	Above Average	4	8%	
	Average	12	24%	
	Below Average	17	34%	
	Poor	17	34%	
Total		50	100%	

Table 5 indicates that the mean ± standard deviation values for speed variable for 30 meter acceleration test of male football project players were recorded as 4.61 ± 0.31. And establishing a comparison between the results obtained from 30 meter acceleration test of male football project players with normative data using the percentage, it was observed that 4(8%) of male players are in the scale of above average, 12(24%) are in scale of average, 17(34%) are in scale of below average, 17(34%) are in scale of poor. This showed that when comparing the values of male football project players obtained with the reference values provided by the normative data, the current level of the players on 30 meter acceleration test are average and above comparable with normative data.

Table 6.Comparison of Illinois agility run test values with players normative data

Activity	Description			
		Number	Percentage	Mean ± SD
Illinois agility run test	Excellent	-	-	17.75 ± 0.93
	Above Average	6	12%	
	Average	16	32%	
	Below Average	20	40%	
	Poor	8	16%	
Total		50	100%	

The result of table 6 indicates that the mean ± standard deviation values for agility variable for Illinois agility run test of male football project players were recorded as 17.75 ± 0.93. And establishing a comparison between the results obtained from Illinois agility run test of male football project players with normative data using the percentage, it was observed that 6(12%) of male players are in the scale of above average, 16(32%) are in scale of average, 20(40%) are in scale of below average, 8(16%) are in scale of poor. This was found that when comparing the values of male football project players obtained with the reference values provided by the normative data, the current level of the players on Illinois agility run test are average and above comparable with normative data.

Table 7.Comparison of Sit and reach test values with players normative data

Activity	Description			
		Number	Percentage	Mean ± SD
Sit and Reach Test	Excellent	6	12%	12.88 ± 1.56
	Above Average	39	78%	
	Average	5	10%	
	Below Average	-	-	
	Poor	-	-	
Total		50	100%	

The perusal of table 7 indicates that the mean and standard deviation values for flexibility variable for Sit and reach test of male football project players were recorded as 12.88 ± 1.56. And establishing a comparison between the results obtained from Sit and reach test of male football project players with normative data using the percentage, it was observed that 6(12%) of male players are in the scale of excellent, 39(78%) are in scale of above average, 5(10%) are in scale of average. Now it is cleared that when comparing the values of male football project players obtained with the reference values provided by the normative data, the current level of the players on Sit and reach test are average and above comparable with normative data.

4. Discussion on Finding

The results of this study showed that the current physical fitness level of male youth Football project players of Yem Special Woreda was average and above average level in the Sergeant Jump test and above average and excellent level in sit and reach test. However, in 300 yard shuttle test, 30 meter acceleration and Illinois agility run test those players were below average and poor level to comparing with the values obtained with the reference values provided by the normative data.

The finding of this investigation suggested that the current level of male youth football project players is strong when comparing with the values obtained with the reference values provided by the normative data. In particular, the present results are consistent with other study. It may be due to the reason; football players are living in high altitude they might have increased their strength abilities (Ioannis, 2006). Regarding to strength similar studies revealed that, studies that covered a wider range of adolescence were carried out with respect to dynamic muscular strength, muscular strength increased by 20.59% in soccer players aged 11 to 18 (Le Gall, Beillot & Rochcongar, 2002), while it increased by 46.77% in adolescents aged 11 to 18 (Hertogh, Micallef & Mercier, 1992).

The findings of the present study suggested that the current level of male youth football project players were strong and highly flexible when comparing with the values obtained with the reference values provided by the normative data. Flexibility tends to improves toward early adulthood. The study by Canhadas, et al., (2010) has shown that youth football players were slightly stronger and flexible during the years before puberty.

The finding of this investigation suggested the current agility level of male youth football project players were mostly below the average level to comparing with the values obtained with the reference values provided by the normative data. The findings of this study are in agreement with Djevalikian, 1993, Webb and Lander, 1983 and Young et al., 2002(As cited in Sheppard1 & Young, 2005) that the results of concentric strength measures appear to be poor predictors of agility.

The finding of this investigation suggested the current speed level of male youth football project players were mostly below the average level to comparing with the values obtained with the reference values provided by the normative data. The findings of this study are in agreement with the studies of Guneret al.,(2005)he find out in his study that Under 21 age group has higher running velocities (speed) than members of the Under 17 age group. The finding showed that running velocities (speed) were increased and heart rates were decreased over this period Nikolaidis, (2011). The increase of speed across adolescence (from Under 13 to Under 19) in football players was lower. Negrete and Brophy (2000)stated that the variability of running speed and technique in the sprint tasks could account for the weaker relationship with strength qualities.

The findings of this research indicate that the speed and agility level of the players were below the average level of normative data. Though, Sporis, et al., 2010, conclude that speed and agility were two relatively independent qualities, the agility can affect the sprinting performance which could lead us to the conclusion that these abilities are inter-linked together and dependable on one another. Young, et al., (1996) find that agility is often represented in the same context with speed. Parnou, et al., (2005) studied the national football team players and concluded that there is a positive relationship between agility with 10 m speed running.

Buttifant and Graham (1999) was conducted a research on Australian football players. However, it should be considered that the nature of agility movements is very close to the speed. In fact, agility is one components of the velocity which is done based on tension shortening cycle for rapid increase in power and the power-time curve transfer to the left and up sides (Gaeini and Rajabi, 2004). So a relation between these two factors can be expected. Because the nature of the agility and anaerobic power (speed) is based on the fast and explosive movements and the agility and anaerobic capacity can increase over the age of 25 years and the study subjects were in this age duration, so the relationship between agility and anaerobic power (speed) could be expected. Chaleh et al., (2012) find out the relationship between speed and agility in 14 to 16 years old football players, it can be expected to low level.

The finding of the current study suggested that 68% of male youth football project player's endurance were below average and poor level currently when compared with the values obtained with the reference values provided by the normative data. This study is in agreement with the study of Malina et al., (2007), he showed in his findings that players in the lowest skill perform poorest in the sprint and endurance shuttle run. It is also in agreement with the study of (Nikolaidis, 2010b), his study has shown that muscular endurance in adolescent soccer players compared to adult soccer players, adolescent players had lower values of muscular endurance.

5. Conclusions

Based on the findings of this study it was concluded that the current physical fitness level of male youth football project players are mostly at average and above on strength and flexibility, and those players are below and poor on endurance, speed and agility tests when comparing with the values obtained with the reference values provided by the normative data. However, the overall selected physical fitness variables level of Yem Special Woreda male youth football project players is not in a good condition in endurance, speed and agility

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