



A comparative study of skill related physical fitness and skill performance of male football players between Debrework secondary school and Debrework Town football clubs

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Abstract

The purpose of this study was to compare skill related physical fitness and skill performance of male football players between Debre-work secondary school and Debre-work town football clubs. The study was experimental study. To achieve the purpose of the study 44 male players was taken as a sample of study. The researcher used purposive sampling method. The age group of the subjects ranges from 19-25 years. The researcher used field test to collect data from the target groups. The variables selected for this study were skill related physical fitness (speed, power, agility, balance, coordination and reaction time) and skill performance (passing, dribbling, heading, juggling and shooting). For his study the researcher was used descriptive statics and independent sample `T` test to compared and interpreted the data at 0.05 level of significance value. The result shows that in case of speed, short pass and heading skills there is no significance difference. Debrework secondary school football players were significantly better in explosive leg power, dynamic balance, long pass and shooting skills. Where as in agility, coordination reaction time and dribbling skills Debre work town football clubs showed significantly perform better.

Keywords: skill, performance, physical fitness

Introduction

Back ground of the study

Physical fitness is one of the most basic requirements of life; broadly speaking it means the ability to carry out daily task (*Omar - fall zee 2010*)^[26]. Every person has a different level of physical fitness which may change with time, place of work, situation (condition) and there is also an interaction between the daily activity, and the fitness of an individual, the point if where to put the level of view physical fitness may say to be ability at the body to adapt and recover from strenuous exercise (*kamala rag 2010*).

Football is one of the most popular sports in the world. We, as fans, are amazed at the speed and skill performances of the athletes who play this physical game. Through its evolution, the game of football has passed certain development periods dominated by a single pattern of preparation. Modern football, however, requires higher level of preparedness in all aspects, including technical training of football players. Control the ball at full speed with permanent opponent's pressure and be unpredictable in performing ball pass.

Football has got numerous functions in the different realms of policy, pedagogy, economy, etc. politicians consider it as a means of resolving political tensions and diplomatic contacts; in the realm of pedagogy, trainers regard it as a means of effective training; it is also known as acultural phenomenon in the cultural domain. Finally, the industrial sector sees it as a means of producing and marketing sports equipment (*Ostogic, 2003*). Therefore, today soccer is intermittent sport which involves different activities, irregular movement patterns and complex load patterns.

A general overview on the procedure of evolution and development of football reveals that proper basic training in some countries leads to a rapid and considerable progress. However, the role of researchers and physical education experts in conducting scientific researches and finding new techniques should not be under mined (*Reilly, 2005*)^[28].

Performance is an observable behavior of players in the play grounds; on observable behavior comprises the fundamental skills of the game and the physical qualities of performing the skills appropriately. The skills of football could be developed through systematic methods of training refers to the knowledge of the frequency, intensity and duration of training and considering the developmental stages of players (*Wondimu and Damen 2004*)^[31].

In my previous teaching experience and observation, in football clubs specially in Debrework football clubs coaches had not compare and give any recommendation for the development of skill related fitness components and football performance skills together with scientifically training rather they implement their traditional experienced training systems, because of these reason soccer players physical fitness cannot improve at the right time, therefore most of the time players expose for the problem of skill related physical (speed, explosive leg power ,agility, balance, coordination and reaction time) and from skill performance like long pass short pass,

dribbling, juggling, heading and instep power shooting in different game situations. The context of this study was Debrework secondary school & Debrework town male football clubs. Debrework is found in Amhara regional state which is far from Debremarkos (the capital city of East Gojjam zonal administration). They are 22 players in Debrework town male football club and 22 players in that of Debrework secondary male football club.

Research Methodology

Basically, this chapter deals about, the study area, design of the study, flow chart of the study, study population, sample size and sampling technique, variables, statistical method of the study and ethical consideration were discussed.

Study Area

This study was restricted in Amharic region in the specific place of Debrework which is the town of Enarjinawga woreda. Debrework is located 117km far from Debremarkos which is the capital city of east Gojjam. It had average temperature between 22 and 28 degrees centigrade. And the study was conducted among Debrework secondary school & Debrework town male football club players to compare their skill related physical fitness and skill performance. Both clubs found in the same environment.

Design of the Study

The basic design of the study was comparative research design and field test that used to give information to the researcher about comparative study of skill related and skill performance of male football players between Debrework secondary school and Debrework town FB clubs.

Study Population

The total population of the study was containing two football club players in which they were participating in 2009 E.C competition season and frequently in the club. The study was conducted between 22 players of Debrework secondary school and 22 players of Debrework town male football club players. So that the total study population was contain 44 male football players in both clubs.

Sample Selection

For this study the researcher used purposive sampling method, in which all subjects were included in this study.

Sample Size and Selection of Subjects

For his study the total participant pool consists of 22 players from Debrework secondary school male football club and 22 players from Debrework town male football club. The participants were all male and they were training and playing in the club.

Selection of Variables

The researcher was taking all components of skill related physical fitness and from skill performance the researcher selected, heading, passing, dribbling, juggling and shooting for his study.

Data Collection Tools

During his study, the researcher used basically field tests as instrument of data collection based on standardized or internationally accepted measurements and test equipments.

Data and Instrument Reliability

The reliability of data was ensured by establishing the field tests and all instruments (tools) which were used to assess data were internationally accepted.

Reliability of test as well as subject reliability

Reliability is a measure of the degree of consistency or repeatability of a test. So the researcher measured two times with a perfectly reliable test, the same score was obtained both times on the selected respondents or subjects. In an unreliable test, the player could obtain a high score on one day and a low score on another, thus a reliable test produces must be giving the same results if repeated (*Baechle & Earle, 2008*).

Data collection

The researcher collected the data from the players based on test of their skill related physical fitness and skill performance through using the field test. The relevant data of the study was collected from skill related physical fitness test level of power, speed & agility, coordination, balance and reaction time and skill performance test of dribbling, passing, juggling, instep shooting and heading performance were measured. And also, weight and height of Debrework secondary school & Debrework town male football club players were recorded.

Administration of Tests

Before the beginning of the test the researcher was informed for each trainer and coaches about the study and they were giving their consent. That was very important to have a good relationship between participants and the

researcher. Then he was gathering information about age, height and weight. The positive engagement of participants during the performance tests was a great importance for the quality of data collected. If the participants had not been clear about the aims of the investigation, or if the exercises included did not seem relevant, the motivation of the player and hence the validity of the results would have been diminished. So that, before starting the tests, the players were informed in detail about the aims and methods of the tests.

From the motivational point of view, it was essential to arouse the curiosity and competitive instinct of the players with respect to their own individual condition, mental fitness and standing among their peers and the "super stars" as well as to encourage them to perform the tests with full concentration and maximum effort.

After motivating the players and describing the aims of the tests, the players were instructed to perform their "usual" warm-up for 10 minutes. This was followed by standard skill related physical fitness field tests. These were standing long jump test for explosive leg power, 30meter acceleration run test for speed, Illinois test for agility, the Bass test of dynamic balance test for balance, eye-foot coordination test for coordination and ruler drop test for reaction time. Whereas to test player`s skill performances, the researcher was used (*F-MARC Test Battery Manual, 1997*)^[15] and manual of US soccer`s youth national team April Heinrichis (technical Director) and Jill Elli (Development Director) (2013). He was conducted the tests of dribbling, shooting, juggling, heading & passing skill performance of football players. After the test was conducted the players finished with a Cool-down. Skill related physical fitness and skill performance tests were conducted by the researcher and assistance on the target clubs which were Debrework secondary school and Debrework town male football players within the last 5 weeks of the playing season (from February 26 to March 28).

Skill related Physical fitness test

A very important question to ask you before conducting a fitness assessment on your player`s should be "what tests should the researcher use and why?" Fitness& skill performance assessment tests are designed to measure a particular component of athletic performance. Because each test assesses a different characteristic, it is important that you choose a variety of tests that will allow you comprehensively assess your players.

Multiple fitness assessment tests exist to evaluate the various components of soccer fitness. Some however, require bulky and complicated equipment that only qualified testers will administer. Many youth and amateur coaches do not have access to or the knowledge to conduct such tests.

Choosing tests that were relatively simple to conduct yet valid and reliable was the main priority. Importantly, they were all easy to conduct in that they do not require complicated or expensive equipment and can be administered in the average-sized gym or on a regular playing field (*Kraemer & Gottschalks, 2000*).

Speed test (30meteracceleration run test) Sports Coach (1997) 30 Meter Acceleration Test [online] available: <http://www.brianmac.demon.co.uk/30accel.htm> [accessed – 20 Jan 2017]

Objective: The objective of this test was to monitor the development of the athlete's ability to effectively and efficiently build up acceleration, from a standing start or from starting blocks, to maximum speed.

Required Resources: To undertake this test the researcher was used: 400-meter track - with a 30-meter marked section on the straight, stop watch and an assistant.

How was the test Conducted?

The test was comprising of 3 × 30 meter runs from a standing start or from starting blocks and with full recovery between each run. The assistant was recorded the time for the athlete to complete the 30 meters.

Scoring System: the data was recorded by using stop watch in second. Normative data for the 30-acceleration meter test.

Table 1

Gender	Excellent	Above average	Average	Below average	Poor
Male	<4.0 sec	4.2-4.0sec	4.4-4.3sec	4.6-4.5sec	>4.6sec
Female	<4.5sec	4.6-4.5sec	4.8-4.7sec	5.0-4.9sec	>5.0sec

Source: Davis B.et al; physical education and the study of sport; 2000.

Explosive leg power

Standing long jump test

It was 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 takeoff, and flat football field/soft landing area Preferred. The takeoff line was clearly marked. To perform the test the players were 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 was measured and recorded 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 used the longest recorded distance and assed the athlete`s explosive leg power (*Brian m., 2005*.)

For this test, the researcher was used centimeter as scoring system.

The following data has been obtained from the results of standing long jump test conducted with

Table 2

Rating	Male(cm)	Female(cm)
Excellent	>250	>200
Very good	241-250	191-200
Above average	231-240	181-190
Average	221-230	171-180
Below average	211-220	161-170
Poor	191-210	141-160
Very poor	<191	<141

Source: - www.topendsports.com/./longjump.htm

Agility (Illinois Agility Run Test Sports Coach (1997) Illinois Agility Run Test [online], available: <http://www.brianmac.demon.co.uk/illinois.htm> [accessed 20 Jan 2017]

The Illinois agility test (IAT) was used to determine the ability to accelerate, decelerate, turn in different directions, and run at different angles.

Objective

The objective of the Illinois Agility Run test was to monitor the development of the athlete's agility.

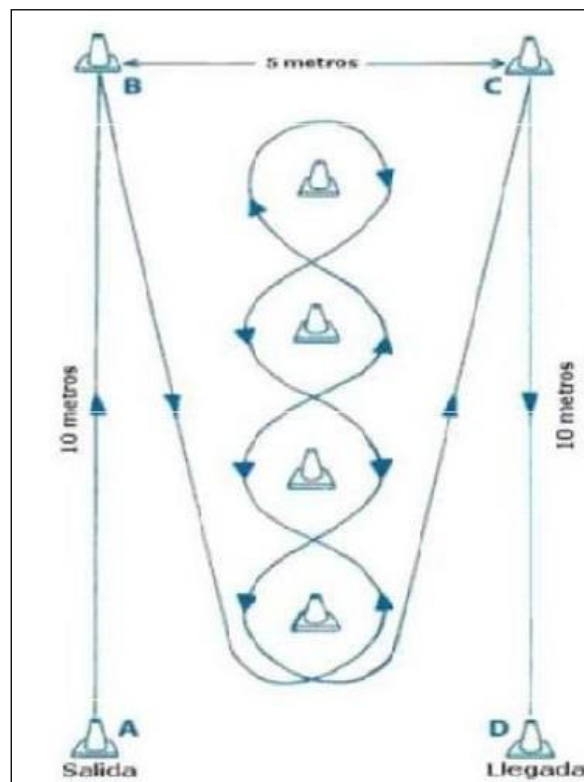
Required Resources

To undertake this test the researcher required: flat surface, a 400-meter Track, 8 cones, Stop watch & Assistant

The Illinois courses

The length of the course was 10 meters and the width (distances between the start and finish points) was 5 meters. 4 cones used to mark the start, finish and the two turning points. Each cone in the centre was spaced 3.3 meters apart

How conducted the test: The Illinois Agility Run Test is conducted as follows: The athlete lies face down on the floor at the start point on the assistant's command the athlete jumps to his feet and negotiates the course around the cones to the finish. The assistant was recording the total time taken from their command to the athlete completing the course. Upon crossing the finish line, the timing was stopped. Subjects performed two maximal attempts at each exercise with at least 2 min rest between tests and trials. The faster time was taken and recorded in seconds. Scoring system: second was used when the researcher was recording the test result during both starting and finishing.



Illinois agility Test (Cureton, 1951).

Fig 1

Table 3: Normative data for the Illinois Agility Run Test

Gender	Excellent	Above average	Average	Below average	Poor
Male	<15.2 sec	15.2-16.1 sec	16.2-18.1 sec	18.2-18.3 sec	>18.3
Female	17.0 sec	17.0-17.9 sec	18.0-21.7 sec	21.8-23.0 sec	>23.0 sec

Source: Sports Coach (1997) Illinois Agility Run Test [online], available: <http://www.brianmac.demon.co.uk/illinois.htm> [accessed 20 Jan 2017]

Coordination Test (Foot-Eye Co-ordination test)

Source: The Science Education Resource Page - SERP (2006) Fit Is It [online], available: http://serp.la.asu.edu/Health_dir/Health_dir13/FitIsIt.pdf [accessed-24 Jan 20 17]

Objective

It was to assess foot eye co-ordination.

Equipment

Flat wall (indoors or outdoors), Foot Ball, Record Sheet.

How Conducted the test: the players were Stand approximately 2 meters (about 6 feet) from a flat wall. Then toss a ball from their right feet (underhanded), against the wall. Catch the ball with their left feet and quickly kick it back against the wall with that same foot. When the ball comes back, catch it with their right feet.

Scoring system: They were keeping doing this for 30 seconds. The assistance was Count the number of times that players catch the ball with each foot.

Analysis

Analysis of the result was compared with the results of tests

Table 4: Normative Data for of Co-ordination

Poor	Fair	Good	Very Good	Excellent
Less than 10	10-14	15-19	20-24	25 upwards

Source: The Science Education Resource Page - SERP (2006) Fit Is It [online], available: http://serp.la.asu.edu/Health_dir/Health_dir13/FitIsIt.pdf [accessed-24jan 2017]

Balance

The Bass test of Dynamic Balance (*Corbinet al 2006, p.265*)

Objective

It was to assess dynamic balance of football players of the two clubs

Resources

Dry flat ground area, indoors or outdoors, Test template, Chalk, protractor, record sheet and stopwatch were used. How conducted the test: Eleven circles (24.13cm diameter) were drawn on the floor as shown in the illustration. Each circle far with 1 meter. The test was performed as follows: Stand on the right foot in circle X. Leap forward to circle 1, then circle 2 through 10, Alternating feet with each leap. The feet must leave the floor on each leap and the heel may not touch. Only the ball of the foot and toes may land on the floor. Remain in each circle for 5seconds before leaping to the next circle. (A count of 5 was made for player aloud.) 2 attempts were allowed and take the best score for the participant.

Scoring system

The score was 50, plus the number of seconds taken to complete the test, minus the number of errors. For every error, deduct 3 points each. Errors include touching the heel, moving the supporting foot, touching outside a circle, and touching any body part to the floor other than the supporting foot. Finally, the score was put in the unit seconds.

Table 5: Normative data for dynamic balance

Excellent	Very good	Good	Fair	Poor
90-100	80-89	60-79	30-59	0-29

(Corbinet al 2006, p.265)

Reaction time

(Ruler Drop Test: Sports Coach (1997) Ruler Drop Test [online], available: <http://www.brianmac.demon.co.uk/rulerdrop.htm> [accessed 20 Jan 2017]

Objective

The objective of this test was to monitor the athlete's eye foot reaction time reaction time.

Required Resources: To undertaken this test the researcher was used: A one 1-meter ruler and an assistant

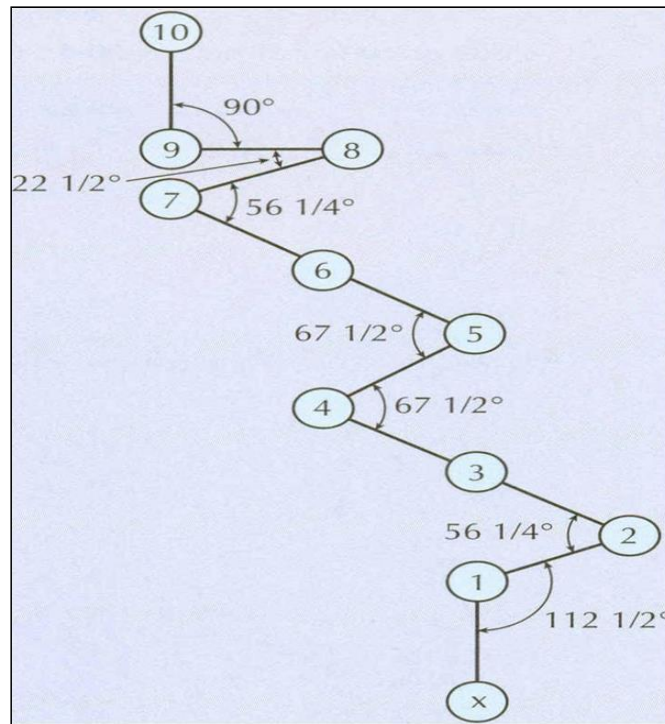


Fig 2

Test procedure

The ruler was held by the assistant between the out stretched index finger and thumb of the athlete's dominant hand, so that the top of the athlete's thumb is level with the zero cm line on the ruler. The assistant given instruction to athlete to catch the ruler as soon as possible after it has been released. The assistant was recording the distance between the bottom of the ruler and the top of the athlete's thumb where the ruler has been caught.

The algorithm to calculate the reaction speed is $d = vt + \frac{1}{2}at^2$ where d =distance in meters v =initial velocity = 0 a = acceleration due to gravity = 9.81m/s^2 t = time in seconds

We need to manipulate $d = vt + \frac{1}{2}at^2$ to give us an algorithm for t

As $v = 0$ then $vt = 0$ therefore the algorithm is $t = (2d/a)^{1/2}$

Table 6: Normative data for the Ruler Drop Test

Excellent	Above Average	Average	Below Average	Poor
<7.5cm	7.5 - 15.9cm	15.9-20.4 cm	20.4-28 cm	Above 28 cm

Sports Coach (1997) Ruler Drop Test [online], available: <http://www.brianmac.demon.co.uk/rulerdrop.htm> [accessed 20 Jan 2017]

Skill performances test in soccer/football

Currently, there is no generally accepted standard test to measure technical qualities (Kukolj, Ugarko-vic, Jaric, 2003; Reilly et al., 2000). But we can use complex physical and performances tests. To measure and compare this skill performance of Debrework town and Debrework secondary school male football clubs, the researcher used a special developed manual that is available from the authors (F-MARC Test Battery Manual, 1997). And he used a manual of US soccer's youth national team April Heinrichs (technical Director) and Jill Elli (Development Director) (2013) identified and refined the following protocols which can be used as tests, homework and training exercises for skill performance of football players.

Heading performance test

This test allows assessment of accuracy and coordination in heading a ball. When conducted this test first, the examiner was stand 3 meters in front of the middle of the goal and the assistance was lobs the ball to the player. The player was tried to score the ball with head from the penalty spot into the goal, which is divided into six segments. For the not accurate throw enough, then the attempt was repeated. The examiner measured a total of three attempts: 6 points were scored if the ball went to the top right or top left segment, 3 points if the ball went

in the lower left or right segments, 2 points if the ball went in to the top middle segments, 1 point if the ball hit the crossbar or goalpost of these segments, and 0 points if twenty out of the goal post and over the cross bar.

Equipment and Field Organization

1 ball, goal with six segments, rope, 2 cones, chalk and assistance were used.

Juggling (Instep Juggling Tests)

Purpose: This test was design to assess skill with the instep juggling.

Equipment and Field Organization: 1 ball; stopwatch and tape measure. Player works in a 5 x 5-meter grid were used

Test procedure: Player were juggles the ball with the right and left foot only, making contact with the ball at waist height, without creating a back spin on the ball. If the ball touches the ground, or was played with another surface, he may pick up the ball and start juggling and recounting again.

Dribbling (Figure 8 Dribbling – Test)

Purpose: This test was design to assess the ability to dribble in tight spaces, with control, speed and agility.

Equipment and Field Organization: 1 ball; 3 cones; stopwatch and tape measure 10-meter line marked with three cones, each 5mete were used.

Test procedure: The player started on one side of the first cone. Player was dribble around each cone in a figure 8 pattern, without touching the cone, using both feet and was trying to use both the inside and outside of his feet; he also used the sole of his feet. Scoring system: The player had 45 seconds to score as many points as possible. Each time the player passed a cone, the player scored a point. Full figure 8 counts as 4 points. 1 point was taken away for every cone touched. Total score was record.

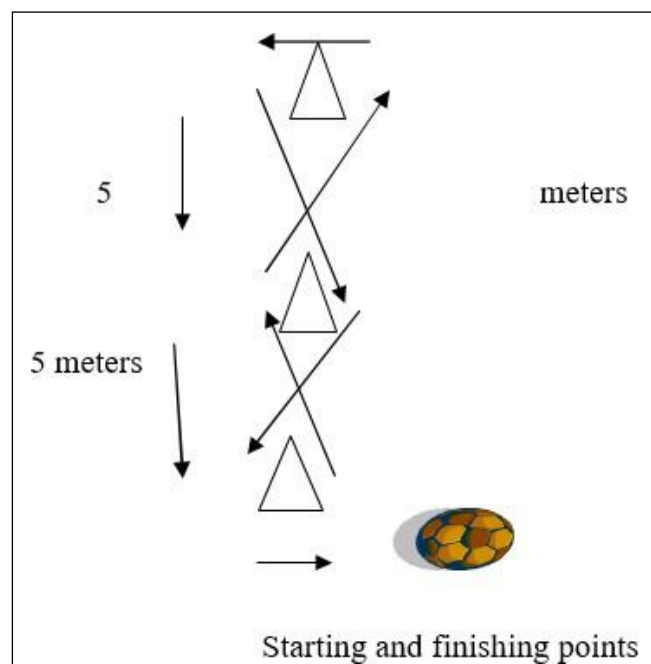


Fig 3

Passing

Short Pass test

This test allows assessment of accuracy and coordination in passing a moving ball. The player dribbles the ball within a marked rectangle up to a line and from there passes accurately into a hockey goal 11 meters away. The examiner was measured a total of five attempts, scoring 3 points if the ball goes into the goal and 1 point if the ball hits the crossbar or goalpost.

Long pass test

This test was allowed for assessment of passing accuracy over a long distance. The player was passed the ball from its dead position on the line into a circle (radius, 2 meters; distance, 36 meters) marked in the middle of a square target area (10x10meters). The player had a trial attempt first. The examiner measured a total 3 attempts. The measurement unit was points; 3 if the ball landed in the circle or touched its circumference, 1 point if the ball landed elsewhere in the square and zero if the ball landed out of the square.

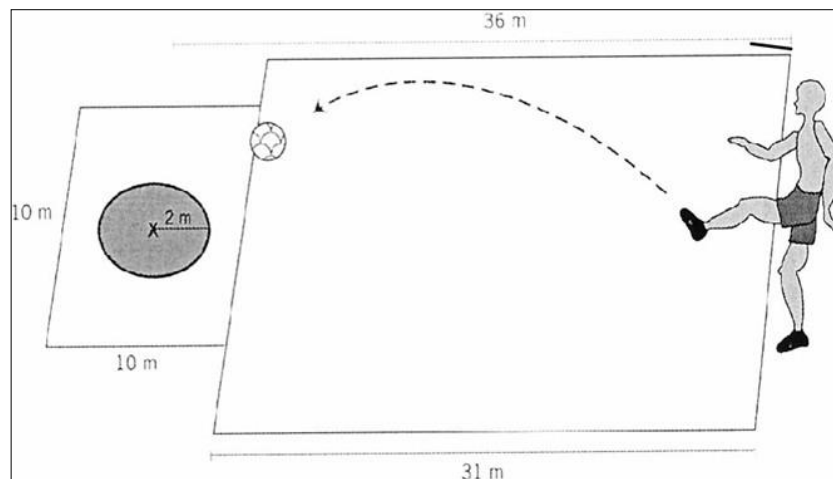


Fig 4

Instep shooting test

Purpose: This test was designed to assess the ability to shoot a dead ball with power and accuracy with the instep of both feet. A ball was placed 16 meters from the middle of the goal. The player was shooting the ball into the goal.

Equipment and Field Organization: 1 goal; 8 balls; stopwatch and tape measure. The shooting area was outside of the penalty box. Eight balls were set up at 16.50 meter far from the goal line.

Test procedure. Players were touch and shoot a ball before it crosses the 16.50-meter line. The shot must be taken with the instep. The player was shoots 4 balls consecutively with his preferred instep; then the players were shots the remaining 4 balls with his opposite instep.

Scoring system: The player was scoring a point for each shot with the instep that crosses the goal line in the air, between the posts, below the crossbar, and without a bend on the ball. Shot was must be with power and not bending to be considered successful. Player was must complete all 8 shots within 40 seconds. The player`s maximum scored out of 8 attempts was recorded.

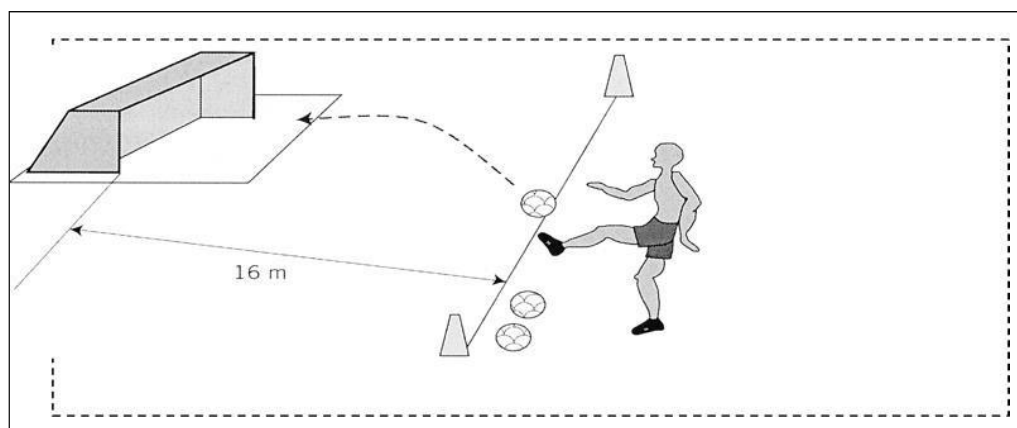


Fig 5: Statistical technique

The information was obtained from the target populations through field test. To compare player`s skill related physical fitness and skill performance, the researcher was used SPSS version 23 and calculated mean, standard division and independent sample` T` test was apply to analysis the collected data at 0.05 level of Significance.

Conclusion

Within the limitations of the present study, the following conclusions were drawn: -

- There was no significant difference between the two clubs in speed, short pass, and heading skills.
- Debrework secondary school club players were better than Debrework town male football club players in explosive leg power, dynamic balance, long pass and instep shooting.
- Debrework town football club players were better than Debrework secondary school football club players in agility, coordination and reaction time and dribbling skills.
- In speed and agility variables both clubs were found in low or poor performance zone, related to the normative data of 30-meter acceleration test.
- According to normative data both football club players were found in good performance zone in respect

- to coordination and reaction time physical variables.
- School players were found in above average zone where as town players were found in average level of the normative data of standing long jump test result.
- In balance test, Debrework secondary school and Debrework town mal foot players had the performance level of very good and good respectively.

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