ANTHROPOMETRIC PROFILE AND PHYSICAL PERFORMANCE OF YOUTH PLAYERS AND CHALLENGES IN THE ETHIOPIAN FOOTBALL TALENT IDENTIFICATION PROGRAM

by

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DECLARATION

I, Mr. Eyasu Merhatsidk Gebreegziabher, declare as follows: That the work described in this thesis has not been submitted to University of KwaZulu-Natal (UKZN) or any other tertiary institution for purposes of obtaining an academic qualification, whether by me or any other party.

Signed _____ Date_____

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ABSTRACT

The purpose of this study was to investigate the existing challenges that hinder the implementation of the talent identification program. Understand and develop basic standards to recruit talented young players based on their anthropometric and physical quality also the purpose of this study. Other purpose of the study was formulated and implement effective strategies for the coaching program. The study employed a cross-sectional study design. A homogenous group of 240 male Ethiopian football players (Age 15.6 ± 1.8 years) from 12 teams participated in this study. Sixty-one football coaches and 61 sport administrators also participated.

Anthropometric assessment, speed, power, agility, endurance and flexibility tests were conducted. The data was analysed using descriptive and inferential analysis techniques. The mean and the standard deviation of results across an anthropometric profile for all players are as follows: body mass weight was 55.47kg (6.14), standing height was 1.7m (0.06), body mass index was 19.12kg/m^2 (1.99), sub-scapular skinfold was 6.88mm (1.37), triceps skinfold was 5.95mm (1.51), BF(Body Fat) % was 15.53% (2.91) and LBM(Lean Body Mass) was 46.82kg (5.11). Significant weight and height differences ($p \leq 0.05$) were found between club and academy players, but not in BMI, % BF and Lean Body Mass (LBM). club players had significantly greater body mass than EFF and academy players ($p \leq 0.05$). For standing height, club and EFF players were significantly taller than players in the academy teams ($p \leq 0.05$). The mean and the standard deviation of overall fitness values for all players were as follows: 10m speed was 2.15sec (0.19), 20m speed was 3.51sec (0.29), 40m speed was 5.16sec (0.31), sit and reach flexibility was 12.94cm (7.86), vertical jump power test was 42.93cm (6.58), Illinois agility test was 17.45cm (0.83) and $\dot{V}O_2$ max 49.74ml/kg/min (5.42). Mean values per setting from club, academy and EFF, respectively were: 10m speed 2.08sec, 2.26s and 2.14sec ($p \leq 0.0001$); 20m speed 3.4sec, 3.7sec and 3.49sec ($p \leq 0.0001$); 40m speed 5.87sec, 5.9sec, 6.07sec ($p \leq 0.0001$). Flexibility was 11.96cm, 11.31cm and 14.96cm ($p \leq 0.05$). Club's youth players were taller, heavier, faster and more flexible than academy and Ethiopian football federation players. Significant differences were found in age groups: 10m speed between U-14 and U-15 ($p \leq 0.01$) and U-14 and U-17 ($p \leq 0.05$), In 20m speed between U-14 group and U-16 ($p \leq 0.01$) and U-14 and U-17 ($p \leq 0.01$). Significant

differences were also found in 40m speed between U-14 and U-15 ($p \leq 0.05$). Older age players were faster than younger ones. Anthropometrical profiles and physical performance tests may assist to identify the talented players in the country. Significant differences found per climatic altitudes and geographical locations were as follows: high altitude players' significantly greater body mass than low altitude players ($p \leq 0.05$). Low altitude players significantly better BMI than high altitude players ($p \leq 0.0001$). For LBM, high altitude players significantly greater results than low and moderate altitude players ($p \leq 0.005$). The moderate altitude group of players performed better results than the low and high-altitudes group of players. Eastern and northern players were significantly heavier than southern and western players. Compared to southern players, Eastern and northern players were significantly taller than southern and western players. Although players from eastern, performed better in the 10m speed test than western players. Regarding the 20m speed test, eastern players performed better results than the rest three altitudes groups.

A correlation matrix comparing anthropometry and physical performance indicated that: BMI was negatively related with 10m sprint ($r = 0.134$), 40m sprint ($r = 0.232$), vertical jump ($r = 0.108$) and agility ($r = 0.123$). Height was negatively related to performance in the 20m sprint ($r = 0.141$), 40m sprint ($r = 0.201$) and agility ($r = 0.255$).

Quantitative questionnaire data related to the practice of talent identification programs in Ethiopia showed that: Most of the players (62%) have information and knowledge about a talent identification program. Most players (74%) have also experienced or passed through a talent identification program. The same was true of most players (74%) being of the opinion that they were exposed to a proper training program. Player's knowledge and experiences; with respect to rest, water, materials and playing fields; family and coach support and test batteries found statistically significant differences ($p \leq 0.0001$) between club, academy and Ethiopian football federation settings.

For the questionnaires about knowledge and experiences of coaches in the talent identification program, no statistically significant differences were found among club, academy or Ethiopian football federation settings, whereas significant differences were found with respect to experiences on upgrading of coaching knowledge related to talent

identification, in academy and Ethiopian football federation ($p \leq 0.05$) TIP (Talent Identification Program) settings. For the questionnaires related to problems and solutions of talent identification program, statistically significant differences in opinion were found among club, academy and Ethiopian football federation settings, but opinions about incorporation of talent identification programs in training courses were not significantly different. In terms of setting up programs to evaluate the level of performances of the players, not all settings were in the affirmative. For the implementation or application of talent identification programs, statistically significant differences in opinion were found across club, academy and Ethiopian football federation ($p \leq 0.0001$) settings. However, no differences were found fin terms of using a manual to identify player's talent. For the questions about availability of materials and equipment for the TIP (Talent Identification Program) statistically significant differences in opinion were found among coaches in clubs and the Ethiopian football federation, while only those in the Ethiopian football federation TIP felt that testing materials are appropriate.

For all questionnaires about administrators' knowledge and experiences of talent identification, statistically significant differences were found in all groups. Questions on knowledge about TIP and facilitating refreshment courses for the coaches on talent identification were not statistically difference. For the questions about problems and solutions for the talent identification program, opinions varied statistically whereas opinions regarding their team's conducting talent identification program and motivation of the players were similar. For the questionnaires about implementation responsibility of talent identification programs, statistically significant differences were found among the club, academy and Ethiopian football federation settings. For the questionnaires about manpower and materials for the talent identification program, statistically significant opinions were found among all the club, academy and Ethiopian football federation TID settings.

For open-ended questions, all responses were investigated by using the detective qualitative data computer software package (NVIVO). The themes identified focussed on problems, solutions and suggestions for the operation of the Ethiopian football talent identification program. Under the three themes, focus nodes were identified as being the

system, knowledge and experience, hard-work, training, monitoring and support, manpower, while facilities and equipment were also mentioned.

The football talent identification program in Ethiopia is not an optimally functioning system. The improvement of the system is the first essential element for the talent identification program. This research has shown the need for a new systematic structure to be established for the talent identification program. Scarcity of knowledge and experience, also affects the talent identification program. Education and training were offered as keys to a solution.

Keywords*:* Youth Football, Talent Identification Program, Anthropometric Profile, Physical Performance Measures, Ethiopia.

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LIST OF ACRONYMS

BF	Body Fat
BF%	Body Fat Percentage
BMI	Body Mass Index
CAF	Confederation of African Football
CD	Compact Disc
CECAFA	Council for East and Central Africa Football Associations
cm	Centimetre
EFF	Ethiopian football federation
FIFA	Federation of international football association
hr	Hour
IOC	International Olympic Committee
ISAK	International Society for the Advancement of Kin anthropometry
Kg	Kilogram
km	Kilometre
LBM	Lean Body Mass
m	Meter
ml	Millilitre
mm	Millimetre
N	Total number
NOC	National Olympic Committee
sec	Second
SPSS	Statistical Package for Social Sciences
TD	Talent Development
TI	Talent Identification
TIP	Talent identification program
U-14	Under 14
U-15	Under 15
U-16	Under 16
U-17	Under 17
UEFA	Union of European Football Associations

UK	United Kingdom
UKZN	University of KwaZulu-Natal
VJ	Vertical Jump
$\dot{V}O_2$ max	Maximum aerobic capacity
YIRT1	Yo-Yo Intermittent Recovery Test Level 1
yr	Year

CHAPTER 1 : INTRODUCTION

1.1 BACKGROUND AND CONTEXT OF THE STUDY

"Talent is a player with exceptional or more than average ability or more than average for a specific task or variety of purposes. Physical talents may be useful, expressive and athletic. Also, talent identification is the identification of new athletic talent and the process of knowing present team members with the potential to become elite players" (Kent, 1998).

Football talent identification is an important and key requirement for players, clubs, teams, academies and other football organizations. A team's success depends on the talents of its players (Boulier et al., 2010). If a player is highly talented, he can do better and show achievements on the field that other players cannot. If someone is talented, he still must work very hard if he wants to achieve high performance. Some people "waste their talent", i.e. they have talent but do not work hard enough to fully develop their full potential.

According to Federation of international football association (FIFA) manual (2002), talent is an ingredient that must be realized through hard work. If a team needs to win, in addition to talent and training hard, teamwork and intelligence is important. While coaches typically identify players for successful performance, both administrators and coaches are responsible body for creating a talent identification program (TIP). Football is popular throughout the world and every society can play the game in diverse ways. To do this, different organizations can take responsibility. Among these are football clubs, schools, academies and federations. These organizations are important because they are social institutions and must be managed within the confines of certain football values and needs. They allow the society to participate and players to play football for the sake of different reasons, including social, economic, and political aspects related to sport (Morris, 2000).

According to Phillips et al. (2010), talent identification and development are highly connected and must be considered in every program. Football coaches are responsible for this, specifically or as part of their everyday jobs and they must be assessed on how

well they organize these different responsibilities for their clubs or given teams to perform. How successfully an organization achieves their objectives and satisfies social responsibility depends upon how well the coaches do their jobs. Their job starts with talent identification.

Williams and Reilly (2000) suggest that players' anthropometric characteristics are related to performance in important and sometimes complex ways. In this research, there are attempts to identify characteristics that differentiate skilled from less skilled performers and to determine the role of heredity and environment in the development of expertise.

In sport, the usefulness of talent identification and development programs depends on the necessary support for talented players. The most important factor for a team to be successful is having talented players and the most important step to acquiring talented players is that a team must have a talent pool (Votteler & Höner, 2014).

1.2 RESEARCH PROBLEM

Although football was the first modern sport introduced in Ethiopia, to date there is no well-structured TIP. Several reasons have been forwarded for this and among these are the lack of professional football coaches and lack of knowledge-based football administration. In the country, coaches and football administrators have been recruited based on their years of experience in playing football rather than their scientific coaching knowledge and skill and their leadership ability. Similarly, there is no mechanism or system to recruit players to join different football clubs (Getahun, 2009). The players are being selected based on their competition performance. It is suggested that to have a well-organized and planned talent identification and development program in the country is unquestionable, as is the importance of a sound coaching education program that is aimed at integrating talent identification with consistent and systematic football development. That is why this research has focused on talent identification and development in Ethiopia.

The researcher was interested in this course of investigation because, in Ethiopia, one sees and hears about player identification and recruitment problems in various clubs and

other teams (Hailu et al., 2016). Also, when looking at the performance record of Ethiopian international football participation, the results are often unsatisfactory. Numerous factors are to blame, but lack of a suitable TIP is the main one. It is a systemic problem, in other words, Ethiopian sport policy is unclear whether it has policy directions of youth talent identification. In addition, if teams do not perform then local football teams tend to relieve coaches of the positions, and thus the coaches focus on short term rather than long term objectives and recruit's players to ensure winning rather than focusing on players' performance development. Another consideration is that there is no anthropometric and fitness performance standard for talent identification that has been developed or used for Ethiopian youth football players.

1.3 AIM AND OBJECTIVES OF THE STUDY

1.3.1 Aim of the Study

The broad aim of the study is to investigate the existing challenges that hinder the implementation of a well-structured talent identification program and set players anthropometric and physical performance standards that will help the talent identification process for male Ethiopian youth (13 – 17 years of age) football players.

1.3.2 Research Questions

In accordance with the above aim, the following research questions were posed.

- How is a youth football talent identification program practiced in Ethiopia?
- Are football talent identification programs practiced differently in the club, academy and the football federation settings in Ethiopia?
- Is the anthropometric and physical performance profile different for youth players according to their age and development settings, as well as the climatic altitudes and geographical locations of these development settings?
- What is the relationship between the anthropometric parameters and performance profiles for youth players?

1.3.3 Objectives of the Study

To attain the aim, and address the research questions posed, the following objectives were set in the context of Ethiopian youth football:

- to investigate players, coaches and administrators' knowledge and experience of talent identification programs.
- to identify problems and solutions raised by coaches and administrators with respect to talent identification programs.
- to measure the anthropometric and physical performance profile of players to serve as basic standards for talent identification programs.
- to compare the anthropometric and physical performance profile of players according to their age and development settings, as well as and the climatic altitudes and geographical locations of these development settings.
- to correlate the anthropometric and performance profiles of players.

1.4 CONCEPTUAL FRAMEWORK

As a Confederation of African Football (CAF) A level qualified football coach and experience as a technical expert for the Ethiopian football federation (EFF), it is evident to the researcher that to date, a variety of profile measurements and physiological test batteries have been used across the different EFF training and competition levels to discriminate within and between the participating players. This thesis further explored the use of physiological testing within the TIP by measuring the following physical attributes: agility, speed, power, aerobic capacity, and flexibility. The anthropometrical measures recorded also help the TIP by measuring the following anthropometrical attributes: stature, body mass, body mass index, percentage of total body fat, lean mass and fat mass.

A diagrammatical representation of the conceptual framework of the research is shown in Figure 1, demonstrating the anthropometrical and physical variables measured within this thesis and the TIP pathway of the talented youth Ethiopian football players (aged between 13 – 17 years).

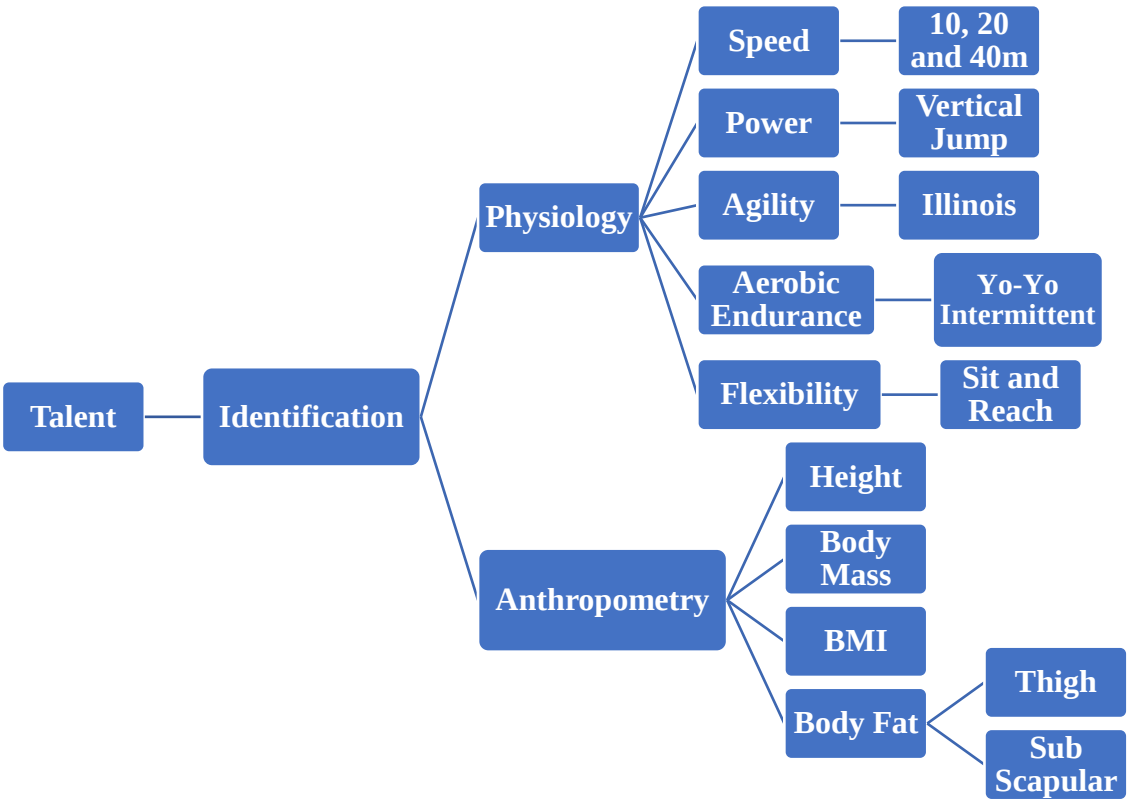

Figure 1.1: Conceptual Framework of the Research

1.5 SIGNIFICANCE OF THE STUDY

This research work is important for various football clubs, schools, academies and federations in Ethiopia and for the country in general. It gives a clear picture of what football coaching knowledge related to talent identification in Ethiopia looks like, what is expected from given football coaches, and what the core factors are hindering the implementation of the principles of talent identification. The different stakeholders such as sport commissions, the football federation, regional football federations, coaches, young players, and educational institutions from primary to higher education institutions, professionals in the field, and policy makers will engage and they will benefit from the report of study. The research also offers anthropometric and physical performance standards of youth football players for TIP in Ethiopia, and opens a door for further research for other Sport Science professionals in the country.

CHAPTER 2 : LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter, relevant literature related to physiological testing, anthropometric profile, detection, identification, selection, genetic involvement for talent identification, technical and tactical aspects, age levels for talent identification, and the roles of coaches and administrators generally and specifically related to the football sport was reviewed.

2.2 HISTORY OF TALENT IDENTIFICATION

Research in talent identification specifically of anthropometric profile and physical performances has a long history. The literature has emphasized the importance of anthropometric profile and physical performances as a major area of interest within the field of TIP. Over the past decade, TIP has emphasized the use of scientific methods, which are crucial for selection and identification of talent. Whether we like it or not we must follow the scientific way of TIP (Robinson, 2010).

A study by Abbott and Collins (2010) showed that an effective TI system is an essential precursor to talent development (TD), as it will directly support those individuals who have the greatest potential to achieve senior international success in the sport. By drawing on the concept of the stage and process of talent identification and development Jowett (2005) and Reilly et al. (2000) have specified four stages of searching for quality through scientific observation: detection, identification, selection, and development.

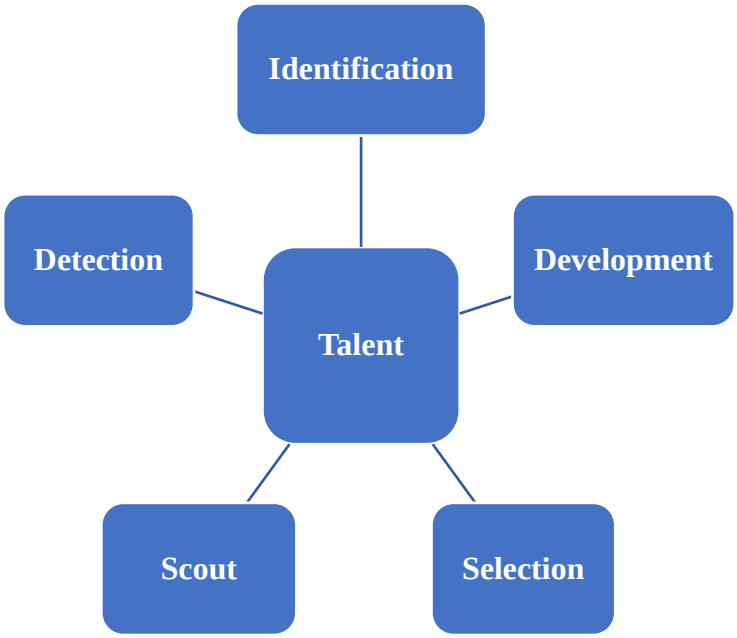

Figure 2.1: Stages and Process of Talent Identification and Development

The stages and process of talent identification and development was adopted from Jowett (2005). Seventeen years later, Abbott and Collins (2010) published a paper in which they described cases of talent detection in football in finding talented players who are not playing football currently. Talent identification in football is a method of knowing that a player who is involving or practising football training with talent can become an elite player. As the writers describe, we can predict who will be elite by assessing physical, physiological, technical, psychological and sociological qualities, either alone or in combination. The study by Williams (2000) offers probably the most comprehensive empirical analysis of talent selection. It includes picking the most suitable one or group of individuals to run out the task within a specific context.

In 2010, Robinson published his major historical survey of talent identification as implemented during the 1960s and 1970s in Soviet block and Eastern European countries and formed scientific methods to identify players who had the potential to be elite. Robinson suggests that 'Picking the best team for the job is critical to successes, but there are so many variable factors. Theobald and Cooper (2005) writes that, before you even think about picking your best team, you must assemble a talent pool from which to select and that is where the challenging work begins.

Other authors (Abbott and Collins 2010; Robinson, 2010) have addressed the usefulness of such an approach, saying that the aim of talent detection and identifications is to provide an accurate prediction if players have the potential to be elite. In commenting upon the consequence of talent identification and development in football, Woolcock and Burke (2013) state that the literature on talent identification and development is limited to sport in general and football in particular. They also conclude that we must know the fundamental and numerous factors in talent identification to assist the process. In 2004, Strøyer et al. demonstrated that the popular team sport of football is categorized by high intensity, short term actions and pauses of varying length, and that to win or achieve in the game objectively, the team needs a combination of physical quality, technical and tactical skill, and mental motivation.

2.3 THE CONCEPT OF TALENT IDENTIFICATION

Traditionally, talent identification has been assessed by measuring performance through observation. FIFA Manual (2002) underline that excellent scouting is not only watching a player in the game with different criteria. One must see a player in different situations that help one to observe his behaviour on the field in a game or during training. One must see how he behaves on the pitch, in training sessions, during matches, with his colleagues, with a coach, and with friends and family. Pearson et al. (2006) also concluded that traditional physiological testing continues despite poor predictability and limited specificity.

The influence of sports participation on changes in body composition and their resulting effect on team selection is also significant. Vaeyens et al. (2009) explain that national governments invest substantial amounts of money in talent identification and promotion programs. They add that although traditional talent identification and talent promotion is characterized by relatively large numbers of recruited players, high expenses over extended periods and low success rates. Vaeyens et al. (2009) also explain that programmed effects, mature-age talent identification and talent recycling programs may be associated with small numbers of promoted Individuals, much shorter support periods, and apparently higher success rates.

Different theories exist in the literature regarding talent identification. Vaeyens et al. (2008) define Talent Identification and Development (TID) as the process of recognizing current participants with the potential to excel in a sport. They also define TD as providing the most appropriate learning environment to realize this potential; it plays a crucial role in the pursuit of excellence. In another major study, Sæther (2014) says that talent is something you have, something you are, something you can be, or something you can develop. In this regard, talent can be a dynamic or static concept. The static definition views talent as something you have inherited, which implies a focus on the performance level at an early age, while the dynamic definition regards talent as something you can develop. A common definition by Sæther (2014), which covers both these aspects, also includes the static dimension by stating that it "disposes of a specific combination of anatomical-physical characteristics, abilities, and other personality traits", and the dynamic by further stating that "provided that specific training and other environmental conditions are given".

Houlihan et al.'s (2008) analysis of international competitiveness showed that the acceptance of the need for a systematic approach to talent identification resulted from the criticism of a training and coaching system which was fragmented between schools, universities, and corporate teams. Hyballa (2011) emphasizes the complexity of the criteria and says that talent identification in football is always dependent upon social, physical and mental aspects. Football federations and clubs must develop guidebooks for the talent identification and coaching of players to their performance level. Hyballa emphasize the importance of abilities and skills, although we must also focus on psychology: behaviour and level of determination, game intelligence: during own possession, transition and opponents' possession, situations during a game, movement without the ball and action on the ball, athleticism: speed and agility, tackling, and technique. Hyballa adds another three important characteristics: will to win, will to work hard and parental support. Obviously, it is hard to identify these.

The literature has emphasized the importance of talent. Miller (2009) has shown that a player can never have too much talent but that talent is crucial for a team to win. He also adds that talent selecting helps to confirm and consider the players in terms of where they are, where they are going and how long it takes to the next level. The writer (Miller,

2009) had a conversation with Annemarie Chapman, a specialist in the field of talent sourcing and acquisition with Design Group Staffing, and noted, "Most companies will choose attitude over skill set." They continue that "A skilled player with a poor attitude can destruct a team more than a person with a great attitude and limited skills." Overall, this writer highlights that players with better attitude are coachable, we can always train. Miller and his colleagues conclude that talent is rarely distributed equally among team members but for a team to be successful, all the players must work together.

To talk about talent identification, one must know first the definition of talent: At the levels of elites, talent is the union of natural ability, skill, and dedication (Miller, 2009). The writers spoke to Lanny Basham, a multiple world champion target shooter and Olympic gold medallist, about his talent and write that, "Before his first Olympic he practiced five hours a day". Like Basham's, talent is a combination of natural ability, practice of a skill, and a dedicated winning attitude.

To that end, such athletes have never stopped striving to improve their talent, devoting many hours a day to conditioning and practice. Champion's group said "Winning starts at the beginning of the season", it starts when the players look at each other and know that the talent is here to have a very successful year. They underline that talent is not the only reason why teams win, especially when it is motivated and used wisely and well.

2.4 ETHIOPIAN FOOTBALL

There are relatively few historical studies in Ethiopian Football. Silassie and Demena (2016), showed that over the past half century, the national football team's international competitiveness has declined gradually. They said also that since 1962, no Ethiopian football club has ever won the CAF Champion League, African Confederation Cup or any other international club competition**.** Research into the introduction of football in Ethiopia has a long history: Football was the first new sport introduced in Ethiopia (Getahun, 2009). Getahun argues that it was European diplomats with their dependents who introduced football into Ethiopia. He mentions that in 1924, the first football game was held between these foreigners in Addis Ababa. He also writes that the Ethiopian football federation was established in 1943 and that football remains one of the most popular sports among the 85,000,000 people (2016) in Ethiopia. There are not enough

studies regarding talent identification in Ethiopia but there has been some research Hailu et al. (2016) dealing with the quality of anthropometric and body composition for a football game, particularly among Ethiopian football players.

There are many problems in Ethiopian sport and the major one is the lack of sports facilities (Hailu et al., 2016). Hailu indicates that the Ministry of Sport and Youth's Commission for Sports and Physical Culture replaced the National Sports Confederation on 26th May 1976. Its job is to organize and popularise the sport in the country and it works in close cooperation with the national Olympic committee (NOC), especially since the High Commissioner, Mr. Ydnekatchew Tessema, was an international Olympic committee (IOC) member and President of the NOC.

There are relatively few historical studies of football in Ethiopia. Getahun (2009) writes that nationally football has evolved into an organized, systematically governed sport that functions from the Ethiopian Football Federation (EFF) (the national football governing body), down through region, zone and woreda offices. Over the past decade, Getahun has emphasized that talent identification in Ethiopian football is more of a challenge due to the highly complex nature of the performance requirements and the size of the country.

If we study the current international status of Ethiopian football, we must improve instruments for predictions regarding conditioning, technique, and tactics; there is still a high degree of prediction inaccuracy, as they concentrate mainly on the future performance of the players concerned (Hailu et al., 2016). In general, it can be established that "at the start of a high-performance sporting training program the suitability of an athlete cannot be determined with sufficient accuracy until high-performance age has been reached" (Hyballa & Hans, 2011). Furthermore, new talent identification procedures are very time-consuming. In fact, there have been many studies analysing exercise and fitness, but there has not been enough study of the anthropometric and body composition quality and requirements of football, especially in Ethiopia (Getahun, 2009).

Ethiopia is in the horn of Africa and is bordered by Djibouti, Eritrea, Kenya, Somalia, South Sudan and Sudan. Historical surveys such as that conducted by Saavedra (2011) have shown that Ethiopia, Sudan, Egypt and South Africa were founding members of the Confederation of African Football (CAF) in 1957 and, in the same year, except for South

Africa, played the first t African Cup of Nations. He writes about the relationships between EFF or sports federations with other sports organizations such as the Council for East and Central Africa Football Associations (CECAFA), Confederation of African Football (CAF) and Federation of International Football Association (FIFA) especially for development movement of football. He mentions that Yidnekechew Tessema, one of the founders of CAF, served international sports in various aspects until he died in 1987.

Human physiology, human anatomy, proper nutrition, and scientific training and principles are the major and crucial ingredients for player's performance (Hailu et al., 2016). This study is focused on anthropometric profiles and physiological tests of youth Ethiopian Football players.

2.5 AGE LEVELS FOR TALENT IDENTIFICATION

Classification of players in terms of age levels for talent identification is an important aspect. In many team sports, children are commonly grouped into chronologically matched age groups for competition. Since chronological age and biological maturity rarely progress to the same degree (Vaeyens et al., 2008), research has demonstrated that early matures can have greater muscular strength and speed than their late-developing peers. Nevertheless, the extent to which these physical superiorities experienced in youth translate to success at the senior level is unsubstantiated (Gil et al., 2010). Consequently, identification policies based solely on physical attributes may serve only to identify current performance levels and may prematurely exclude those who have the potential to excel in the future (O'Connor et al., 2016). Such an approach would lead to late maturing players, who are not necessarily shorter and weaker as adults (Reilly et al., 2000), missing out on specialized training.

Unnithan et al. (2012) suggest that football is complex in nature one must consider that with the junior players (an average of 15.4 years) there is still room for development in the process of maturation and growth with the estimated development through exercise. As they suggest, to test player potential, a two to three month try out period is needed for coaches to do true assessment and one must not underestimate late developers.

According to Vaeyens et al. (2006) top clubs use the current dynamic talent identification process to maintain their sporting and financial status, and different chances for youths who differ in progress and maturity must be cancelled out. Selection, development and professional guidance of young players is a priority for many. Helsen et al. (2012) found that players just a few months older have advantages over their peers. This is supported by Delorme, Boiché and Raspaud (2010) who write that players who born early in the year are more advantaged than the players born the last months of the year in their acquisition of football skill.

Hugo's (2004) work on the pathway to excellence is complimented by Abbott and Collins's (2010) study which indicates that the path to excellence within any sport is a complex one, as player's progress through various stages of development and the requirements of individuals adjust as they progress through these stages. He identified three stages of development (initiation stage, development stage and mastery stage) from his work with United States football players highlighting the need to provide appropriate support within each of the stages.

A study by Unnithan et al. (2012) involving skeletal maturation is recognized as the best method for assessing biological maturity states. As the authors mention, directly assessing maturity status by body measurement is not possible, because body size is not an indicator of maturity, whereas it is possible to identify maturity indicators from body dimensions, particularly stature. A reduction in age-band range and closer matching of groups synonymous with biological rather than chronological age may provide a more accurate index of performance potential (Vaeyens et al., 2008; O'Connor et al., 2016).

Cross-sectional studies carried out by Carling et al. (2009) and Gil et al. (2007) found that 72% and 79% of players respectively were born in the first six months of the selection year within elite U-14 football clubs. These observations provide evidence to suggest that potentially promising young players are overlooked at youth level.

In recent years, there has been an increasing amount of literature on talent identification. For many sports, youth talent identification is a serious component and a scientific approach continues in recruitment by professionals. In 2006, Pearson et al. described how scientific methods of talent identification were initially developed in many Eastern

European countries and involved government-sponsored, systematic and large-scale testing of youth.

Pearson et al. (2006) show that talent identification campaigns are not exclusive to the formerly communist countries in which they originated during the 1960s and 1970s. They describe how Australia conducted a similarly ambitious program: students aged between 14 and 16 years were invited to perform a battery of eight physiological tests.

The study by Gutierrez et al. (2010), relative age effect in football has been analyzed with studies in different countries. The birth-date distribution favoring players born early in the selection year and discriminating against participants born later in the year (Helsen et al., 2012). The birth dates of professional players in different countries, revealed a high rate of relative age effect. More than 55% of players were born in the first six months of the year. This type of analysis has also been conducted on international competitions. For example research on the 1990 World Cup 55% of players in full national teams were born in the first half of the year (Gutierrez et al., 2010).

2.6 TALENT IDENTIFICATION PROGRAM IN THE SPORT SCIENCES

Sports science has a significant role assisting TIP. The demands of the modern sport have increased pressure on coaches to identify talented individuals at a young age (Ljac et al., 2012). From a coach's point of view, there are valuable indicators that predict the required level of sensory, motor, and cognitive abilities that will be important in the development of future football players.

When assessing specific football related abilities, sports scientists have recommended the use of many tests, like aerobic endurance, dribbling, shooting, passing, orientation in space, single leg drop jump and single leg squat task, high intensity running and total sprint distance tests with and without possession of the ball. Other football-associated abilities have been measured in the same way: effectiveness of shooting, passing, dribbling, and defensive movements, leg power in the counter movement and drop jump, foot contact, and flight time.

In the world of high-performance youth football, with the problem of the "theory practice and/or practice theory gap", it possible when talent identifying to combine sports science findings with subjective empirical knowledge derived from the practice of football so that a transfer into football practice is actually possible (Hyballa; Peter Hans, 2011). Regarding how to identify talent Sæther (2014), suggests that by using football population and geographical location, the players find their level is to establish a pyramid of zones and regions. They played annually in talent identification competitions cancel out. Saether adds that talent identification at the lower stages must be sorted on skill first.

On the other hand, O'Connor et al. (2016), and Vaeyens et al. (2006) argue that young football players must be measured through the process rather than outcomes to predict their long-term potential. They also suggest that sports science has a significant role assisting the TIP. As they advise us first, key terms are primarily defined methods to implement the TIP. Then, identifying potential predictors of talent in football is necessary.

Identification and development of future players were first demonstrated by Reilly et al. (2000) who showed the importance of finance to promote talented players from the youth to the senior team and for the professional football club sports scientist to play a key role. Information concerning the anthropometric and performance characteristics of players of varying age will have application to a large population, particularly for coaches and sports scientists.

2.7 THE ROLES OF COACHES AND ADMINISTRATORS FOR TALENT IDENTIFICATION PROGRAM

In modern football, the literature has emphasized the importance of coaches and administrators. Coach's experience increased pressure to identify talented players at an early age. Ljac et al. (2012) describe the identification of future talent in a football player as very complex and say that successful prediction is not always possible. Vaeyens et al. (2006) also showed that football talent identification is complex and that different methods are suitable. They tell us that testing youth players during puberty is complex in motor proficiency, growth spurt and functional capacities. In sport, as in other domains

such as science, music and the arts, the attainment of excellence is the primary goal of many individuals (Reilly et al., 2000).

The demands of modern sport have increased pressure on coaches to identify talented individuals at a young age (Ljac et al., 2012). Talent identification is considered an important task for football coaches. The literature has emphasized the importance of coaches for TIP. One study by Sæther (2014), which found that Norwegian football coaches do not seem to have a clear definition of what talent is and how it could be identified, highlights the importance of more research on this topic and perhaps more longitudinal studies on the identification and development process. By following players and coaches over a period, one could observe how the players develop and, therefore, determine the challenges that coaches face in the identification process. Morris (2000) questions the usefulness of coaches, and the literature that describes current strategies of national football organizations suggests that coaches and administrators must know the psychological aspects of the talent identification process. They must know also which psychological elements are necessary to assess those variables. Especially the coaches must now how to identify talented players.

The coach is a principal determining factor of TIP (Allen, Greenlees & Jones, 2013). Skilful players can be identified by experienced and objectives observers who watch them in training sessions and matches. Often, educated football coaches are best suited to this task. Modern football has increased pressure on coaches to identify talented players at an early age. But, "the identification of future talent in a football player is very complex, and successful prediction is not always possible" (Sæther, 2014; Ljac et al., 2012). As FIFA Manual (2002) suggest, one can have a good scouting system, superior facilities and better programs, but the key to training and development is still the coach. There are many roles of football coaches. They must have also known how identify talent or recruit players according to the current football performance. Every football coach, from grass root to the national teams, takes on a wide range of roles in the performance of players towards the stated objectives.

The knowledge and experience of football coaches for talent identification are preferred to more scientifically based methods. Vrljic and Mallett (2008) supports this notion and

states, “As scientifically based talent search is still problematic, a selection based on success in competition and especially the eyes of the coaches are most important.” Moreover, coaches have significant involvement in TIPs. For example, Ajax Amsterdam, a professional Premier League club in the Netherlands uses experienced coaches to assess players on their technical skills, intelligence, personality and speed in TIPS (Vrljic & Mallett, 2008).

In another major study, Unnithan et al. (2012) underline the importance of coaches for TIP. The football coaches in their study, completed a game technical scoring chart based on the performance of each player during 4 vs 4 games and a comprehensive technical football scoring chart that evaluated the players’ performances during all matches and training. All players were evaluated regarding their performance on 10 football elements. Two undergraduate students with FA (Football Association) qualifications (level 1), and one coach from with a Union of European Football Associations (UEFA) ‘A’ coaching license, technically evaluated the players throughout the games using the previously stated scale.

2.8 CLIMATIC ALTITUDE

FIFA has specified that the following altitude definition will be used exclusively and that all clinical signs and symptoms that will be related to different levels are based on average group effects and can never be directly predicted on any particular individual due to individual variability (FIFA Manual, 2004). FIFA has classified altitude in categories as shown in the next table.

Table 2.1: Classified Climatic Altitude in Different Categories

Meters above sea level	Category
0 to 500 meter (m)	Near sea level
500 to 2000m	Low altitude
2 000 to 3000m	Moderate altitude
3 000 to 5500m	High altitude
Above 5500m	Extreme altitude

Following the decision was taken by the Executive Committee in Tokyo on 15 December 2011 regarding football at high altitude, an upper altitude limit will be imposed for matches in FIFA competitions in which the players and match officials are not given time to acclimatize in advance. As per the circular letter sent to all associations, the following criteria were upheld: above 2500m: acclimatization period of three days strongly recommended; above 2750m: mandatory acclimatization period of one week; above 3000m: games generally not permitted except with a minimum acclimatization period of two weeks.

2.9 GENETIC INVOLVEMENT FOR TALENT IDENTIFICATION

Ericsson et al. (1993) cited by Unnithan et al. (2012), say that genetic involvement or inborn talent has a limited part to play in the development of players and sports performance. They rather emphasize challenging work as the main tool of success. In their opinion, genetic factors are not that important when we compare them to other factors: we should rather emphasize practice.

The contribution of genetics to physical performance has generated substantial interest in recent years (Pearson et al., 2006). Pearson et al. mention that the growth of gene therapy appears to exceed acceptable and ethical debate on its application. Questions about confidentiality of results and consequences of genetic identification testing on aspiring young players are also a concern to leaders in genetics and performance research. Pearson et al. concluded that genetics may have a salient role in talent identification but ethical issues and recognition of a positive training and living environment remain significant. Miah and Rich, (2006) suggest that these genetic tests need not even be used as a tool for talent identification to have an impact on the way in which abilities are recognized and celebrated within the sport.

A recent study by Tozetto et al. (2017) found that athletes born in highly populated cities have a greater chance of becoming Olympic medallists. In addition, better living conditions also influence an athlete's performances. The birth place effect has been studied by Turnnidge et al. (2014).

In a follow-up study, Hancock et al. (2013) found that social agents, parents, coaches and athletes have the largest influence. In another major study, Woolcock and Burke (2013) found that the methods and approach of talent tracking delivered better means of identifying junior talented players in specific regions.

2.10 TESTS AND MEASUREMENTS FOR TALENT IDENTIFICATION

Step wise discriminate analyses showed that running speed and technical skills were the most important characteristics in under 13 (U13) and under 14 (U14) players, while cardiorespiratory endurance is more important for under 15 (U15) and under 16 (U16) players (Hemati et al., 2013).

Fidelix et al. (2014) point out that coaches generally report that technical and tactical aspects are extremely important for performance; however, they suggest significant importance has been ascribed to the morphological characteristics of players because they can be considered the basis of technical and tactical development.

Small-sided games are the best way to evaluate the players' technical and tactical abilities that help for TIP (Unnithan et al., 2012). Unnithan et al. offer probably the most comprehensive empirical analysis : football coaches completed a game technical scoring chart based on the performance of each player during each 4 vs. 4 games and a comprehensive technical football scoring chart that evaluated the players' performances during all matches and training. According to the researchers, all players were evaluated about their performance on 10 football elements. Each element had a range of points between 0–5. They add that each point described a player's performance on a certain skill as follows: 1-poor, 2-below average, 3-average, 4-very good, 5-excellent.

According to Hyballa (2011), game intelligence and ball control, which means technical abilities and skills, are the main parameters in the talent identification process. Hyballa adds that the physical coaching of juniors is a less significant factor. Ball possession by own team; transition and ball possession by the opposing team is more significant: in these match moments, we can see how the talent behaves in certain situations. Youth players are also analysed from a position-specific point of view, which means they should

have specific abilities and skills in offensive and/or defensive game situations that are typical of their playing position (Hyballa, 2011).

2.11 ANTHROPOMETRIC PROFILE

The literature has emphasized the importance of anthropometric characteristics of players. Different group of authors (Figueiredo et al., 2011; Gil et al., 2014) say that body fat is negatively related to the performance of football players and to the selection of players. The researchers draw a distinction between goalkeepers and on-field players regarding distinct anthropometric characteristics. The goalkeepers are taller and heavier and have more fat, particularly the finally selected ones. This anthropometric pattern has been described in adult and adolescent football goalkeepers. The authors set out the diverse ways in which it is reasonable that these players should have a large body size to stop the ball from entering the goal. Other authors (Gil et al., 2014) answer the usefulness of such an approach. It is also noticeable that predicted height was higher for the preselected goalkeepers than the on-fielders.

In the opinion of Matkovic et al. (2003), football players do not significantly differ from the normal population in their morphological characteristics like body height and mass, but they do have significantly lower amounts of fat and bigger circumferences of the body. Regarding physiological and anthropometric correlates of success, Abbott and Collins (2010) describe how, as early as the 1920s, researchers were examining the potential of anthropometrical and physiological factors such as height and strength as discriminating factors between players involved in different sporting events.

Stewart et al. (2011) underlines that each subject must be informed as to what measurements are to be taken regarding consent. They add that measurements must be made as quickly and efficiently as possible and the subjects should be asked to present themselves in minimal clothing. They also suggest that anthropometrics should always be sensitive to the cultural beliefs and traditions of the subject. Therefore, the measurement room should provide for privacy and be at a comfortable temperature for the subject. Depending on the specific sites being measured, specific anthropometry equipment items are necessary.

Stewart et al. (2011) suggest that weighing scales, anthropometric tape, skinfold callipers and other material to be used. The instruments are easily transported to be used in the laboratory and the field. The accuracy of these instruments is to within 50g. This should be totalling at least 150 kilogram (kg). Regarding anthropometric tape, a flexible steel tape of at least 1.5 m in length is recommended. This should be calibrated in centimetres with millimetre gradations. The skinfold calliper must have a constant closing compression of $10g/mm^2$ throughout the range of measurement. They should ideally be calibrated to at least 40 millimetres (mm) in 0.2mm divisions. The International Society for the Advancement of Kin anthropometry (ISAK) recommends the Harpenden skinfold calliper: All landmarks are identified before any measurements are made. Regarding skinfolds: triceps, subscapular, biceps, iliac crest, supraspinal, abdominal, front thigh and medial calf should be taken on the right side of the body.

The anthropometric measurements required are: height, weight, body mass index (BMI) and body composition by using skinfold calliper (Lohman et al., 2015). The specific sites described by Lohman et al. are nine skinfold measurements (chest, mid maxillary, biceps, abdominal, supra iliac, mid-thigh, medial calf, subscapular, and triceps) taken on the right side of the body by a Harpenden calliper and recorded to the nearest 0. 1 mm. They suggest also that three complete sets of measurement be taken consecutively and the mean of the three measurements represent the value for each site.

Anthropometric tests use moveable test devices. Standardized weighing devices are for body-mass. To measure height, the pointer must be located on the player's head. Skinfold thickness is obtained using a skinfold calliper. Different measurements are used to provide indicators of body size, body composition and somatotype (Reilly et al., 2000).

The specific sites were also described by Slaughter et al. (1988) and cited by Lohman et al. (2015). The evidence presented in the literature suggests that two to three measurements should be taken at each site with the mean value being used in any further calculations if two measurements are taken; if three measurements are taken, the median value is used (Stewart et al., 2011). The literature adds that a complete data set is obtained by repeating the measurements for a second and then a third time. Normally, measurements should not be taken after training or competition, sauna, swimming or

showering, since exercise, warm water and heat can produce dehydration and/or hyperaemia (increased blood flow). As they conclude, these may affect body mass, skinfold and girth measurements.

For the Equation Assessment of Body Fat Percentage, among the different methods of calculating the body-fat percentage (BF %), the use of anthropometric equations is the most economical and accessible. Furthermore, several studies have used anthropometry in young football players. For anthropometric equation the most accurate for estimating BF % in children and adolescent football players was developed by González-Agüero et al. (2016) whose equation is: BF % = 11.115 + 0.775 * (triceps skinfold, mm) + 0.193*(iliac-crest skinfold, mm) - 1.606*(sex).

The literature has emphasized the importance of anthropometric characteristics of players, and different groups people in the field such as scientists, managers, and football coaches believe that the success of this sport (Hailu et al., 2016) depends on these. A great deal of previous research into anthropometric characteristics of players has focused on the relationship between players' positions and anthropometric profiles. In another major study, Reilly et al. (2000) found that a football player's playing position is associated with anthropometric quality. This anthropometric quality is a determinant of their success in the game. Reilly et al add examples to justify their suggestion: if a player is taller, he is most suitable for goalkeeping, central defensive and central attack positions.

In a study conducted by Winter et al. (2006), it was shown that in football that there are no clear indicators for the significance of body composition on performance, but conditioning programs are a very crucial throughout a season and at all levels of competition. But to assess training effects, according to Sinning et al., body mass, body composition measures and optimize competitive performance are widely used. The evidence presented is that a relatively lower body fat is appropriate for successful football competition: if fat adds to the weight of player's body without subsidizing or added values to its force production, it will decrease in relative strength.

To measure players' body composition, total body mass is divided into two components: fat body mass and lean body mass. Lean body mass includes bone, muscle, and organs (Hailu et al., 2016).

Today, for players to have top performance in football, they must have basic anthropometric profiles and body composition that are suitable for their positions such as goalkeeper, defender, midfielder, and striker (Mohr et al., 2003). In view of all that has been mentioned so far, one may suppose that at present, players for higher performance in football are selected based on body size physical structure.

What we know about facilities is largely based upon studies that investigate access to clubs including training hours between part time and full-time athletes. Statistically no significant difference has been found in lean mass or total body mass recorded between an elite junior and professional athletes. The findings suggest that one or two years of training and participation might have a result of body size of professional athletes (Veale, 2011).

There are different studies from different countries deals about anthropometric assessment results. These different countries are Belgium, China, England, Tunisia, Australia, Spain, Korea, Tunisia, France and South Africa. The mean values of players age, body mass, standing height, body mass index, body fat percentage and lean body mass assessments are listed in chapter four (table 4.4). Some of the studies were mentioned about the anthropometric assessments (i.e. Deprez et al. (2014); Wong (2009); Lovell et al. (2015); Hammami et al. (2013); Carling et al. (2009); Silva et al. (2013); Le-Gall et al. (2010); Lago-Penas et al. (2011); Noh et al. (2015); Ellapen et al. (2014); Kubayi et al. (2017) and Clark (2007)). This study was done in Ethiopia and different from the reported ones. All reported studies done away from Ethiopia and the studies help to compare the performance levels of players in this study.

2.12 FIELD TESTS

Cooper et al. (2001) suggest that field tests are appropriate when testing groups of people, providing quantitative and objective measures of exercise performance in a variety of settings. This section presents several field tests for the practitioner who desires a reliable, but simple method of quantifying exercise capacity.

When we see the predictors of talent, tests and parameters for talent identifications in football, physical shape like body structure, weight, and height and playing position are used., currently this criterion mentioned before has a great value to select the players (FIFA manual, 2002). Technique and speed are a principal determining factor for U13 and U14 players, whereas aerobic tests are more appropriate and vital discriminating characteristics for U15 and U16 players (Vaeyens et al., 2006).

Writing in the context of sports participation in advanced levels, Unnithan et al. (2012) proposed that, as that psychological, tactical and technical aspects may help to predict future performance rather than physiological and anthropometric elements to select players. Further, the explosive power test has higher value to predict the success of football players. In their comparative study, they found that "Running acceleration and speed were assessed over 5, 10 and 20m using Swift Performance. The authors also found 505 agility tests consisted of a running start (10m) followed by a 5m `up and back' course". Other authors (Vaeyens et al., 2006) question the usefulness of such an approach. On the other hand, many groups of authors argued that shooting test and likes are not important for TIP.

When assessing player's skill like passing, juggling, receiving and dribbling Unnithan et al. (2012) evaluated players as poor, good, average, very good and excellent. They then re-assessed the players through small-sided games and assessed their game awareness, match-play ability, and eye-foot coordination. Then subjects should play a full-size game to introduce the rules of the game. As Unnithan et al. underline, special tests are also needed to identify talented goalkeepers. This test is widely available and has been used in many investigational studies. The authors show that players' talent is identified through different measurements and methods. The measurements can be subjective and objective. Subjectively, players can be evaluated in a small sided game and rated excellent, very good, good or poor. We can see their skills like juggling, dribbling, receiving and passing. We can also assess game awareness, match-play ability, and eye-foot coordination.

Drawing on an extensive range of sources, the authors set out the diverse ways in which organized TIP is implemented in different sports. Some analysts (e.g. Vaeyens et al.,

2006) have attempted to draw the physiological, motor skill and anthropometric qualities. Other authors (O'Connor et al., 2016; Gil et al., 2014) set out that discriminated analysis shows that in velocity and agility tests, both 15m and 30m were the most important parameters to discriminate between the preselected players and players at the football camp. They also say that both agility and speed have been cited as the most key features in football players, particularly in high-level players.

Ransone (1996) describe seven assessment tests. These include one cardio vascular endurance or aerobic and six anaerobic performance tests: 10, 20, 40m speed tests, the Illinois agility test, sit and reach for flexibility and standing vertical jump for power. Ransone also gives us test procedures; player completed three trials for a test and show the best score and an average: 10, 20 and 40m speed and Illinois agility test. For explosive power test, from the three trials, the highest distance jumped recorded. Yo-Yo intermittent recovery test level 1 (YIRT1) also included. Test administrators must be trained and must have knowledge about test protocols and procedures. Participants were instructed and verbally encouraged to perform at a maximal intensity during each trial period. All tests and measurements were done over a 2-day period. Anthropometric assessment, speed, standing vertical jump (power) and Illinois agility tests were done on the first day. On the second day: YIRT1 and sit and reach (flexibility) tests were conducted.

There are different studies from different countries deals about the physical fitness measurement results. These different countries are Belgium, China, England, Tunisia, France, Brazil, Australia, and South Africa. The mean values 10, 20, and 40 meters Speed tests, Illinois agility test, Sit & Reach Flexibility test, vertical jump power test and Yo-Yo intermittent level 1 endurance test are listed in chapter four (table 4.6). Some of the studies were mentioned about the physical fitness measurement results. (i.e. Vandendriessche et al. (2012); Wong (2009); Lovell et al. (2015); Hammami et al. (2013); Carling et al. (2009); Silva et al. (2013); Le-Gall et al. (2010); Ellapen et al. (2014); Kubayi et al. (2017) and Clark (2007)).

2.12.1 Speed: 10, 20 and 40 Meters

The literature surveyed in this section suggests that there is a consensus among scientists about the importance of speed for the process of talent identification (Vaeyens et al., 2006; Hemati et al., 2013). Speed tests differ significantly among competitive levels within each age group. Overall the scientists argued that elite players' exhibit significantly better speed capacity, but group differences are most apparent in U13 and U14 players. Results show that elite players scored better than the non-elite players on strength, flexibility, speed, aerobic endurance, anaerobic capacity and several technical skills. Stepwise discriminates analyses showed that running speed and technical skills were the most important characteristics in U13 and U14 players, while cardiorespiratory endurance was more important in U15 and U16 players. Talent identification models should thus be dynamic and provide opportunities for changing parameters in a long-term developmental context.

The literature has emphasized the importance of 10, 20 and 40 meters speed tests. Technical analysis of field sports shows that most young players execute straight-line speeds for an average of three seconds (up to a maximum of five seconds) before encountering an obstacle or altering direction to gain tactical advantage. For this reason, the 10, 20 and 40 meters speed are more accurate. The tester used equipment: A Stopwatch and a flat running surface with start and finish lines and one timer/recorder (Sheppard et al., 2006). After a player warmed up and stretched for several minutes, the tester allowed them two practice runs at sub maximal speed. The player assumed a starting position. On a whistle signal, the player speeded at maximal speed. The average of two trials was recorded to the nearest 0.1 second. Speed and high-speed running or high-intensity running performance are proven.

In the same study conducted by Sheppard et al. (2006), players were tested on a 10m straight speed. The start commenced from a standing position, with the chest just behind the infra-red timing beam so that any forward movement by the player triggered the timer to begin. The players were instructed to begin with their preferred foot forward, with their front toe placed on a line marked on the floor. Instructions were given so that the players did not move backward prior to initiating the speed, and any attempts that

involved a backward rocking motion before forward movement were discarded and re-trailed. The recorded score for this test was the mean of two trials.

In 2011, FIFA demonstrated the result of men's football was walking (< 7.2 kilometre per hour (km/hr)), jogging (< 14.4 km/hr), moderate running (< 19.8 km/hr), high speed running (19.8 km/hr to 25 km/hr) and sprinting (> 25 km/hr).

2.12.2 Agility: Illinois Agility Test

Agility is the ability to change direction quickly and accurately; however, although Gil et al. (2014) say that perhaps the agility test in their study was not as accurate to measure goalkeeper's specific agility. In another major study, Sheppard et al. (2006) proposed a new definition of agility: ''a rapid whole-body movement with change of velocity or direction in response to a stimulus''. Many strength and conditioning coaches believe that there is indeed a strong relationship between straight sprinting speed and change of direction speed, as some articles and many training sessions tend to address both qualities simultaneously.

Sheppard et al.'s (2006) work on agility compared the relationship between performance of the Illinois agility test and a 20m speed test reported a statistically significant low to moderate correlation. The Illinois agility test is a timed task involving some straight sprinting and multiple direction changes around obstacles.

Sheppard et al. (2006) described the Illinois agility test as follows: the length of the course is 10 meters and the width (distance between the start and finish points) is 5 meters. Four cones are used to mark the start, finish, and the two turning points. Another four cones are placed down the centre an equal distance apart. Each of the centre cones are spaced 3.3 meters apart.

Sheppard et al. (2006) identifies the purpose of the test: to measure the ability of players to run fast and rapidly change the direction of the body by combining speed, coordination, and balance. He also recommends the equipment to be used for the test: a flat non-slip surface, cones, timing gates, a whistle and measuring tape. He proposes the following procedure: Players start in a prone position a meter behind the timing gates and with their hands on their shoulders. On the 'go' command, the player gets up as

quickly as possible and runs the course in the direction indicated, without knocking the cones over, to the finish line, at which the time taken to complete the course is recorded on the timing gate. The best time score from two trials was taken as the final score.

2.12.3 Flexibility: Sit-and-Reach

Flexibility does not differ between U13 and U14 players but is significantly greater among elite U15 and U16 players (Hemati et al., 2013). Turner et al. (2011) and Baechle and Earle (2008) describe the test with a measuring tape with **o**ne tester and one recorder. Place one piece of tape about 61 centimetre (cm) long across the measuring stick and at a right angle to it at the 38cm mark. The player sits shoeless with the measuring stick between the legs with its zero ends toward the body, the feet 30cm apart, the toes pointed upward, and the heels nearly touching the edge of the taped line at 38cm mark. The player slowly reaches forward with both hands as far as possible on the measuring stick, holding this position momentarily. To get the best stretch, the player should exhale and drop the head between the arms when reaching. The hands are adjacent to each other and one must not lead with one hand. The fingertips should remain in contact with the measuring stick. The tester holds the player's knees down, if necessary, to keep them straight. The best of three trials is recorded to the nearest 1cm.

2.12.4 Power: Vertical Jump

Surveys such as that conducted by Baechle and Earle (2008) have shown that vertical jumping ability, in other words, peak power has a direct correlation to ability to accelerate and burn, in practice and at game time. The equipment used was a smooth wall with a ceiling higher than the highest jumper's jump height, a flat floor with good traction, **c**halk of another colour than the wall**,** a measuring tape or stick**,** one tester, and one recorder. Prior to the test they were familiarized with the jump protocol and allowed three test jumps to achieve maximal jump height performance. The highest of three jumps were recorded.

The tester rubbed chalk on the fingertips of the player's dominant hand. The player stood with the dominant shoulder about 15cm from the wall and, with both feet flat on the floor, and reached as high as possible with the dominant hand and made a chalk mark on the

wall. The player then lowered the dominant hand and, without a preparatory or stutter step, performed a counter movement by quickly flexing the knees and hips, moving the trunk forward and downward, and swinging the arms backward. During the jump, the dominant arm reached upward, while the non-dominant arm moved downward relative to the body. At the highest point in the jump, the player placed a second chalk mark on the wall with the fingers of the dominant hand using a swiping motion of the fingers. The score was the vertical distance between the two chalk marks. The best of three trials was recorded to the nearest 1cm.

This measures the amounts of explosive force exerted as quickly as possible over a designated bodily range distance. Good vertical jump skills are important for goalkeepers, as they are often required to leap vertically to catch or deflect a ball (Gil et al., 2014).

2.12.5 Yo-Yo Intermittent Recovery Test Level 1 (YIRT1)

Stepwise discriminates analyses showed that running speed and technical skills were the most important characteristics in U13 and U14 players, while cardio respiratory endurance was more important in U15 and U16 players (Hemati et al., 2013). Cooper introduced the 12minute run test for estimation of aerobic fitness. Cooper and Storer (2001) demonstrated the replacement of the 12minutes run test with the 20meters shuttle running test. The multistage 20meters shuttle run test originally developed for measuring Maximum Aerobic Capacity ($\dot{V}O_2$ max) in healthy adults is tested either individually or in groups. The protocol requires the following conditions: the 20m course should be dry, firm, and flat and allow 5–10m extra length for deceleration at each end. Subjects run back and forth on the 20m course marked at each end with a line. Subjects must touch the line at the same time a sound cue is emitted from a pre-recorded audiotape. The frequency of the cues is increased 0.5km per hour every 2 min from a starting speed of 8.0km/hr. Signals are provided so that an audible tone is sounded as a pacing mechanism.

Goalkeepers have a low endurance capacity. In the study, goalkeepers displayed the worst results in the YIRT. A large aerobic capacity is probably not essential, but a moderate capacity is beneficial and this should be kept in mind by the coaches when designing training sessions (Gil et al., 2014).

Another author has measured $\dot{V}O_2$ max in a variety of ways**.** According to the recommendation of Castagna et al.(2009) the YIRT1 is used for young players to predict their future performances. The YIRT1 is a 20meter shuttle run test. Players started out shuttling from one end to the other. Each bout of intense running (2 x 20m shuttle) is followed by 10 seconds of recovery. This view is supported by Carvalho et al. (2014) who writes that for the 20m shuttle run test, subjects are required to run back and forth on a 20m course and must touch the 20m line at the same time that a sound signal is emitted from a pre-recorded tape. The frequency of the sound signals increases in such a way that running speed is increased by 0.5 km/h each minute from a starting speed of 8.5 km/h. The test stops when the subject is no longer able to follow the set pace. The last announced stage number or the equivalent maximal aerobic speed is then used as the $\dot{V}O_2$ max index.

As the above describes: a 20m and 5m section is marked with cones (A, B and C). There should be one lane for every one player. The tester makes sure that the test is accurately measured. He must ensure that the recorders understand the instructions, particularly that each successfully completed the recovery period, and that two misses in a row are required to retire a run. (Deprez et al., 2012).

Assessment of the YIRT1 involved the last testing sessions on a pitch, conducted after all other tests were completed. The YIRT1 is a progressive shuttle running test involving a ten second active recovery period after every second 20m shuttle. Running speed is dictated by an audible beep played from a compact disc (CD), incrementally increasing in speed each level. Subjects must reach the 20m shuttle line prior to, or in time with the audible beep for each shuttle to be counted. Test participation is ceased when two shuttles in succession are not successfully completed and the test score recorded as the last successful shuttle completion (Castagna et al., 2009).

These YIRT1 results are similar to other studies (Deprez et al. 2012; Helsen et al. 2005; Bangsbo et al. 2008), which reported 2150m, 1488m and 1764m, in 17-year-old elite football players, in talented 14-year-old Australian football players and Belgian young elite players respectively. In addition, 106 Croatian U-17 players scored the following results: 1581m and 1911m (Markovic et al. 2011).

A study by Castagna et al. (2009) offers probably the most comprehensive empirical analysis of YIRT1 performance of youth football players. The results showed that youth players cover distances between 400 - 1500 m on the YIRT1. In adult male players, between 600 – 2320m and for elite level 2040 – 2260m. Castagna et al. also mention that elite players performed significantly better (2.26 + 0.08 km) than moderate ability players (2.04 + 0.06km).

This study investigates knowledge and experience about talent identification programs. The study identifies problems and find solutions to perform the program. It serves also to develop basic standards for talent identification programs. This study bridged some knowledge gaps regarding to the talent Identification program.

CHAPTER 3 : METHODOLOGY

3.1 INTRODUCTION

This chapter describes the study subjects**,** the study design, the study areas, sampling technique, the target population, the data collection instruments, tests and measurements for the study, survey method and the research instrument employed. It further describes how data for the study were analysed.

3.2 STUDY SETTING

This study should plan in Ethiopia. According to the World Fact Book (2017): Ethiopia is a country located in the horn of Africa. It shares borders with Eritrea to the north and northeast, Djibouti and Somalia to the east, Sudan and South Sudan to the west and Kenya to the south. With over 100 million peoples. Ethiopia is the most populous landlocked country in the world, as well as the second-most populous nation on the African continent next to Nigeria. It occupies a total area of 1,100,000 square kilometres, and its capital and largest city is Addis Ababa. According to the geographical locations of the country, the study sites were selected. The selected 12 sites (Haramaya, Jijiga, Diredawa, Bekoji, Asosa, Gambela, Asela, Hawasa Arbaminch, Addis Ababa, Adama and Metehara) with their geographical locations and climatic altitudes are shown in the next table.

Figure 3.1: Geographical Location of Ethiopia

Table 3.1: Selected Study Sites

No	Site	Geog. Location	Altitude/m
1	Gambella	West	526
2	Metehara	North	986
3	Dire Dawa	East	1,276
4	Ariba Minch	South	1,285
5	Asosa	West	1,570
6	Jijiga	East	1,609
7	Awasa	South	1,708
8	Adama	North	1,712
9	Haremaya	East	2,047
10	Addis-Ababa	West	2,355
11	Asela	North	2,430
12	Bekoji	South	2,810

3.3 TARGET POPULATION

For this study, the target populations were Ethiopian male youth (13 – 17 years of age) football players. Football coaches, the sports administrators from the Federation, academy and clubs were used. All subjects were aware of the purpose of the study and the aims and objectives.

Table 3.2: Sample Size According to Study Groups (N=240)

		Number of players
Settings	Clubs	80
	Academies	60
	EFF	100
Geographical location	East	60
	West	60
	South	60
	North	60
Climatic attitudes	Low	80
	Moderate	80
	High	80
Age groups	U-14	33
	U-15	77
	U-16	82
	U-17	48

3.4 SAMPLING

To identify the study areas, a purposive sampling technique was used to address the whole parts of Ethiopia, the geographical locations and altitudes. Finally, to select the teams, a simple random sampling technique was employed. Purposive sampling was used to select coaches and administrators. There were sixty-one youth teams (the age range 13 – 17 years); all coaches and administrators were automatically selected for the study.

Quantitative and qualitative methods of investigation were employed with the help of tests and questionnaires. The teams were clustered according to their geographical locations in four groups and each cluster stratified into three parts based on attitudes. Finally, one team from each group was randomly selected. Totally twelve teams were selected from distinct parts of Ethiopia.

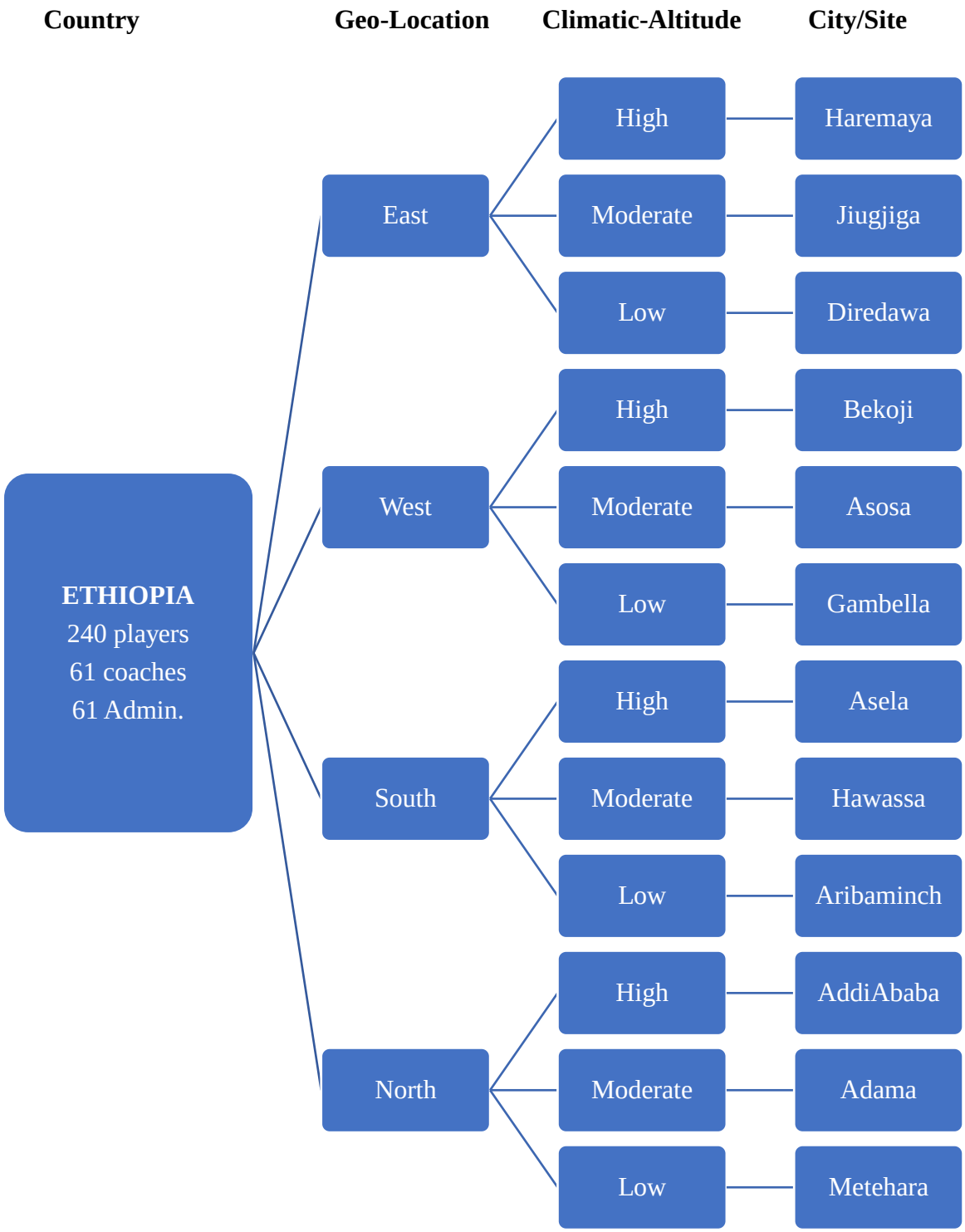

Figure 3.2: Study Population and Sampling Technique

3.5 STUDY DESIGN AND PARTICIPANTS

This study employed a mixed-methods cross-sectional study design using both quantitative and qualitative approaches". The first part of the study was designed to examine the anthropometric and football specific physical fitness differences among active male players at the club (4), academy (3), and project (5) level. The second part of the study was designed to identify the anthropometric and physical fitness differences among players of the three groups per their climatic altitudes (low, moderate and high). The third part of the study was designed to identify the anthropometric and physical fitness differences among players of the four groups per their geographical locations (east, west, south and north). The fourth part of the study was designed to identify the anthropometric and physical fitness differences among players of the four age categories (under (U) -14, U-15, U-16 and U-17). The fifth part of the study used a correlation matrix comparing the relationship of variables in anthropometry and performance to each other.

The players' biographical background was discussed in terms of source, level of education, where they played football at first time, and whether they attend the TIP. After identification of the study areas and subjects, all the relevant information and performance tests took place sequentially. Data collection over two following days was conducted in each team. Anthropometric assessment, speed, standing vertical jump (power) and Illinois agility were assessed on the first day. On the second day, YIRT1 and sit and reach (flexibility) tests were conducted.

A homogenous group of two hundred forty youth (U-17) players from twelve teams in the Ethiopian football development program participated in this study. Sixty-one football coaches and 61 sport administrators involved in the program also participated in the study. Study areas were selected using simple random sampling. The teams were clustered according to their geographical locations in four groups and each cluster stratified in three parts based on altitudes. One team from each part was randomly selected. In total 12 teams were selected from different areas. Finally, all 20 players from each team were selected automatically. The players thus represented clubs (4 teams = 80 players), academies (3 teams = 60 players) and football projects (5 teams = 100 players), respectively. All players who were included in the study were active players at the time

of the study. The players trained at least three to four training sessions per week and had one game on a weekly basis. These players were also categorized into four age categories U-14, U-15, U-16 and U-17 years of age. They were also grouped into four geographical locations of Eastern, Western, Southern and Northern regions of the country. These players were again classified for this study into three parts regarding to their climatic altitudes low (below 1500m), moderate (1500 – 2000m) and high (above 2000m). To be eligible for the study, all players were required to be in the age range between 13-17 years; free from injury, not taking medication and restricted from any act or behaviour that may affect the test performance either positively or negatively.

Coaches and administrators were selected from 47 clubs, 3 sports academy teams and 11 EFF teams. They were registered as football coaches or sport administrators in youth teams in Ethiopia. One coach and one administrator from each team was selected for this study. All the coaches and sport administrators were administering their teams, while still being involved with the development programs and progression of the team training.

All participants involved in this study were provided with verbal and written communications of the study's requirements. Ethical approval was granted by the University of KwaZulu-Natal (UKZN) Human Research Ethics Committee (Reference number BE274/15) and each participant and parents of players provided written informed consent prior to their participation.

3.6 DATA COLLECTION PROCEDURES

To gather all the relevant data, tests, measurements and self-administered questionnaires were used. The data collection method, survey questionnaires, were prepared and pre-tested for each group of respondents (players, coaches and administrators) linked to the study organization. All questionnaires were designed in the form of Likert-scales and translated to local language by professionals.

Along with the basic anthropometry measurements a total of five physical fitness tests were used as data collection instruments. The tests were conducted over two consecutive days. Anthropometric assessment, speed, standing vertical jump (power) and Illinois

agility test were carried-out on the first day and on the second day, the YIRT1 and sit and reach (flexibility) tests were conducted.

3.6.1 Anthropometric Measurements

Anthropometric assessment was done on four major categories: height, body mass, body mass index and body fat from skinfold measurement. All the anthropometric measures were taken by a single trained evaluator according to procedures of the ISAK (Oliveira-Junior et al., 2016).

For measurements to be made as quickly and efficiently as possible the players were asked to present with minimal clothing. Swimming clothes were perfect for ease of access. It also allowed access to simple areas of skin for skinfolds and the data collection was made on the first day. Anthropometric measures were made according to procedures of the ISAK (Stewart et al., 2011).

3.6.1.1 Height, Body Mass and Body Mass Index (BMI)

Body mass measurement was taken using a digital scale according to the standards for body mass measurement. Height measurement was taken using a stadiometer.

Figure 3.3: Body Height and Body Mass Measurement

An Equinox Model EQ-BR-9015 personal weighing scale was used to measure body mass in kilograms**.** It had the capacity to withstand a maximum of 120 kilograms. The weighing scale placed on a flat surface and zero before taking the weight. The scale calibrated to assure that values were measured correctly and accurately. The calibration process was: started with zero without any load. Record the loads of the first player after stabilization. Next, used other loads. Once the load was recorded, the measure was taken. Players were expected to stand motionless. Players used the weighing scale right before workout or any strenuous task. To measure the height, the stadiometer pointer was located on the players head. The height status was in meters. The position of the head was Frankfort horizontal and at a highest point on the head the vertex the measurement was taken. The body mass index (BMI) was calculated as the body mass in kilograms over height in meters squared (Rogulj & Papi, 2009).

3.6.1.2 Body Fat

Skinfold measurements in millimetres (mm) were taken on two sites (subscapular and triceps). Skinfold measurement was used to assess the amount of player's body fat percentage by using a skinfold calliper (Harpenden Skinfold Calliper, UK), with a constant closing compression of $10g/mm^2$ throughout the range of measurement. The specific measure sites taken were described by Slaughter et al. (1988) as cited by Lohman et al. (2015).

Figure 3.4: Body Fat Assessment

Measurements were taken on the right side of the body and recorded to the nearest 0.1mm. Three complete sets of measurement were taken consecutively. The mean of the three measurements represented the value for each site. The specific sites were described by Lohman et al. (2015). The triceps and subscapular skinfold measures as follow: made all marks on the right side of the body in the appropriate site. Grasp the skinfold between the thumb and index finger approximately 2.0cm above the measurement mark. With the free hand, place the calliper jaws perpendicular to the length of the fold. Wait roughly 3 seconds before attempting to read the skinfold measurement. Read the calliper dial at eye level to prevent measurement error. Each individual measurement and the sum of two of them (sub scapular and triceps) were used for analysis. All measurements were performed by the same person. To estimate fat percentage, the formula of Slaughter et al. (1988) was used, were: Body fat percentage (BF %) = (1.21 * (triceps + sub scapular) - 0:008 * (triceps + sub scapular)^2 - 3.4. The formula was recommended for predicting percentage of body fat from skinfold equations for children and youth (8-18 years) and thus provides more accurate population-specific estimates of percentage of body fat than others.

3.6.2 Physical Performance Tests and Measurements

The physical tests and test procedures were prepared according to the procedure used by Ransone (1996). Assessment of tests involved a player conducting seven tests. These included one cardiovascular endurance or aerobic (YIRT1) test and six anaerobic performance tests: 10, 20, 40m sprints (speed), agility (Illinois test), flexibility (sit and reach) and power (vertical jump). Players completed two trials for a test and an average calculated for the: 10, 20 and 40m sprint tests and the Illinois agility test. For the explosive power test, the three trials were done and the highest distance jumped was recorded. Test administrators were trained and had knowledge about test protocols and procedures. Participants were instructed and verbally encouraged to perform at a maximal intensity during each trial period. The field set-up during an execution of each test were adequate. The test sequence was such that the speed test was performed first and endurance test performed last. To minimize their risk of injuries and maximize the levels of performance, participants did a warm-up before-hand.

3.6.2.1 Speed

Equipment required: measuring tape or marked track, stopwatch and cone markers. Speed tests were conducted using a digital stopwatch. Procedure: The test involved running a single maximum sprint over a set distance, with time recorded. After a standardized warm up, the test was conducted over 10, 20 and 40 meters. The starting position was the stationary position with a foot behind the starting line.

Figure 3.5: Speed Measurement

The tester allowed two practice runs at sub maximal speed. The player assumed a standing starting position, with their preferred foot forward and with their front toe placed on a line marked on the ground. On a whistle signal, the player sprinted at maximal speed. The average of two trials was recorded to the nearest 0.1 second (Sheppard et al., 2006).

3.6.2.2 Power

Power was assessed using vertical jumping ability. A wall-assisted vertical jump test was conducted to measure the lower leg explosive power. The equipment we used: a smooth wall with a ceiling higher than the highest jumper's jump height, a flat floor with good traction, **c**halk of a varied colour than the wall, a measuring tape or stick**,** one tester, and one recorder. Prior to the test participants were familiarized with the jump protocol and three test jumps were done to achieve maximal jump height performance.

Figure 3.6: Vertical Jump Measurement

The tester rubbed chalk on the fingertips of the player's dominant hand. The player stood with the dominant shoulder about 15cm from the wall and, with both feet flat on the floor, reaching as high as possible with the dominant hand and made a chalk mark on the wall. The player then lowered the dominant hand and, without a preparatory or stutter step, performed a counter-movement by quickly flexing the knees and hips, moving the trunk forward and downward, and swinging the arms backward. During the jump, the dominant arm reached upward, while the non-dominant arm moved downward relative to the body. At the highest point in the jump, the player placed a second chalk mark on the wall with the fingers of the dominant hand using a swiping motion of the fingers. The score is the vertical distance between the two chalk marks. The best of three trials was recorded to the nearest 1cm (Baechle & Earle, 2008).

3.6.2.3 Flexibility

To measure the flexibility of the lower back and hamstring muscles the sit-and-reach test was used. The test performed with a measuring tape by one tester and one recorder. The procedure: tape the measuring tape measure to the floor and place one piece of tape about 61cm long across the measuring stick and at a right angle to it at the 38cm mark.

Figure 3.7: Flexibility (Sit-and-Reach) Measurement

The player sits shoeless with the measuring stick between the legs with its zero ends toward the body, the feet 30cm apart, the toes pointed upward, and the heels nearly touching the edge of the taped line at 38cm mark. The player slowly reaches forward with both hands as far as possible on the measuring stick, holding this position momentarily. To get the best stretch, the player should exhale and drop the head between the arms when reaching. The hands adjacent to each other and does not lead with one hand. The fingertips should remain in contact with the measuring stick. The tester holds the player's knees down, if necessary, to keep them straight. The best of three trials recorded to the nearest 1cm (Baechle & Earle, 2008)**.**

3.6.2.4 Agility Test

The length of the course was 10 meters and the width (distance between the start and finish points) was 5 meters. Agility tests were conducted using a digital stopwatch. Four cones were used to mark the start, finish, and the two turning points. Another four cones were placed down the centre an equal distance apart. Each of the centre cones was spaced 3.3 meters apart.

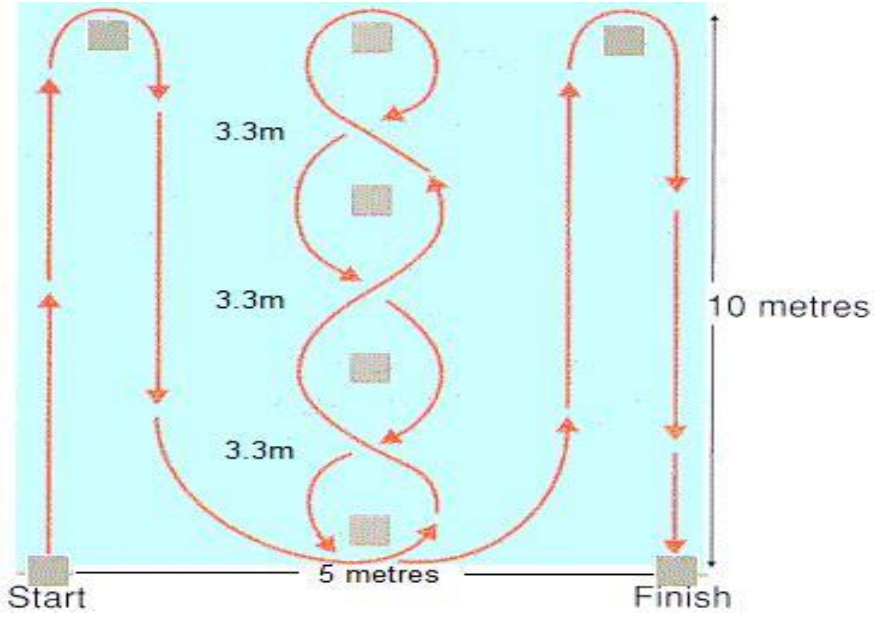

Figure 3.8: Illinois Agility Test

Purpose of test: To measure the ability of players to run fast and rapidly change the direction of the body by combining speed, coordination, and balance. Equipment used: Flat non-slip surface, cones, timing gates, whistle and measuring tape. Procedure: Players are in prone position a meter behind the timing gates and hands by their shoulders. On the 'Go' command the player got up as quickly as possible and ran around the course in the direction indicated, without knocking the cones over, to the finish line, at which the time taken to complete the course was recorded on the timing gate. The best time score from two trials was taken as the final score.

3.6.2.5 Aerobic Fitness (Cardio-Respiratory Fitness)

The modified Yo-Yo intermittent recovery test level 1 (YIRTL1) on a 20m specified distance was conducted for aerobic endurance performance. Different authors have measured $\dot{V}O_2$ max in a variety of ways**.** According to the recommendation of Castagna et al. (2009) and Morrow et al. (2015), the YIRT1 for young players is used predict their future performances. The YIRT1 was a 20meter shuttle run test. Players started out shuttling from one end to the other. Each bout of intense running (2x20m shuttle) was followed by 10 seconds of recovery. This view is supported by Carvalho et al. (2014) who writes that for the 20m shuttle run test, players ran back and forth on a 20m course and touched the 20m line at the same time that a sound signal was emitted from a pre-recorded tape. The frequency of the sound signals increases in such a way that running speed was increased by 0.5km/h each minute from a starting speed of 8.5km/h. The test stops when the player was no longer able to follow the set pace. The last announced stage number or the equivalent maximal aerobic speed was then used as the $\dot{V}O_2$ max index.

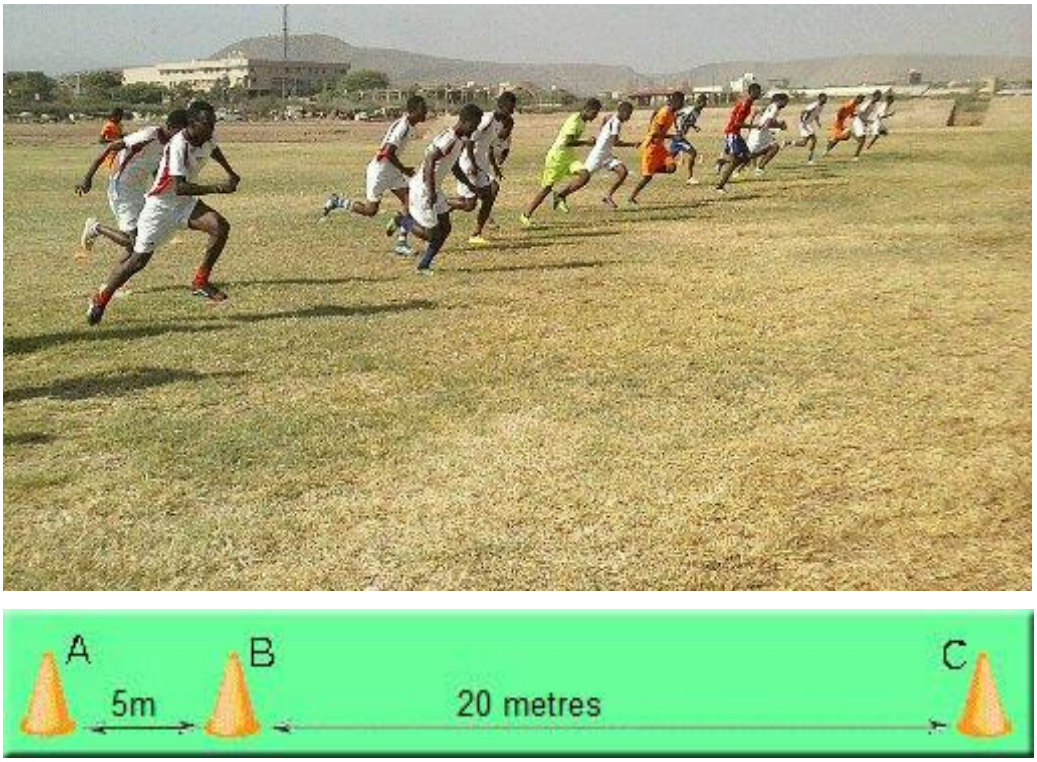

Figure 3.9: YIRT1 Measurement

Each player covered a 20m and 5m section marked with cones (A, B and C). There should be one lane for every one player. The tester guaranteed that the test was accurately measured. He ensured that the recorders understood the instructions, particularly that each player successfully completed the recovery period, and also that two misses in a row were required to retire a runner (Deprez et al., 2012).

Assessment of the YIRT1 involved the last testing sessions on a pitch, conducted after all other tests were completed. The YIRT1 was a progressive shuttle running test involving a ten second active recovery period after every second 20m shuttle. Running speed was dictated by an audible beep played from a CD, incrementally increasing in speed each level. Subjects must reach the 20m shuttle line prior to, or in time with the audible beep for each shuttle to be counted. Test participation was stopped when two shuttles in succession were not successfully completed and the test score was recorded as the last successful shuttle completion (Fernandes et al., 2016).

This YIRT1 or shuttle run test for this study was prepared according to the procedure used by Castagna et al. (2009) and Morrow et al. (2015). A total of 240 samples were taken from 12 teams. Each team had 20 players or subjects and all 20 players performed at the same time on their own line.

3.6.3 Questionnaires

The statistical population of this paper was youth players, football coaches and football administrators. Three questionnaires were in the statistical population: 240 questionnaires for players, 61 questionnaires for coaches, 61 closed and open-ended questionnaires for administrators. The rating scale of Javalgi et al. (1994) was used, a 7-point ranging Likert scale from 1 (strongly disagree) to 7 (strongly agree). After the data collected, the scale grouped in to 3-point ranging scale: disagree (1-3), neutral (4) and agree (5-7).

After the instrument developed, the pilot study was done to check the validity and reliability of the questionnaires. The questionnaires were tested on 5% of the total sample size in one of the team which was not included in the analysis. Cronbatch's Alpha was

calculated by using SPSS window version 22 to test the reliability. The validity was checked by another sport science expert.

3.6.3.1 Questionnaire for Players

The tools used to collect data in this questionnaire were 14 items for players (Appendix F). Besides the personal information, we tried to use different questions for investigating present conditions of players. This questionnaire includes the following background information: age, training age, place of birth, months/years spent in the training and their playing positions.

3.6.3.2 Questionnaire for Coaches

The tools used to collect data in this study questionnaire were 20 items for coaches; 4 items refer to personal information due to their experiences and level of education and the later 16 questions were for analysing the TIP condition in Ethiopia. (Appendix G)

Participants in this study were current performance football coaches who were responsible for identifying and coaching football players between 13 to 17 years of age in the country of Ethiopia for participation in different talent development programs and competition in Ethiopia. Identification Series where in Ethiopia U17 team was selected at the end of the national competition. The main responsibility of the coaches was to identify and coach the most talented football players in their team. To better understand the coaching background of participants, questions were asked regarding a variety of coaching and athletic experiences such as the levels of sports coaching, years of experience coaching at these level and engagement in coaching development activities. All participants volunteered to participate in the study and were known to the researcher.

3.6.3.3 Questionnaire for Administrators

The tools used to collect data in this questionnaire were 13 closed-ended and 3 open-ended items for administrators (Appendix H). Procedure: all participants volunteered to participate in the study and were known to the researcher. Additional standardized open-ended questions were used in this study. According to Vrljic and Mallett (2008), this combined strategy offers the flexibility of searching and exploring certain subjects in greater depth. The standardized approach used in this study consisted of a series of

planned open-ended questions organized into many interrelated sections: Prior to data collection, one experienced researcher in sports methodology reviewed the questions with slight modifications being made to ensure that the questions were framed in a truly open-ended manner. Pre-determined questions were used in conjunction with an appropriate probe, which increased the richness and depth of responses.

3.6.4 Qualitative Analyses

A series of open ended questionnaires were conducted for sport administrators to identify and analyse the talent identification program practice in Ethiopian football. Over a year period, three open-ended questionnaires were conducted with 61 sport administrators in their own team. These questions focus on problems, solutions and suggestions for the TIP practice in Ethiopia. This open-ended questionnaire was taken parallelly with the quantitative part over a period of one year.

This study was designed to address the following questions:

- In your opinion, what are the major factors that affect to implement the TIP in Ethiopia?
- What are the practical solutions do you think to improve or implement the TIP in Ethiopia?
- What do you suggest to implementing the TIP in your club /team/ academy?

3.7 STATISTICAL METHODS

All the descriptive statistics for the anthropometry and football specific fitness measurements are presented using mean and standard deviation to see the mean and standard deviation were used to describe anthropometric and football specific physical fitness among the three groups (club, academy and project) and other three groups per their climatic altitudes (low, moderate and high). The descriptive statistics were used for differences among players of the four groups per their geographical locations (east, west, south and north) and the four age categories (U-14, U-15, U-16 and U-17). For all categories, a one-way analysis of variance (ANAOVA) was used. The Pearson correlation coefficient was showed comparing the relationship of variables in

anthropometry and performance to each other. The Statistical Package for Social Sciences (SPSS) version 24 was used to analyses the data. All statistical significance was accepted at $p \leq 0.05$ with 95% of confidence level. Only players with full data sets were used in the SPSS. Means, standard deviations and significant differences were calculated for further interpretation.

Data analysis methods: The collected data were coded, edited and cleared by using Epinfo statistical software and transferred to SPSS version 24 to allow quantitative analysis. The aim of the data analysis was to build an organizing system of categories that emerged from the data and that represented how these coaches conceptualized talent to identify young talented football players (Strauss & Corbin, 1998). The content analysis of the data was based on the method described by Vrljic and Mallett (2008).

For open-ended questions, all answers were analysed by using the detective qualitative data computer software package (NVIVO). Then thematic frames focusing on problems, solutions and suggestions for the process of TIP were developed.

CHAPTER 4 : RESULTS AND DISCUSSION

4.1 INTRODUCTION

Based on the tests, measurements and responses obtained from Ethiopian male youth football players (13-17 years of age), their coaches and sports administrators, the characteristics of the study group were examined in terms of their age, source (talent identification setting), geographical locations and environmental altitudes. This section will present the results of their anthropometric and physical performance profile, analysis of the questionnaires and qualitative analysis.

4.2 BIOGRAPHICAL DATA OF PLAYERS

The biographical data of players is presented in the following table.

Table 4.1: Biographical Data of Players (N=240)

		n	%
Level of Education	Elementary	56	23.3
	Secondary	101	42.1
	Preparatory	33	13.8
	Matric	50	20.8
	Total	240	100.0
Introduction to playing football	Informal play in gardens	108	45.0
	At School	62	25.8
	Youth Team	70	29.2
	Total	240	100.0
Attendance of a previous talent identification program	Yes	191	79.6
	No	49	20.4

From the 240 respondents, the majority (n=101; 42%) were at secondary school level, 56 (23%) were at elementary school, 33 (13%) were at the preparatory school phase and 50 (21%) were in the matric year. From the total number, the majority (n=108; 45%) played football for first time playing informally in gardens, 70 (29%) played football for the first time in youth teams, and 62 (26%) first played football at school. Most of the players involved in the study (n=191; 80%), had previously been part of a talent identification

program and the remaining 49 (20%) had not previously attended a talent identification program.

Table 4.2: Biographical Data of Players per Category (N=240)

		n	%	Mean Age (Years)
Age group	U-14	33	13.75	13.79
	U-15	77	32.08	14.88
	U-16	82	34.17	15.88
	U-17	48	20.00	16.73
Setting	Club	80	33.33	15.96
	Academy	60	25.00	15.29
	EFF	100	41.67	15.71
Geographical location	East	60	25.00	15.71
	West	60	25.00	15.76
	South	60	25.00	15.61
	North	60	25.00	15.05
Environmental altitude	Low (<1500m)	80	33.33	15.70
	Moderate (1500–2000m)	80	33.33	15.53
	High (>2000m)	80	33.33	15.36
Total		240	100.00	15.53

Of the 240 players, 33 (13.75%) were in the U-14 age category with a mean age 13.79yrs (years), 77 (32.08%) were U-15 with a mean age of 14.88yrs., 82 (34.17%) were U-16 with a mean age of 15.88yrs. and 48 (20%) were U-17 with a mean age of 16.73yrs. The average age of the whole group was 15.53yrs. Eighty of the players (n=80; 33%) were from clubs and their mean age was 15.49yrs., 60 (25%) were from an academy and their mean age was 15.29yrs., and 100 (42%) came from EFF teams and their mean age was 15.71yrs. The participants were grouped in four geographical locations: those from the Eastern part of the country numbered 60 (25%) with a mean age of 15.71yrs., 60 (25%) were from the West with a mean age of 15.76yrs., 60 (25%) were from the South with a mean age of 15.61yrs. and 60 (25%) were from the North with a mean age of 15.05yrs. According to environmental altitude, 80 (33.33%) lived at low altitude (less than 1500m above sea level) with a mean age of 15.7yrs., 80 (33.33%) lived at moderate altitude

(1500 – 2000m) with a mean age of 15.53yrs and 80 (33.33%) lived at high altitude (above 2000m) with a mean age of 15.36yrs.

4.3 ANTHROPOMETRIC AND PHYSICAL PERFORMANCES PROFILE OF PLAYERS

The anthropometric characteristics and physical performances of the participants are presented in the following sections. In this study, anthropometric assessment was done in three major categories of height, body mass and body composition, which was assessed from skinfold measurement and body mass index. Physical performances, seven physiological tests were conducted. These included one $\dot{V}O_2$ max (Yo-Yo Intermittent Recovery Test Level 1 YIRT1) and six anaerobic performance tests: 10, 20, and 40m (speed), Illinois (agility), sit and reach (flexibility) and standing vertical jump (power).

4.3.1 Overall Anthropometric Profile of Players

The mean and the standard deviation of results across the anthropometric profile for all players (N=240) are shown in the table below.

Table 4.3: Anthropometric Profile of Players (N=240)

Variables	Minimum	Maximum	Mean	Std. Deviation
Players age (years)	13.80	17.4	15.53	0.90
Body mass (kg)	40.00	74.00	55.47	6.14
Standing height (m)	1.50	1.96	1.70	0.06
Body mass index (kg/m^2)	13.54	24.39	19.12	1.99
Sub-scapular skinfold (mm)	3.90	12.00	6.88	1.37
Triceps skinfold (mm)	2.90	11.70	5.95	1.51
Body fat percentage (%)	9.74	25.53	15.53	2.91
Lean body mass (kg)	34.48	65.40	46.82	5.11

The mean age was 15.53yrs. (0.90), body mass was 55.47kg (6.14), standing height was 1.7m (0.06), body mass index was 19.12kg/m^2 (1.99), sub-scapular skinfold was 6.88mm (1.37), triceps skinfold was 5.95mm (1.51), BF % was 15.53% (2.19) and lean body mass was 46.82kg (5.11).

The objective of this study was to investigate the current anthropometric profile of players and develop basic standards that will help the talent identification process in Ethiopia. Regarding the physiological and anthropometric correlates of success, Abbott and Collins (2010) indicate that as early as the 1920s, researchers were examining the potential of anthropometrical and physiological measures, for example height and strength as discriminating factors among players involved in different sporting events.

The results thus provide the basic descriptive anthropometric profile standards applicable to the talent identification program of Ethiopian youth (13–17yrs.) football players with respect to the minimum, maximum and mean values of players' age, body mass, standing height, body mass index, BF % and lean body mass (LBM). The range and the mean for players were found to be 13.8 - 17.4yrs (15.53yrs) for age, 40–74kg (55.47kg) for body mass, for standing height 1.5 - 1.96m (1.7m), for body mass index 13.54 – 24.39kg/m^2 (19.12kg/m^2), for BF % 9.74 – 25.53% (15.53%) and for LBM, 34.48 - 65.4kg (46.82kg).

Abbott and Collins (2010), indicate that football players do not significantly differ from the normal population in their morphological characteristics like body height and mass, but they do have significantly lower amounts of body fat.

The anthropometric measurement results of different comparative studies and mean results for the current study of Ethiopian football players are shown in Table 4.4. The mean age of players in our study (15.53yrs.) with different literatures from Belgium (15.8yrs.), England (15.7yrs.) and Spain (15.63yrs.) were similar. Whereas there are age differences with literatures from China (16.2yrs.), Tunisia (14.5yrs.), France (13.7yrs.), Brazil (12.3yrs.), Australia (14.4yrs.), Korea (16.3yrs.) and South Africa (14.3, 22.1 and 24.8yrs.). The mean values of body mass, standing height, body mass index and lean body mass measurements of our study were less than with different studies (i.e. Belgium, China, England, Tunisia, Australia, Spain, Korea and South Africa[3]). Also, the mean value of body fat percentage of players in our study was greater percentage than other studies (i.e. Tunisia, France, Australia, Spain, Korea and South Africa.

Table 4.4: Anthropometric Profile Comparison with Related Study Groups

Parameters	**Our study (13-17yrs.)**	**Belgium (U-17 yrs.)** Deprez et al. (2014)	**China (U-17 yrs.)** Wong (2009)	**England (U-16 yrs.)** Lovell et al. (2015)	**Tunisia (U-16 yrs.)** Hammami et al. (2013)	**France (U-14)** Carling et al. (2009)	**Brazil (10-14 yrs.)** Silva et al. (2013)	**Australia (13-16 yrs.)** Le-Gall et al. (2010)	**Spain (12-19 yrs.)** Lago-Penas et al. (2011)	**Korea 16.3 yrs.** Noh et al. (2015)	**South Africa[1] (14.3 yrs.)** Ellapen et al. (2014)	**South Africa[2] (19-24 yrs.)** Kubayi et al. (2017)	**South Africa[3] (24.8 yrs.)** Clark (2007)
Players age (years)	15.53	15.8	16.2	15.7	14.5	13.7	12.3	14.4	15.63	16.3	14.3	22.1	24.8
Body mass (kg)	55.47	62.7	64.2	65.0	70.1	52.77	43.7	59.03	56.28	68.3	53.2	66.51	73.4
Standing height (m)	1.70	1.74	1.73	1.75	1.75	1.64	1.54	1.71	1.69	1.76	1.63	1.69	1.76
Body mass index (kg/m^2)	19.12	20.71	21.45	21.22	22.88	19.62	18.1	20.18	21.69	21.9	20.0	23.28	23.7
Body fat (%)	15.53	---	---	---	13.3	12.12	---	11.60	11.40	4.53	5.5	9.81	13.30
Lean body mass (kg)	46.82	---	---	---	60.77	46.37	---	52.18	48.20	65.20	50.28	59.98	63.65

4.3.2 Overall Physical Performance Profile of Players

The mean and the standard deviation of results across the physical performance profile for all players (N=240) are shown in the table below.

Table 4.5: Physical Performance Profile of Players (N=240)

Parameters	Minimum	Maximum	Mean	Std. Deviation
Speed 10 meters (s)	1.71	2.82	2.15	0.19
Speed 20 meters (s)	3.05	5.19	3.51	0.29
Speed 40 meters (s)	5.23	7.46	5.96	0.31
Illinois Agility Test (s)	15.41	20.40	17.45	0.83
Sit & Reach Flexibility (cm)	1.00	49.50	12.94	7.86
Vertical Jump Power (cm)	25.00	64.00	42.93	6.58
YIRT1 (m)	216.00	2840.00	1587.90	644.70
$\dot{V}O_2$ max (ml/kg/min.)	38.21	60.26	49.74	5.42

The mean and the standard deviation of results across the physical performance tests for all players (N = 240) are shown in the above table. The mean recorded time for: 10m speed was 2.15 (0.19) sec, 20m speed was 3.51 (0.29) sec, 40m speed was 5.96 (0.31) sec; the mean value of the sit and reach flexibility test was 12.94 (7.89) cm; the mean value of the vertical jump of the players was 42.93 (6.58) cm; and using the YIRT1 the mean predicted value for $\dot{V}O_2$ max was 49.73 (5.42) ml/kg/min.

An objective of this study was to investigate the current physical performances of youth football players and develop basic standards that will help the talent identification process in Ethiopia. Castagna et al. (2009) reported on YIRT1 performance values for young football players. Their results showed that young football players may cover distances in the range of 400m to 1,500m on the YIRT1. This was a significantly lower distance compared to those reported for moderately active adult (>18 years) male participants (1793m – 2320 m) and elite-level males (2040 – 2260 m). Top-class players

also performed significantly better (2260 + 80m) than moderate-ability players (2040 + 60m) (Svensson & Drust, 2005).

As the result indicated, the minimum, maximum and mean values of 10m, 20m, 40m, sit and reach flexibility test, Illinois agility test, vertical jump power test and YIRT1 intermittent endurance tests help to create basic standards for the Ethiopian youth (13–17y) football players as in the context of the talent identification program. The range and the (mean) for 10m speed was 1.71 - 2.82sec (2.15s); for the 20m speed it was 3.05 - 5.19sec (3.51sec), for 40m it was 5.23 - 7.46sec (5.96sec); for the sit and reach flexibility test it was 1.00 – 49.50cm (12.94cm); for the vertical jump power test it was 25 – 64cm (42.93cm); for the Illinois agility test it was 15.41 - 20.4sec (17.45sec); and for YIRT1 was 216- 2,840m (1,588m). The present YIRT1 results are similar to other studies (Deprez et al. 2012; Helsen et al. 2005; Bangsbo et al. 2008), which report 2150m, 1488m and 1764m in 17-year-old elite football players, in talented 14-year-old Australian football players and Belgian young elite players respectively. In addition, 106 Croatian U-17 players scored the following results: 1581m and 1911m (Markovic et al. 2011).

The results of the fitness assessments for different studies and mean results for our study football players are shown in Table 4.6. The mean values of our study for speed, agility, sit and reach flexibility and Yo-Yo IR1 aerobic measurement were less than those reported by some studies from different countries (i.e. Belgium, China, England, Tunisia, France, Australia and South Africa[3]). The mean values of our study for vertical jump were less result than different studies from different countries (i.e. France, Australia and South Africa[3]). However, the mean value of vertical jump result of players in our study was greater than reported by some studies from different countries (i.e. Belgium, China, England and South Africa[1])

Table 4.6: Physical Performance Results Comparison with Related Study Groups

Parameters	**Our study (13-17 yrs.)**	**Belgium (U-17 yrs.)** Vandendriessche et al. (2012)	**China (U-17 yrs.)** Wong (2009)	**England (U-16 yrs.)** Lovell et al. (2015)	**Tunisia (U-16 yrs.)** Hammami et al. (2013)	**France (U-14)** Carling et al. (2009)	**Brazil (10-14 yrs.)** Silva et al. (2013)	**Australia (14-16 yrs.)** La-Gall et al. (2010)	**South Africa[1] (14.3 yrs.)** Ellapen et al. (2014)	**South Africa[2] (19-24)** Kubayi et al. (2017)	**South Africa[3] (24.8 yrs.)** Clark (2007)
Speed 10 meters (s)	2.15	1.91	1.81	1.71	2.00	1.95	---	1.88	---	---	1.87
Speed 20 meters (s)	3.51	3.29	3.10	3.12	---	---	3.80	3.19	---	---	---
Speed 40 meters (s)	5.96	---	---	---	---	5.88	---	5.63	---	5.46	5.53
Illinois agility test (s)	17.45	---	---	---	---	---	---	---	---	---	16.3
Sit & reach flexibility (cm)	12.94	22.22	---	---	---	---	25.6	---	---	43.23	39.0
Vertical jump Power (cm)	42.93	40.63	39.33	27.9	---	43.06	---	47.4 cm	32.42	---	53.8
Yo-Yo IR1 (ml/kg/min*)	1,588	2,064 Deprez et al. (2014)	---	2,308	47.9*	58.5*	---	2,247	---	54.13*	1,920

*$\dot{V}O_2$ max

4.3.3 Anthropometric Profile of Players per Age Category

The mean and the standard deviation of results across the anthropometric profile for players per age category (N=240) are shown in the table below. The different age groups are U-14 (age between 13 and 14), U-15 (age between 14 and 15), U-16 (age between 15 and 16), and U-17 (age between 16 and 17) years, youth development program.

Table 4.7: Anthropometric Profiles of Players per Their Ages

Age category		Body mass (kg)		Height (m)		BMI (kg/m^2)		BF %		LBM (kg)	
	N	M	SD	M	SD	M	SD	M	SD	M	SD
U-14	33	56.73	7.64	1.71	0.06	19.28	1.90	15.25	2.65	48.00	6.15
U-15	77	55.00	5.71	1.70	0.07	19.01	2.06	15.40	2.92	46.46	4.48
U-16	82	56.11	5.98	1.71	0.06	19.30	2.01	15.65	2.91	47.32	5.30
U-17	48	54.27	5.85	1.70	0.05	18.89	1.91	15.71	3.15	45.70	4.80
Total	240	55.47	6.14	1.70	0.06	19.12	1.99	15.53	2.91	46.82	5.11
p by ANOVA		p>0.05		p>0.05		p>0.05		p>0.05		p>0.05	

The mean value of the group of players per ages from U-14, U-15, U-16 and U-17, respectively were as follows: body mass measures were 56.73 (7.64), 55 (5.71), 56.11 (5.98) and 54.27 (6.14) kg; height measures were 1.71 (0.06), 1.70 (0.07), 1.71 (0.05) and 1.70 (0.06) m; BMI was 19.28 (1.90), 19.01 (2.06), 19.3 (2.01) and 18.89 (1.91) kg/m^2. BF % was 15.25 (2.65), 15.4 (2.92), 15.65 (2.91) and 15.71 (3.15). LBM was 48 (6.15), 46.46 (4.48), 47.32 (5.30) and 45.7 (4.80) kg from U-14, U-15, U-16 and U-17, respectively.

When breaking down comparisons in the above table, no significant interaction was observed for weight, height, BMI, BF % and LBM ($p>0.05$). However, Unnithan et al. (2012) suggest that football talent is complex in nature and one must still consider the potential of junior players aged at a mean of 15.4 years, who may not be early matures, as they still have time to develop physically as late bloomers with respect to the process of maturational growth. Similarly, in our study, players in the under 17 age group, within the range of 13-17 years, can still be identified as talented even if they have a smaller physical presence than younger early maturing players.

4.3.4 Physical Performance of Players per Age Category

The mean and the standard deviation of results across the physical performance for players per age category (N=240) are shown in the table below. The different age groups are U-14 (age between 13 and 14), U-15 (age between 14 and 15), U-16 (age between 15 and 16), and U-17 (age between 16 and 17) years, youth development program.

Table 4.8: Physical Performance of Players per Age Category

Age category		10m (s)		20m (s)		40m (s)		Flexibility (cm)		Power (cm)		Agility (s)		$\dot{V}O_2$ max (ml/kg/min)	
	N	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
U-14	33	2.24	0.28	3.66	0.41	5.81	0.24	10.82	4.61	42.64	4.70	17.32	0.57	49.35	5.00
U-15	77	2.16*	0.19	3.54	0.35	6.00	0.35	13.62	8.64	41.82	6.61	17.56	0.99	50.17	5.17
U-16	82	2.11$^{\#}$	0.16	3.47$^{\#}$	0.17	5.97	0.30	12.34	7.27	43.15	5.89	17.46	0.73	49.50	5.80
U-17	48	2.11^{+}	0.15	3.46^{+}	0.16	5.98	0.30	14.32	9.05	44.54	8.37	17.36	0.84	49.71	5.51
Total	240	2.15	0.19	3.51	0.29	5.96	0.31	12.94	7.86	42.93	6.58	17.45	0.83	49.74	5.42
p by ANOVA		p≤0.05		p≤0.05		p≤0.05		p>0.05		p>0.05		p>0.05		p>0.05	

Significant (p≤0.05**) * U-14 Vs U-15; $^{\#}$ U-14 Vs U-16; $^{+}$ U-14 Vs U-17; ^{T} U-15 Vs U-16; $^{=}$ U-15 Vs U-17; ^{O} U-16 Vs U-17**

The mean value of the group of players per ages from U-14, U-15, U-16 and U-17, respectively were as follows: 10m speed time was 2.24 (0.28), 2.16 (0.19), 2.11 (0.16) and 2.11 (0.15) sec and (p≤0.05); 20m speed time was 3.66 (0.41), 3.54 (0.35), 3.47 (0.17) and 3.46 (0.16) s and (p≤0.05); 40m speed time was 5.81 (0.24), 6.00 (0.35), 5.97 (0.30) and 5.98 (0.30) sec and (p≤0.05). Sit and reach flexibility test were 10.82 (4.61), 13.62 (8.64), 12.34 (7.27) and 14.32 (9.05) cm. vertical jump scores were 42.64 (4.70), 41.82 (6.61), 43.15 (5.89) and 44.54 (837) cm. The Illinois agility scores were 17.34 (0.57), 17.56 (0.99), 17.46 (0.73) and 17.36 (0.84) sec. The $\dot{V}O_2$ max value was 49.35 (5.00), 50.17 (5.17), 49.50 (5.80) and 49.71 (5.51) ml/kg/min from U-14, U-15, U-16 and U-17, respectively.

When breaking the comparisons down according to the above table, for 10m speed statistically significant differences were found between U-14 and U-16 ($p \leq 0.01$) and U-14 and U-17 ($p \leq 0.05$). For 20m speed the significant differences were found between U-14 and U-16 ($p \leq 0.01$) and U-14 and U-17 ($p \leq 0.01$). For 40m speed the significant differences were found between U-14 and U-15 ($p \leq 0.05$). For sit and reach flexibility the significant differences were found between academy and EFF ($p \leq 0.0001$). No significant interaction was observed for flexibility, power, agility and $\dot{V}O_2$ max ($p > 0.05$).

In this investigation, an objective was to assess the physical performance differences in players based on their ages. In summary, as shown in the above table, compared to players in the age between U-14 at 10m and 20m speed, U-16 and U-17 football players attained significantly better results. In 40m speed U-14 players attained significantly better results than U-15 players.

Helsen et al. (2012) found that players a few months older are more advantaged than their peers. This view is supported by Delorme, Boiché and Raspaud (2010) who write that players who born in the first months of the year are more advantaged than the player who born the last months. On the other side, studies with youth players (Unnithan et al. 2012; Vaeyens et al. 2008; O'Connor et al. 2016) show a reduction in age-band range and closer matching of groups synonymous with biological rather than chronological age may provide a more accurate index of performance potential.

The results indicated that the older group of players were faster than the younger group of players in 10 and 20m speed, whereas in 40m speed, the youngest group of players (U-14) were faster than their older (U-15) colleagues. In many team sports, children are commonly grouped into chronologically matched age groups for competition. Since chronological age and biological maturity rarely progress to the same degree (Vaeyens et al. 2008), research has demonstrated that early matures can possess greater muscular strength and speed over their late-developing peers. Nevertheless, the extent to which these physical superiorities experienced in youth, translate to success at the senior level is unsubstantiated (Gil et al. 2010).

The results and the literature suggest that we should rather consider the biological age than chronological age as a more accurate index of performance potential. Children are better grouped into biological age categories than chronologically matched age groups for competition.

There are various probable factors for the better results of the older youth players. Their speed measurement results were better than over the younger youth players. The factor that has been described to explain the dominance of older youth players. For instance, age is the main factor for why the older have better results. (Assefa & Getachew, 2016; Hamilton, 2000).

4.3.5 Anthropometric Profile of Players per Development Setting

The mean and the standard deviation of the anthropometric profile of players per development setting (N=240) are shown in the table below. The different settings are clubs (youth development program under football clubs), the academies (youth development program under a sport academy) and the Ethiopian Football Federation (EFF) youth development program.

Table 4.9: Anthropometric Profile of Players per Youth Development Setting (N=240)

Settings		Age		Mass (kg)		Height (m)		BMI (kg/m^2)		BF %		LBM (kg)	
	N	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Club	80	15.49	0.87	56.78$^{*\#}$	5.66	1.71*	0.06	19.37	2.00	15.87	2.90	47.77	5.12
Academy	60	15.29	1.03	53.83	6.72	1.69	0.06	18.91	1.96	15.02	2.62	45.69	5.46
EFF	100	15.71	0.81	55.41	5.97	1.71	0.07	19.05	1.99	15.56	3.07	46.72	4.77
Total	240	15.53	0.90	55.47	6.14	1.70	0.06	19.12	1.99	15.53	2.91	46.82	5.11
p by ANOVA				p≤0.05		p≤0.05		p>0.05		p>0.05		p>0.05	

Significant (p≤0.05) ***Club vs Academy; $^{\#}$ Club vs EFF; $^{+}$ EFF vs Academy**

The mean values of the group of players per setting from club, academy and EFF respectively, were as follows: body mass measures were 56.78 (5.66), 53.83 (6.72) and

55.41 (5.97) kg ($p \leq 0.05$); height measures were 1.71 (0.06), 1.69 (0.06) and 1.71 (0.07) m ($p \leq 0.05$); BMI was 19.37 (2.00), 18.91 (1.96) and 19.05 (1.99) kg/m^2; BF % was 15.87 (2.90), 15.02 (2.62) and 15.56 (3.07); LBM was 47.77 (5.12), 45.69 (5.46) and 46.72 (4.77) kg at club, academy and EFF settings, respectively. When breaking the comparisons down, club players had significantly greater body mass than EFF and academy players ($p \leq 0.05$). For standing height, club and EFF players were significantly taller than players in the academy teams ($p \leq 0.05$). No significant differences were observed for BMI, BF % and LBM ($p > 0.05$). In this investigation, an objective was to assess the anthropometric profile differences in players based on their settings. In summary, as shown in the above table, the club football players were significantly heavier and taller than academy players.

There was no significant difference in the age of players across the talent identification settings per ($p > 0.05$), the reason being that that most of the participants were of preparatory and secondary schooling age.

4.3.6 Physical Performance of Players per Development Setting

The mean and the standard deviation of the physical performance of players per development setting (N=240) are shown in the table below. The different settings are clubs (youth development program under football clubs), the academies (youth development program under a sport academy) and the Ethiopian Football Federation (EFF) youth development program.

Table 4.10: The Physical Performance of Players per Youth Development Settings

Setting		10m (s)		20m (s)		40m (s)		Flexibility (cm)		Power (cm)		Agility (s)		$\dot{V}O_2$ max (ml/kg /min)	
	n	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Club	80	2.08*	0.13	3.40*	0.15	5.87#	0.25	11.96	5.37	43.40	5.81	17.42	0.76	50.10	5.22
Academy	60	2.26	0.25	3.70	0.38	5.90	0.30	11.31	5.31	42.25	6.45	17.50	0.60	50.22	5.84
EFF	100	2.14+	0.17	3.49+	0.25	6.07+	0.33	14.69+	10.20	42.96	7.24	17.46	0.98	49.16	5.31
Total	240	2.15	0.19	3.51	0.29	5.96	0.31	12.94	7.86	42.93	6.58	17.45	0.83	49.74	5.42
p by ANOVA		p≤0.0001		p≤0.0001		p≤0.0001		p≤0.05		p>0.05		p>0.05		p>0.05	

Significant (p≤0.05) ***Club vs Academy; # Club vs EFF; + EFF vs Academy.**

The mean value of the group of players per setting from club, academy and EFF, respectively were as follows: 10m speed time was 2.08 (0.13), 2.26 (0.25) and 2.14 (0.17) sec and (p≤0.0001); 20m speed time was 3.4 (0.15), 3.7 (0.38) and 3.49 (0.25) sec and (p≤0.0001); 40m speed time was 5.87 (0.25), 5.9 (0.30), 6.07 (0.33) sec and (p≤0.0001). Sit and reach flexibility were 11.96 (5.37), 11.31 (5.31) and 14.96 (10.20) cm and (p≤0.05). Vertical jump scores were 43.40 (5.81), 42.25 (6.45), and 42.96 (7.24) cm. The Illinois agility scores were 17.42 (0.76), 17.5 (0.60) and 17.46 (0.98) m. The $\dot{V}O_2$ max value was 50.1 (5.22), 50.22 (5.84) and 49.16 (5.31) ml/kg/min. from club, academy and EFF setting, respectively.

When breaking down comparisons in the above table, for 10m and 20m speed, statistically significant differences were found between club and academy (p≤0.0001) and between academy and EFF (p≤0.0001). For 40m speed the significant differences were found between club and EFF (p≤0.0001) and between club and academy (p≤0.005). For sit and reach flexibility the significant differences were found between academy and EFF (p≤0.0001). No significant interaction was observed for power, agility and $\dot{V}O_2$ max (p>0.05).

In this investigation, an objective was to assess the physical performance differences within players based on their settings. In summary, as shown in the above table, compared to academy players at 10 and 20m, the club and EFF football players attained significantly better results. In 40m speed the club players attained significantly better results than academy and EFF football players. For the sit and reach flexibility tests, academy players attained significantly better results than EFF football players. According to Vaeyens et al. (2006), top clubs are using the current dynamic talent identification process to maintain their sporting and financial status and different chances for youths who differ in progress and maturity must be cancelled out. Selection, development and professional guidance of young players is a priority for success.

Football coaches typically select young players based on technical and tactical abilities firstly and then their anthropometric profile (Wong et al., 2009). However, the present study results (Table 4.10) show that young club football players were heavier than others. The study found that body mass is a significant predictor for sprint performance and thus anthropometry is an important consideration. There are various probable factors for the better results of club youth players in some of their anthropometric profile. Their body mass was heavier than over academy and EFF youth players. There are also various probable factors for the better results of club and EFF youth players in some of physical tests. Their speed measurement results were better than over academy youth players. Many factors have been described to explain the dominance. For instance, genetic predisposition, diet, environment and psychological makeup is rarely considered (Assefa & Getachew, 2016; Hamilton, 2000).

4.3.7 Anthropometric Profile of Players per Environmental Altitude

The anthropometric profile of players according to the environmental altitude of their development settings is reflected in the next table. The different altitude settings are low (526 – 1285m above sea level), moderate (1570 – 1885m above sea level) and high altitude (2047 – 2810m above sea level).

Table 4.11: Anthropometric Profile of Players by Environmental Altitude

Environmental altitude		Age (yrs.)		Body mass (kg)		Height (m)		BMI (kg/m^2)		BF %		LBM (kg)	
	N	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Low (<1500m above sea level)	80	15.70	5.31	54.10	5.31	1.71	0.06	18.49$^{\#}$	1.92	15.93	3.07	45.46	4.55
Moderate (1500–2000m above sea level)	80	15.53	5.61	55.59*	5.61	1.71	0.06	19.11	1.85	15.38	2.83	46.99	4.62
High (> 2000m above sea level)	80	15.36	5.61	56.73$^{\#+}$	7.15	1.69	0.07	19.77	2.00	15.26	2.82	48.00$^{\#+}$	5.79
Total	240	15.53	6.14	55.47	6.14	1.70	0.06	19.12	1.99	15.53	2.91	46.82	5.11
p by ANOVA				p≤0.05		p>0.05		p≤0.0001		p>0.05		p≤0.01	

Significant (p≤0.05) *** Low vs Moderate; $^{\#}$ Low vs High; $^{+}$ High vs Moderate**

The mean value of the group of players per environmental altitudes from low (<1500m above sea level), moderate (1500 – 2000m above sea level) and high (> 2000m above sea level), respectively were as follows: average age were 15.70 (5.31) yrs., 15.53 (5.61) yrs., and 15.36 (5.61) yrs.; body mass measures were 54.1 (5.31), 55.59 (5.61) and 56.73 (7.15) kg (p≤0.05); height measures were 1.71 (0.06), 1.71 (0.06) and 1.69 (0.07) m; BMI was 18.49 (1.92), 19.11 (1.85) and 19.77 (2.00) kg/m^2 (p≤0.0001). BF % was 15.93 (3.07), 15.38 (2.83) and 15.26 (2.82). LBM were 45.46 (4.55), 46.99 (4.62) and 48 (5.79) kg at low (<1500m above sea level), moderate (1500 – 2000m above sea level) and high (> 2000m above sea level) altitude groups respectively. When breaking the comparisons down, high altitude players significantly greater body mass than low altitude players (p≤0.05). Low altitude players significantly better BMI than high altitude players (p≤0.0001). For LBM, high altitude players significantly greater results than low and moderate altitude players (p≤0.005). No significant differences were observed for standing height and BF % (p>0.05).

4.3.8 Physical Performance of Players per Environmental Altitude

The physical performance of players according to the environmental altitude of their development settings is reflected in the next table. The different altitude settings are low (526 - 1285m above sea level), moderate (1570 – 1885m above sea level) and high altitude (2047 – 2810m above sea level).

Table 4.12: Physical Performance of Players per Environmental Altitude

Climatic altitude (above sea level)		10m (s)		20m (s)		40m (s)		Flexibility (cm)		Power (cm)		Agility (s)		$\dot{V}O_2$ max (ml/kg/min)	
	N	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Low (< 1500m)	80	2.13$^{\#}$	0.17	3.49$^{\#}$	0.17	6.03	0.33	12.94$^{\#}$	5.40	43.14	6.32	17.50	0.61	49.23	5.76
Moderate (1500–2000m)	80	2.11^{+}	0.12	3.44^{+}	0.25	5.91*	0.26	15.33^{*+}	11.06	43.96	6.54	17.48	0.83	50.36	4.89
High (> 2000m)	80	2.20	0.25	3.62	0.37	5.95$^{\#}$	0.34	10.54	4.90	41.69	6.75	17.38	0.99	49.63	5.57
Total	240	2.15	0.19	3.51	0.29	5.96	0.31	12.94	7.86	42.93	6.58	17.45	0.83	49.74	5.42
p by ANOVA		p≤0.01		p≤0.005		p≤0.05		p≤0.0001		p>0.05		p>0.05		p>0.05	

Significant (p≤0.05) *** Low vs Moderate; $^{\#}$ Low vs High; $^{+}$ High vs Moderate**

The mean value of the group of players per climatic altitudes from the between low (< 1500m above sea level), moderate (1500 – 2000m above sea level) and high (> 2000m above sea level), respectively were as follows: 10m speed time was 2.13 (0.17), 2.11 (0.12) and 2.20 (0.25) sec ($p \leq 0.05$); 20m speed time was 3.49 (0.17), 3.49 (0.25) and 3.62 (0.37) sec and ($p \leq 0.05$); 40m speed time was 6.03 (0.33), 5.91 (0.26), 5.95 (0.34) sec and ($p \leq 0.0001$). Sit and reach flexibility test were 12.94 (5.40), 15.53 (11.06) and 10.54 (4.90) cm and ($p \leq 0.0001$). Vertical jump scores were 43.14 (6.32), 43.96 (654) and 41.69 (6.75) cm. The Illinois agility scores were 17.50 (0.61), 17.48 (0.83) and 17.38 (0.99) m. The $\dot{V}O_2$ max value was 49.23 (5.76), 50.36 (4.89) and 49.63 (5.57) ml/kg/min from 526m -1285m, 1570m–1885m and 2047m – 2810m groups, respectively.

When breaking the comparisons down according to the above table, for 10m and 20m speed statistically significant differences were found between low and high ($p \leq 0.01$ and $p \leq 0.005$) and between moderate and high altitudes ($p \leq 0.01$ and $p \leq 0.005$) respectively. For 40m speed the significant differences were found between low and moderate altitudes ($p \leq 0.05$). For sit and reach flexibility statistically significant differences were found between low and high; between moderate and high as well as low and moderate altitudes ($p \leq 0.0001$) respectively**.** In this test the moderate altitude group of players performed better results than the low and high-altitudes group of players. Regarding the power, agility and $\dot{V}O_2$ max test results, no significant interaction was observed ($p > 0.05$).

One of the objectives of this study was to identify the anthropometric and physical performance differences of the players due to the altitudes where they were born, live and train. In summary, as shown in the table (Table 4.11), compared to lowland players at body mass and LBM, the highland football players were significantly heavier. Their BF% were the lowest, but not significantly different. These differences in anthropometry could potentially be related to nutrition in highlands being better than in the Ethiopian low lands where a low intake of calories in children and adults has been found (Clegg & Pawson, 2018). Other factors in the environment like thermal differences should be considered. The relationship between environmental temperature and growth in human anthropology,

generally shows that warmer environments facilitate growth, but this is debatable (Roberts, 1953; Katzmarzyk & Leonard, 1998). The finding here is contrary, with players living in the warmer lowlands of Ethiopia, having less LBM and higher body fat than those living at altitude in the colder highlands.

As can be seen in the above table (Table 4.12), low and moderate altitude-based football players performed better in both 10 and 20m speed tests than the high-altitude players. As studies (Bohner et al., 2015; Wehrlin & Hallén, 2006) revealed altitude differences compromise training or race performance in running events. One of the proposed explanations to have slower running speed at higher altitude (Hamlin, Hopkins, & Hollings, 2015; Wilber, 2007) was a decrease in leg's turnover due to frequent high altitude trainings by the athletes/players who were living and training at higher altitude. The results of the current study were in line with the above justifications when the 10 and 20m speed test results were compared between the low and high as well as the moderate and high altitudes study groups. However, when the 10 and 20m speed test results of the low and moderate altitude groups were compared the findings were against the expiations given above. The probable reason to see better 10 and 20m speed performance by the moderate altitude group might be attributed to other factors like nutritional practices, contents of training as well as techniques of running and reaction time differences between the study groups. To the best of the author's knowledge no relevant study findings were reported.

In line with the 10 and 20m speed tests, similar findings were reported for sit and reach test. In comparison to the low and high altitude based players the players from moderate altitude achieved better results in sit and reach test. This result might be accepted for the differences between the moderate and high altitudes football players as the players from the moderate altitude group reported better 10 and 20m speed test results. It was proposed that better running speed might be related to enhanced leg turnover and hip mobility supported by lower back and hamstring flexibility. However, this justification might not accept for the differences between the moderate and low altitude groups. In the existing literatures it was found hard to get relevant and similar altitude based study results in the sit and reach flexibility tests. However, this study forwarded differences in the contents of training

(including or excluding stretching exercises) as additional proposed explanation/justification for the better results achieved by the moderate altitude group might be due to the differences in the contents of training preferred by the coaches rather than the differences in the altitude setups, anthropometric characteristics and ages of the same players.

Unlike the speed and flexibility tests results, no significant differences were reported for $\dot{V}O_2$ max performance between the three altitude groups. In the current study the endurance performance ability of the football players was tested using the Yo-Yo Intermittent Recovery Test Level 1 and $\dot{V}O_2$ max was used as the marker of endurance performance. The tests were conducted at different altitudes (low <1500m above sea level, moderate 1500 – 2000m above sea level, and high >2000m above sea level) without changing the altitudes where the players lived and trained. As studies (Hamlin et al., 2015; Wehrlin & Hallén, 2006; Kayser, 2005) reported endurance performance changes when athletes altered the altitudes. Thus, it was proposed that the lack of substantial changes in the $\dot{V}O_2$ max endurance marker between the three altitude groups might be attributed to the similarity of the test venues and it doesn't indicate any physiological/haematological marker similarity between the three study groups.

4.3.9 Anthropometric Profile of Players by Geographic Location of Development Setting

The anthropometric profile of players per geographical location of the youth development settings are reflected in the next table. The different settings are East (eastern part of Ethiopia), West (western part of Ethiopia), South (southern part of Ethiopia), and North (northern part of Ethiopia).

Table 4.13: Anthropometric Profile of Players per Geographical Locations (N=240)

Geographical locations		Age (yrs.)		Mass (kg)		Height (m)		BMI (kg/m^2)		BF %		LBM (kg)	
	N	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
East	60	15.71	0.87	57.38$^{*\#+}$	5.85	1.72$^{\#}$	0.07	19.59$^{*\#}$	2.01	15.57	3.07	48.39$^{*\#+}$	4.78
West	60	15.76	0.76	53.75	4.88	1.71$^{\wedge}$	0.06	18.54	1.92	15.60	3.10	45.30	3.79
South	60	15.61	0.91	53.00	5.47	1.68	0.06	18.77	1.92	14.99	2.49	45.01	4.45
North	60	15.05	0.89	57.75$^{=o}$	6.84	1.72^{o}	0.06	19.59$^{=o}$	1.91	15.94	2.95	48.56$^{=o}$	6.11
Total	240	15.53	0.90	55.47	6.14	1.70	0.06	19.12	1.99	15.53	2.91	46.82	5.11
p by ANOVA				p≤0.0001		p≤0.001		p≤0.005		p>0.05		p≤0.0001	

Significant (p≤0.05) ***East vs West; $^{\#}$East vs South; $^{+}$East vs North; $^{\wedge}$West vs South; $^{=}$West vs North; ^{O}South vs North**

The mean value of the group of players per geographical locations from east, west, south and north, respectively were as follows: body mass measures were 57.38 (5.85), 53.75 (4.88), 53.00 (5.47) and 57.75 (6.84) kg (p≤0.0001); height measures were 1.71 (0.07), 1.71 (0.06), 1.68 (0.06) and 1.72 (0.06) m (p≤0.05); BMI was 19.59 (2.01), 18.54 (1.92), 18.77 (1.92) and 19.59 (1.91) kg/m^2 (p≤0.05). BF % was 15.57 (3.07), 15.60 (3.10), 14.99 (2.49) and 15.94 (2.95). LBM were 48.39 (4.78), 45.30 (3.79), 45.01 (4.45) and 48.56 (6.11) kg (p≤0.0001) at east, west, south and north groups, respectively. When breaking the comparisons down, players from the eastern part of the country had significantly greater body mass than western players (p≤0.005); eastern players had significantly greater body mass than southern players (p≤0.0001), western players had significantly greater body mass than northern players (p≤0.001), and south players had significantly greater body mass than northern players (p≤0.0001). For standing height, eastern players had significantly taller than players in the southern teams (p≤0.05) and northern players had significantly taller than players in the southern teams (p≤0.05). For BMI, western players significantly better BMI eastern players (p≤0.05) and northern players significantly better BMI than western players (p≤0.05). For LBM, eastern players significantly greater LBM than western (p≤0.005), eastern players significantly greater LBM than southern players (p≤0.001), northern players

significantly greater LBM than western players ($p \leq 0.001$), northern players significantly greater LBM than southern players ($p \leq 0.0001$). No significant differences were observed for BF % ($p > 0.05$). In this investigation, an objective was to assess the anthropometric profile differences in players based on their geographical locations. In summary, as shown in the above table, compared to southern and western players, the eastern and northern players were significantly heavier. Compared to southern players, Eastern and northern players were significantly taller.

4.3.10 Physical Performance of Players per Geographic Location

The physical performance of players per geographical location of the youth development settings are presented in the next table. The different settings are East (eastern part of Ethiopia), West (western part of Ethiopia), South (southern part of Ethiopia), and North (northern part of Ethiopia).

The mean value of the group of players per geographical locations from east, west, south and north, respectively were as follows: 10m speed time was 2.09 (0.14), 2.18 (0.16), 2.14 (0.13) and 2.18 (0.29) sec and ($p \leq 0.05$); 20m speed time was 3.44 (0.27), 3.52 (0.18), 3.47 (0.16) and 3.62 (0.43) sec and ($p \leq 0.05$); 40m speed time was 5.91 (0.26), 6.16 (0.33), 5.94 (0.30) and 5.82 (0.26) sec and ($p \leq 0.0001$). Sit and reach flexibility test were 16.84 (12.25), 11.52 (5.04), 10.08 (5.55) and 13.30 (4.27) cm and ($p \leq 0.0001$). Vertical jump scores were 42.87 (7.14), 43.30 (6.52), 42.57 (6.52) and 42.93 (6.26) cm. The Illinois agility scores were 17.22 (1.08), 17.69 (0.74), 17.58 (0.74) and 17.33 (0.61) m and ($p \leq 0.05$). The $\dot{V}O_2$ max value was 48.65 (4.92), 50.44 (5.46), 52.21 (6.08) and 47.66 (3.92) ml/kg/min and ($p \leq 0.0001$) from east, west, south and north, respectively.

Table 4.14: Physical Performances of Players per Geographical Locations

Location		10m (s)		20m (s)		40m (s)		Flexibility (cm)		Power (cm)		Agility (s)		$\dot{V}O_2$ max (ml.kg/min)	
	N	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
East	60	2.09^{*+}	0.14	3.44^{+}	0.27	5.91^{*}	0.26	$16.84^{*\#+}$	12.25	42.87	7.14	17.22^{*}	1.08	48.65	4.92
West	60	2.18	0.16	$3.52^{=}$	0.18	6.16	0.33	$11.52^{=}$	5.04	43.30	6.52	17.69	0.74	$50.44^{*=}$	5.46
South	60	2.14	0.13	3.47	0.16	5.94	0.30	10.08	5.55	42.57	6.52	17.58	0.74	$52.21^{\#o}$	6.08
North	60	2.18	0.29	3.62	0.43	5.82^{T}	0.26	13.30^{o}	4.27	42.98	6.26	17.33	0.61	47.66	3.92
Total	240	2.15	0.19	3.51	0.29	5.96	0.31	12.94	7.86	42.93	6.58	17.45	0.83	49.74	5.42
p by ANOVA		$p \leq 0.05$		$p \leq 0.05$		$p \leq 0.0001$		$p \leq 0.0001$		$p > 0.05$		$p \leq 0.01$		$p \leq 0.0001$	

Significant ($p \leq 0.05$**) *East Vs West; $^{\#}$ East Vs South; $^{+}$East Vs North; ^{T}West Vs South; $^{=}$West Vs North; ^{O}South Vs North.**

When breaking the comparisons down according to the above table, for 10m speed, statistically significant differences were found between east and west ($p \leq 0.05$). For 20m speed the significant differences were found between east and north ($p \leq 0.005$), west and north ($p \leq 0.0001$) and south and north ($p \leq 0.05$). For 40m speed the significant differences were found between east and west ($p \leq 0.05$), west and south ($p \leq 0.0001$) and west and north ($p \leq 0.0001$). For sit and reach flexibility the significant differences were found between east and west ($p \leq 0.001$), east and south ($p \leq 0.0001$) and between east and north ($p \leq 0.05$). For $\dot{V}O_2$ max the significant differences were found between east and south ($p \leq 0.001$), west and north ($p \leq 0.05$) and south and north ($p \leq 0.0001$). No significant interaction was observed for power ($p > 0.05$).

Although significant different was observed between players from the east and west regions, players from eastern (2:09sec) performed better in the 10m speed test than western region (2.18sec). Regarding the 20m speed test, variations had been reported between the three groups although players from eastern region performed better (3.44sec).

One of the objectives of this study was to identify the anthropometric and physical performance differences of the players due to the geographical locations where they were born, live and train. To date no more published data are reported regarding football players' speed differences with respect to geographical location thus making it challenging to compare the results with previous works.

Some socio-demographic aspects of Ethiopia may provide perspective though on differences in anthropometry. For example, Ethiopia contains different ethnic groups with specific cultural identity with significant physical differences. These differences ethnic groups also reflect in anthropometric variables. The different also appear with socio economic status and life styles. The people living in the east part of Ethiopia were relatively dispersed, with a greater number of farmers. Their economic status was below the norm. In Ethiopia, animal product foods have been and remain more expensive than vegetables. Across the population, 85% live in rural areas, with agriculture being the main economic sources of the country (Diao & Pratt, 2007). The eastern youth players have scored better BMI and LBM result

than others. It is suggested that nutritional factors might have caused the differences in some of the anthropometric physical characteristics. Most of the Eastern peoples consume vegetables and fruits as main dishes. On the other side, in the south and western part of the country, most people eat animal products high in dietary fat, rather than vegetables and fruits (Kloos & Adugna, 1989).

However, for the consumption of this work, the anthropometric indices like height and lean body mass (Table 4.13) of the players might be taken as one of the contributing factor to score better speed performance by the eastern players. In addition to the anthropometric advantages, the contents of training as well as other factors like running technique and reaction time of the players might be the other proposed explanation for the better speed performance achievements of the players. To the best of the author's knowledge there is no sufficient evidence that strengthen the current findings as geographical distribution as the sole reason to have different speed performance between the study subjects.

Sit-and-reach test was the other physical marker used to assess the flexibility of lower back and hamstring muscle of the players. In this regard the findings of the current study revealed that the players from the eastern region outperformed the other regions. The sit–and-reach results of the eastern region players was in line with the 10 and 20m speed tests. All the above-mentioned reasons for the 10 and 20m speed tests might apply for better results of the players tested from the eastern part of the country.

The next table showed a correlation matrix comparing the relationship of variables in anthropometry and performance to each other.

Table 4.15: Correlation Matrix of Anthropometry and Performance Variables

	Height	**Body Mass**	**BMI**	**BF %**	**LBM**	**10m**	**20m**	**40m**	**Agility**	**Sit and Reach**	**Vertical Jump**	**$\dot{V}O_2$ max**
Height (m)	1.00											
Body Mass (kg)	0.40*	1.00										
BMI (kg/m^2)	0.03	0.77*	1.00									
BF%	0.04	0.24*	0.24*	1.00								
LBM (kg)	0.37*	0.95*	0.70*	-0.02	1.00							
10m sprint (sec.)	0.02	-0.11	-0.13*	-0.10	-0.08	1.00						
20m sprint (sec.)	-0.14*	-0.07	-0.09	-0.08	-0.17*	0.68*	1.00					
40m sprint (sec.)	-0.20*	-0.28*	-0.23*	-0.05	-0.24*	0.40*	0.58*	1.00				
Agility (sec.)	-0.26*	-0.31*	-0.12*	-0.04	-0.25*	0.38*	0.49*	0.56*	1.00			
Sit and reach (cm)	0.01	0.073	0.02	0.05	0.04	0.03	0.02	-0.01	0.09	1.00		
Vertical Jump (cm)	0.11	-0.01	-0.11*	-0.04	0.07	-0.14*	-0.17*	-0.20*	-0.34*	-0.05	1.00	
$\dot{V}O_2$ max (ml/kg/min) (YIRT1)	-0.12*	-0.02	0.11*	0.01	0.01	-0.08	-0.15*	-0.10	0.07	0.08	0.05	1.00

***p≤0.05**

4.4 RELATIONSHIP BETWEEN ANTHROPOMETRIC AND PHYSICAL PERFORMANCE

Significant correlation (r) relationships were found for BMI being positively ($p \leq 0.05$) related to BF % (0.24), LBM (0.70) and YIRT1 (0.11), and negatively related with speed over 10m and 40m, vertical jump and agility, respectively (0.13, 0.23, 0.11 and 0.11). Similarly, height was positively related with LBM (0.37) and negatively related with speed over 20m and 40m, agility and YIRT1, respectively (0.14, 0.20, 0.26 and 0.12). LBM was negatively related with 20m, 40m and agility respectively (0.17, 0.24, and 0.25).

In this investigation, an objective was to assess the relationship of variables in anthropometry and performance to each other. Coaches select young football players by their anthropometry profiles rather than their technical and tactical performances (Ong et al., 2009). The results of this study showed that BMI was negatively related to 10m and 40m speed. Height is negatively related to 20m and 40m speed and agility. This implies that the taller players were slower in their speed and less agile. LBM is negatively related to 10m, 20m and 40m speed and agility. The players with more LBM (little fat) were slower and less agile.

Regarding the correlation matrix, comparing the relationship of the variables anthropometry and performance is described with in Table 4.15. BMI and height were negatively related to speed and agility. This implies that the players with larger BMI were slower and less agile, and the taller players were slower and less agile. LBM was negatively related to 10m, 20m and 40m speed and agility. This implies that the players with more LBM (little fat) were slower and less agile. This is finding contrasts with expectations, as individuals who have more muscle mass with greater LBM tend to be faster and more agile. This holds true for adults (Waldron et al., 2014), but due to the growth and maturation process in youths under the age of 18 yrs., the bone mineralisation, muscle development and fat deposition are in a state of flux (Hammami et al.,2013). The participants for this study were under 17 years old and compared with other reference groups (table 4.4 and 4.6), had relatively low LBM (46.82kg) and high fat% (15.5%) means with some overweight players in the group (e.g. max body fat was 25% and the max BMI was 24.39). Thus, the general positive relationship

between LBM and speed, agility and power may be not as well-defined in this group of youth footballers and coaches need to be careful not to judge the potential physical proficiency and skill, based on anthropometric measures only.

4.5 QUESTIONNAIRE RESPONSES

Results from this data are discussed under the following three categories. Firstly, the opinion of the players, secondly the opinion of coaches, and thirdly the opinion of administrators related the practices of talent identification programs in Ethiopia, specifically for 13-17 years old youth football players, are presented. The following tables show the frequencies, percentage and significant differences of the players', coaches' and administrators' responses respectively, to each item per category.

4.5.1 Player Responses

There was a total of 240 respondents. Players responses considered overall and were grouped according to their talent identification and development setting (academy, club and EFF)

4.5.1.1 Knowledge and Experience of Players

The next table reflects the knowledge and experience of players (n=191) who had previous experience with respect to talent identification and development.

Table 4.16: Player's Knowledge and Experiences of Talent Identification Program

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
Sufficient information about TID	Disagree	25	36	p≤0.0001	16	33	p≤0.0001	26	36	p≤0.0001	67	35	p≤0.0001
	Neutral	5	7		0	0		1	1		6	3	
	Agree	40	57		32	67		46	63		118	62	
	Total	70	100		48	100		73	100		191	100.0	
Opportunity to part of TID	Disagree	13	18	p≤0.0001	10	21	p≤0.0001	20	27	p≤0.0001	43	23	p≤0.0001
	Neutral	4	6		0	0		2	3		6	4	
	Agree	53	76		38	79		51	70		142	74	
	Total	70	100		48	100		73	100		191	100.0	
Receiving proper training during TID	Disagree	13	19	p≤0.0001	13	27	p≤0.0001	30	41	p≤0.0001	56	29	p≤0.0001
	Neutral	3	4		1	2		3	4		7	4	
	Agree	54	77		34	71		40	55		128	67	
	Total	70	100		48	100		73	100		191	100.0	

p values by chi-square analysis

The player's responses overall for the question "I have enough information about talent identification program" was analysed and interpreted as follows: Disagree 67 (35.1%), Neutral 6 (3.1%) and Agree 118 (61.8%). Most of the players (62%; $p \leq 0.0001$) have information and knowledge about talent identification program and this was also the finding ($p \leq 0.0001$) for each TID setting. Most respondents (74%; $p \leq 0.0001$) have also experienced the opportunity or passed through talent identification program and this was also the case ($p \leq 0.0001$) for each TID setting. The same was true of most players overall (67%; $p \leq 0.0001$) also attending proper training program and across the TID settings ($p \leq 0.0001$).

An objective of this study was to assess players' knowledge and experience of the talent identification program. The literature by Miller (2009) has emphasized the importance of knowledge about talent. They have shown that a player can never have too much talent and that talent is crucial for a team to win. They added that talent selecting helps to confirm and consider the players in terms of where they are, where they are going and how long it takes to the next level. This study also deals with the players' knowledge and experience of the talent identification program. The result indicates that players have knowledge and experience about the talent identification program and most of them passed through it. Hyballa (2011) also confirmed that talent is a combination of natural ability, practising a skill and a dedicated winning attitude.

4.5.1.2 Family and Coaches' Support

The next table reflects the family and coaches' support for players (n=191) during the talent identification program with respect to talent identification program.

Table 4.17: Family and Coaches' Support

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
Family support in football in TID	Disagree	13	19	p≤0.0001	12	25	p≤0.0001	14	19	p≤0.0001	39	20	p≤0.0001
	Neutral	0	0		0	0		1	1		1	1	
	Agree	57	81		36	75		58	80		151	79	
	Total	70	100		48	100		73	100		191	100.0	
Coach's (tester) motivation during TID	Disagree	9	13	p≤0.0001	8	17	p≤0.0001	10	14	p≤0.0001	27	14	p≤0.0001
	Neutral	0	0		2	4		5	7		7	4	
	Agree	61	87		38	79		58	79		157	82	
	Total	70	100		48	100		73	100		191	100.0	

p values by chi-square analysis

The results, as shown in the second set of questions, aimed to know family and coacher's support of players to attend talent identification program. The players' responses overall for the question "My family support my involvement in the football talent identification program" were analysed and interpreted as follows: Disagree 39 (20.4%), Neutral 1 (0.5%) and Agree 151 (79.1%). Most of the players (79.1%; $p \leq 0.0001$) had support when they were a part of talent identification program and this was also the finding ($p \leq 0.0001$) for each TID setting.

For the second question "My coach or the tester motivates me during the implementation of talent identification program", responses were as follows: Disagree 27 (41.1%), Neutral 7 (3.7%) and Agree 157 (82.2%). Regarding to the respondents, most (82.2%; $p \leq 0.0001$) have also the opportunity coaches motivate the players during the talent identification program and this was also the case ($p \leq 0.0001$) for each TID setting.

An objective of this study was to assess the involvements of family and coaches in the process of players attending talent identification program. Further supporting the work of Ljac et al (2012), this shows that the demands of the modern sport have increased pressure on coaches to identify talented individuals at an early age. Morris (2000) questions the usefulness of coaches, and the literature that describes current strategies of national football organizations suggests that coaches and administrators must know the psychological aspects of talent identification process. This study has been able to demonstrate the importance of coaches and family for the process of talent identification program.

4.5.1.3 Rest, Water, Materials and Playing Fields

The next table reflects the proper utilization of rest, water, materials and fields (n=191) during the talent identification program with respect to talent identification program.

Table 4.18: Rest, Water, Materials and Playing Fields

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
Adequate rest and water during TID	Disagree	22	31	p≤0.0001	18	38	p≤0.05	30	41	p≤0.005	70	37	p≤0.0001
	Neutral	2	3		2	4		4	6		8	4	
	Agree	46	66		28	58		39	53		113	59	
	Total	70	100		48	100		73	100		191	100.0	
Convenient field to conduct TID	Disagree	10	14	p≤0.0001	9	19	p≤0.0001	18	25	p≤0.0001	37	19	p≤0.0001
	Neutral	6	9		1	2		4	5		11	6	
	Agree	54	77		38	79		51	70		143	75	
	Total	70	100		48	100		73	100		191	100.0	
Quality of test materials	Disagree	12	17	p≤0.0001	11	23	p≤0.0001	18	25	p≤0.0001	41	22	p≤0.0001
	Neutral	2	3		2	4		4	5		8	4	
	Agree	56	80		35	73		51	70		142	74	
	Total	70	100		48	100		73	100		191	100.0	

p values by chi-square analysis

The players' responses overall for the question "There is adequate rest and water during the test" were analysed and interpreted as follows: Disagree 70 (36.6%), Neutral 8 (4.2%) and Agree 113 (59.2%). More than half of the players (59.2%; $p \leq 0.0001$) said there was adequate rest and water during the talent identification program and this was also the finding ($p \leq 0.0001$) for each TID setting. For the second question "The field was convenient to conduct the tests", they responded as follows: Disagree 28 (14.7%), Neutral 5 (2.6%) and Agree 158 (82.7%). Most respondents (75%; $p \leq 0.0001$) have also said the field were adequate during talent identification program and this was also the case ($p \leq 0.0001$) for each TID setting. For the third question "The testing materials have quality", players responded: Disagree 41 (22%), Neutral 8 (4.2%) and Agree 162 (74.8%). Most respondents (74.8%; $p \leq 0.0001$), the materials have quality during talent identification program and across the TID settings ($p \leq 0.0001$).

The third set of questions aimed to know the proper implementation of rest, water, materials and fields during the talent identification program. Miah and Rich (2006) showed that there are many problems in Ethiopian sport and a major one is lacking sports facilities. Other researchers (Hailu.et al., 2016) suggest that tests need not even be used as a tool for talent identification to have an impact on the way in which abilities are recognized and celebrated within the sport. However, the findings of the current study do not support this finding. According to the present study, there were adequate testing materials, the fields that the tests used were convenient, and there was adequate drinking water.

4.5.1.4 The Test Batteries

The next table players reflect about the test batteries (n=191) who had previous experience with respect to talent identification program.

Table 4.19: Test Batteries

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
Tests were appropriate to evaluate performance	Disagree	6	8	p≤0.0001	8	17	p≤0.0001	7	9	p≤0.0001	21	11	p≤0.0001
	Neutral	4	6		1	2		2	3		7	4	
	Agree	60	86		39	81		64	88		163	85	
	Total	70	100		48	100		73	100		191	100	
Players satisfaction with the test batteries	Disagree	9	13	p≤0.0001	6	13	p≤0.0001	13	18	p≤0.0001	28	15	p≤0.0001
	Neutral	1	1		0	0		4	8		5	2	
	Agree	60	86		42	87		56	77		158	83	
	Total	70	100		48	100		73	100		191	100	

p values by chi-square analysis

The player's responses overall for the question "The tests are appropriate to evaluate or to identify my physical performance" were analysed and interpreted as follows: Disagree 37 (19.4%), Neutral 11 (5.8%) and Agree 143 (74.9%). Most of the players (85%; $p \leq 0.0001$) respond the tests were appropriate talent identification program and this was also the finding ($p \leq 0.0001$) for each TID setting. For the second question "I am interested in the test batteries that are organized by the coach or any other responsible one", they responded as follows: Disagree 28 (15%), Neutral 6 (3.1%) and Agree 158 (83%). Most of the respondents overall (83%; $p \leq 0.0001$), were interested in the test batteries and across the TID settings ($p \leq 0.0001$).

The fourth set of questions aimed to know about the test batteries. Hemati et al. (2013) found that step wise discriminates analyses showed that running speed and technical skills were the most important characteristics in U13 and U14 players, while cardiorespiratory endurance was more important for U15 and U16 players. Another researcher, Fidelix et al. (2014) also points out that technical and tactical aspects are extremely important for performance. This study also showed that the importance of test batteries for the talent identification program.

A different group of writers (Cooper et al., 2001; Ransone, 1996) also used anthropometric measurements and field tests. These were height, weight, body mass index (BMI) and body composition for anthropometric and one cardio vascular endurance or aerobic and six anaerobic performance tests: 10, 20, 40m speed tests, Illinois agility test, sit and reach for flexibility and standing vertical jump for power for field tests. In this study, most of the players were happy about the test batteries that they performed during the talent identification process.

4.5.2 Coaches' Responses

There was a total of 61 respondents. In this study, biographical data of coaches and coach's responses considered overall and were grouped according to their talent identification program setting (academy, club and EFF)

4.5.2.1 Coaches' Biographical Data

The next table reflects the biographical data of coaches (n=61).

Table 4.20: Coaches' Biographical Data

		n	%
Age range	<25	6	9.8
	26-35	21	34.4
	36-45	21	34.4
	46-55	7	11.5
	56-65	6	9.8
	Total	61	100.0
TID Setting / Source	Club	20	32.8
	Academy	15	24.6
	EFF	26	42.6
	Total	61	100.0
Level of Education	High school	11	18.03
	Diploma	16	26.23
	1st Degree	21	34.43
	2nd Degree	12	19.67
	3rd Degree	1	1.64
	Total	61	100
Coaching level	1st Level	12	19.7
	2nd Level	21	34.4
	CAF C Level	19	31.1
	CAF B Level	8	13.1
	CAF A Level	1	1.6
	Total	61	100.0

The respondents' biographical background will be discussed in terms of age, source, level of education and coaching level. Of the 61 respondents, 68% of the coaches are between 26-45yrs, 11% between 46-55yrs and the rest (20%) of them are below 25 and above 55%. The distribution of respondents according to their sources are as follows: of the 61 respondents, 42.6% came from EFF teams, 32.8% from clubs and 24.6% are from academies. Distributions of respondents according to their level of education: of the 61 respondents, 34.4% and 26.2% of them have a first degree and diploma respectively, 19.7% and 1.6% of them have second and third degrees respectively, and the rest (18%) have completed high

school. Most of the coaches (60%) are first degree and diploma holders. Distributions of respondents according their coaching level: of the 61 respondents, 34% and 31% of them have reached second level and CAF C coaching level respectively, 20% of them are reached at first level, 13% of the coaches have reached CAF B level and only one coach has reached CAF A Level. Most of the coaches (66%) have reached 2nd level and CAF C level.

4.5.2.2 Knowledge and Experiences of Coaches in the Talent Identification Program

The next table reflects the knowledge and experiences of coaches (n=61) who had previous experience with respect to talent identification program.

Table 4.21: Knowledge and Experiences of Coaches in the Talent Identification Program

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
Sufficient coaching courses	Disagree	7	35	p>0.05	5	33	p>0.05	8	31	p>0.05	20	33	p≤0.005
	Neutral	4	20		1	7		5	19		10	16	
	Agree	9	45		9	60		13	50		31	51	
	Total	20	100		15	100		26	100		61	100	
Sufficient knowledge of TID	Disagree	7	35	p>0.05	5	33	p>0.05	11	42	p>0.05	23	38	p>0.05
	Neutral	2	10		2	13		3	12		7	11	
	Agree	11	55		8	53		12	46		31	51	
	Total	20	100		15	100		26	100		61	100	
Attended different courses related to TID	Disagree	6	30	p>0.05	4	27	p>0.05	10	38	p>0.05	20	33	p≤0.001
	Neutral	3	15		3	20		3	12		9	15	
	Agree	11	55		8	53		13	50		32	52	
	Total	20	100		15	100		26	100		61	100	
Upgrading knowledge related to TID	Disagree	4	20	p>0.05	3	20	p≤0.05	6	23	p≤0.05	13	22	p≤0.0001
	Neutral	2	10		1	7		2	8		5	8	
	Agree	14	70		11	73		18	69		43	70	
	Total	20	100		15	100		26	100		61	100	

p values by chi-square analysis

Coaches responses overall for the first question “I have attended football coaching courses adequately”, coaches answered as follows: Disagree 20 (33%), and Agree 31 (51%). side, 45, 60 and 50% of club, academy and EFF respondents respectively, said that they had attended football coaching courses adequately. The significant majority of the coaches overall (51%; $p \leq 0.005$) have thus adequately attended football coaching courses, and this trend was also apparent across TID settings, but not significantly so ($p > 0.05$).

For the second question, “I have profound knowledge of talent identification”, coaches answered as follows: Disagree 23 (38%) and Agree 31 (51%). Although most of the coaches overall indicated have sufficient knowledge about talent identification program (51%; $p > 0.05$) this was not significantly so and was also the finding ($p > 0.05$) for each TID setting.

For the third question, “I have attended different courses that related to talent identification”, coaches answered as follows: Disagree 20 (33%) and Agree 32 (52%). The significant majority of the coaches overall (52%; $p \leq 0.001$) have thus attended different courses that relate to talent identification programs, and this trend was also apparent across TID settings, but not significantly so ($p > 0.05$).

The coaches’ responses overall for the last question, “I am always upgrading my coaching knowledge that relates to talent identification”, coaches answered as follows: Disagree 13 (22%) and Agree 43 (70%). The significant majority of the coaches overall (70 %; $p \leq 0.0001$) were upgrading their coaching knowledge that relates to talent identification program and this trend was also the case ($p \leq 0.05$) for each TID setting, but not significantly so in the club setting.

The first set of questions aimed to know the knowledge and experiences of coaches in the talent identification program. This is in support of Robinson (2010), who says that whether we like it or not we must follow the scientific way of talent identification program. It has been suggested that what underlines excellent scouting is not only watching a player in the game with different criteria. (FIFA manual, 2002). Although, these results are similar to ome published studies (Vrljic & Mallett, 2008), they are consistent with those that show that

knowledge and experience of football coaches in talent identification is preferred to more scientifically based methods. These results confirm the importance of knowledge and experience for the coaches to identify talented players. Most of the coaches also have knowledge and experiences about the talent identification process.

4.5.2.3 The Problems and Solutions Raised by Coaches for Talent Identification Program

The next table reflects the problems and solutions raised by coaches (n=61) who had previous experience with respect to talent identification program.

Table 4.22: The Problems and Solutions Raised by Coaches for Talent Identification Program

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
Coaching courses that incorporate TID as apart	Disagree	5	25	p≤0.05	2	13	p>0.05	5	19	p>0.05	12	19	p≤0.0001
	Neutral	3	15		3	20		3	12		9	15	
	Agree	12	60		10	67		18	69		40	66	
	Total	20	100		15	100		26	100		61	100	
In coaching football, TIP must be incorporate	Disagree	2	10	p≤0.05	3	20	p≤0.05	2	7	p≤0.05	7	11	p≤0.0001
	Neutral	2	10		2	13		3	12		7	11	
	Agree	16	80		10	67		21	81		47	77	
	Total	20	100		15	100		26	100		61	100	
Players were motivated during TIP	Disagree	2	10	p≤0.005	3	20	p>0.05	5	19	p≤0.05	10	16	p≤0.0001
	Neutral	4	20		3	20		2	8		9	15	
	Agree	14	70		9	60		19	73		42	69	
	Total	20	100		15	100		26	100		61	100	
Teams evaluate level of players performances	Disagree	2	10	p≤0.05	2	13	p>0.05	1	4	p≤0.001	5	8	p≤0.0001
	Neutral	2	10		1	7		3	11		6	10	
	Agree	16	80		12	80		22	85		50	82	
	Total	20	100		15	100		26	100		61	100	
Lack of TIP is affect players performances	Disagree	0	0	p≤0.0001	0	0	p≤0.0001	0	0	p≤0.0001	0	0	p≤0.0001
	Neutral	2	10		1	7		3	12		6	10	
	Agree	18	90		14	93		23	88		55	90	
	Total	20	100		15	100		26	100		61	100	

p values by chi-square analysis

Coaches responses overall for the first question, “When I took different coaching courses, the courses incorporated talent identification as a part” coaches answered as follows: Disagree 12 (19%) and Agree 40 (66%). On the other side, 60, 67 and 69% of club, academy and EFF respondents respectively, said that talent identification was a part of the course or coaching program. The significant majority of the coaches overall (66%; $p \leq 0.0001$) have thus indicated talent identification was a part of the course or coaching program and this trend was also the case ($p \leq 0.05$) for club TID setting, but not significantly so in the academy and EFF setting

For the second question, “In the process of coaching football, talent identification program must be incorporated”, coaches answered as follows: Disagree 7 (11%), and Agree 47 (77%). The significant majority of the coaches overall (77%; $p \leq 0.0001$) believe that, in the process of coaching football, a talent identification program must be incorporated and this was also the finding ($p \leq 0.05$) for each TID setting.

For the third question, “When I conducted the tests, the players were highly motivated”, coaches answered as follows: Disagree 10 (16%) and Agree 42 (69%). The significant majority of the coaches overall (69%; $p \leq 0.0001$) indicated players were motivated during TIP and this trend was also the case ($p \leq 0.05$) for each TID setting, but not significantly so in the academy setting.

For the fourth question, “I believe that my club/ team/ academy set programs to evaluate the present level of the physical performances of the players”, coaches answered as follows: Disagree 5 (8%) and Agree 50 (82%). The significant majority of the coaches overall (82%; $p \leq 0.0001$) were of the opinion that the teams do evaluate the physical performances of the players and this trend was also the case for club ($p \leq 0.05$) and EFF ($p \leq 0.001$) TID settings respectively, but not significantly so in the academy setting.

For the last question, “The lack of talent identification program is a major problem that affects the development of physical performance of players”, coaches answered as follows: Disagree 0 (0%) and Agree 55 (90%). The significant majority of the coaches overall (90%;

p≤0.0001) have believed that lack of talent identification program was a major problem that affects the development of physical performance of players and this was also the finding (p≤0.0001) for each TID setting.

The second set of questions aimed to know the problems and solutions of talent identification program. Hyballa (2011) emphasizes that the complexity of the criteria and the talent identification of football is always dependent upon the social, physical and mental aspects. Football federations and clubs must develop guidebooks for talent identification and coaching of players to their performance level. Regarding how to identify talent, Sæther (2014) suggested that using football population and geographical location is a better way to implement the talent identification program. On the other hand, Vaeyens et al. (2006) also showed that football talent identification is complex and different methods are suitable.

The results of this study indicate that lack of talent identification program was a major problem that affected the development of physical performance of players. To implement the talent identification program, it must be incorporated in the coaching curriculum, also the players must be motivated and interested in the tests.

4.5.2.4 Coaches' Responses about Work or Implementations for Talent Identification Program

The next table reflects the third set of coaches' (n=61) who have responses about work or implementations of talent identification program.

Table 4.23: Coaches' Responses about Work or Implementations for Talent Identification Program

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
Prepare regular coaching plan	Disagree	1	5	p≤0.001	1	7	p≤0.05	2	8	p≤0.0001	4	7	p≤0.0001
	Neutral	2	10		1	6		1	4		4	6	
	Agree	17	85		13	87		23	88		53	87	
	Total	20	100		15	100		26	100		61	100	
Making annual plan include TIP	Disagree	2	10	p≤0.01	1	7	p≤0.05	5	19	p≤0.005	8	13	p≤0.0001
	Neutral	7	35		5	33		9	35		21	34	
	Agree	11	55		9	60		12	46		32	52	
	Total	20	100		15	100		26	100		61	100	
Follow the process of TIP during players selection	Disagree	2	10	p>0.05	2	13	p>0.05	2	8	p≤0.01	6	10	p≤0.0001
	Neutral	3	15		3	20		4	15		10	16	
	Agree	15	75		10	67		20	77		45	74	
	Total	20	100		15	100		26	100		61	100	
Follow the guideline during the TIP	Disagree	2	10	p≤0.05	1	7	p≤0.05	4	15	p≤0.005	7	11	p≤0.0001
	Neutral	4	20		4	26		4	16		12	20	
	Agree	14	70		10	67		18	69		42	69	
	Total	20	100		15	100		26	100		61	100	

p values by chi-square analysis

Coaches responses overall for the first question “I have done a coaching plan always”, coaches answered as follows: Disagree 4 (7%), and Agree 53 (87%). On the other side, 85, 87 and 88% of club, academy and EFF respondents respectively, have done a regular coaching plan. The significant majority of the coaches overall (87%; $p \leq 0.0001$) have done a regular coaching plan, and this was also the finding ($p \leq 0.05$) for each TID setting.

For the second question, “In my experience, when I prepare annual training plan, I include talent identification program”, coaches answered as follows: Disagree 8 (13%), and Agree 32 (52%). The significant majority of the coaches overall (52%; $p \leq 0.0001$) have included the talent identification program when they draft annual training plan and this was also the finding ($p \leq 0.05$) for each TID setting.

The coaches’ responses the third question, “As a coach, I follow talent identification processes when I select the players”, coaches answered as follows: Disagree 6 (10%) and Agree 45 (74%). The significant majority of the coaches overall (74%; $p \leq 0.0001$) were have followed the talent identification processes when they select players and this trend was also the case ($p \leq 0.05$) for EFF TID setting, but not significantly so in the club and academy setting

For the last question, “I always follow the manual to identify player’s talent”, coaches answered as follows: Disagree 6 (10%) and Agree 45 (74%). The significant majority of the coaches overall (74%; $p \leq 0.0001$) followed the guideline during the talent identification processes and this was also the finding ($p \leq 0.05$) for each TID setting.

The third set of questions aimed to know work or implementations of talent identification program. Robinson (2010), published his major historical survey indicating talent identification was implemented during the 1960s and 1970s in Soviet Bloc countries and Eastern European countries formed scientific methods to identify players who had potential to be elite. In another study conducted by Abbott and Collins (2010), it was shown that an effective TI system is an essential precursor to TD as it will directly support those individuals who have the greatest potential to achieve senior international success in the sport. The

results of this study indicate that the coaches know the value of talent identification program and most of them are implementing accordingly. Theobald and Cooper (2005) say that, "Before you even think about picking your best team, you have to assemble a talent pool from which to select and that is where the challenging work begins."

4.5.2.5 Coaches' Responses about Materials and Equipment's for the Talent Identification Program

The next table reflects about the materials and equipment's of coaches (n=61) who had previous experience with respect to talent identification program.

Table 4.24: Coaches' Responses about Materials and Equipment's for the Talent Identification Program

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
Coaching manual includes appropriate measurements	Disagree	7	35	p≤0.001	5	33	p>0.05	10	38	p≤0.05	22	36	p≤0.0001
	Neutral	3	15		3	20		3	12		9	15	
	Agree	10	50		7	47		13	50		30	49	
	Total	20	100		15	100		26	100		61	100	
Test materials were appropriate	Disagree	5	25	p>0.05	4	27	p>0.05	7	27	p≤0.05	16	26	p≤0.0001
	Neutral	5	25		4	26		7	27		16	26	
	Agree	10	50		7	47		12	46		29	48	
	Total	20	100		15	100		26	100		61	100	
EFF provide an appropriate training in TIP	Disagree	8	40	p>0.05	7	47	p>0.05	10	38	p>0.05	25	41	p≤0.001
	Neutral	5	25		5	33		6	24		16	26	
	Agree	7	35		3	20		10	38		20	33	
	Total	20	100		15	100		26	100		61	100	

p values by chi-square analysis

The coaches' responses overall for the first question, "The coaching manual contains appropriate measurement tools", coaches answered as follows: Disagree 22 (36%) and Agree 30 (49%). The significant majority of the coaches overall (49%; $p \leq 0.0001$) believed that there was enough material and equipment for the talent identification program and this trend was also the case for club ($p \leq 0.001$) and EFF ($p \leq 0.05$) TID setting respectively, but not significantly so in the academy setting.

The coaches' responses overall for the second question, "The testing materials that I used are appropriate", coaches answered as follows: Disagree 16 (26%) and Agree 29 (48%). The significant majority of the coaches overall (48%; $p \leq 0.0001$) believed that the testing materials that they used were appropriate for the talent identification program and this trend was also the case for EFF ($p \leq 0.05$) TID setting, but not significantly so in the club and academy setting.

The coaches' responses overall for the last question, "The EFF provides appropriate training in the talent identification program for the coaches", was as follows: Disagree 25 (41%), Neutral 16 (26%) and Agree 20 (33%). The significant majority of the coaches overall (41%; $p \leq 0.0001$) have thus not adequately attended appropriate training in TIP, and this trend was also apparent across TID settings, but not significantly so ($p > 0.05$). Where an equal proportion (38%) were in the EFF response.

The fourth set of questions sought the coaches' response about the materials and equipment for the talent identification program. The study by Hailu et al. (2016), suggests that there are many problems in Ethiopian sport and the major ones are the lack of sports facilities, manuals and skilled manpower. Reilly et al. (2000) stress the importance of finance to promote talented players from the youth to the senior team. The results of this study indicate that the EFF did not provide appropriate training in the talent identification program for the coaches**.** On the side of the test materials, the research findings are that there are available test materials and equipment during the tests.

4.5.3 Administrators Responses

There was a total of 61 respondents. Administrators Players responses considered overall and were grouped according to their talent identification program setting (academy, club and EFF)

4.5.3.1 Knowledge and Experiences of Administrators about the Talent Identification Program

The next table reflects the knowledge and experiences of administrators (n=61) who had previous experience with respect to talent identification program.

Table 4.25: Knowledge and Experiences of Administrators about the Talent Identification Program

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
Sufficient knowledge about TIP	Disagree	3	15	p≤0.005	3	20	p>0.05	0	0	p≤0.0001	6	10	p≤0.0001
	Neutral	3	15		3	20		5	19		11	18	
	Agree	14	70		9	60		21	81		44	72	
	Total	20	100		15	100		26	100		61	100	
EFF upgrade coaches in relation with TIP	Disagree	20	100	p≤0.0001	15	100	p≤0.0001	26	100	p≤0.0001	61	100	p≤0.0001
	Neutral	0	0		0	0		0	0		0	0	
	Agree	0	0		0	0		0	0		0	0	
	Total	20	100		15	100		26	100		61	100	
Teams coaches in regarding to TIP	Disagree	16	80	p≤0.05	12	80	p>0.05	18	69	p≤0.05	46	75	p≤0.0001
	Neutral	4	20		2	13		6	23		12	20	
	Agree	0	0		1	7		2	8		3	5	
	Total	20	100		15	100		26	100		61	100	

p values by chi-square analysis

The results of the first set of administrator's responses are given about their knowledge and experiences of talent identification. Their responses overall for the first question, "I do have knowledge about talent identification program", were answered as follows: Disagree 6 (10%), and Agree 44 (72%). The significant majority of the administrators overall (72%; $p \leq 0.0001$) thus have information and knowledge about talent identification program and this was also the finding for EFF ($p \leq 0.0001$) and club ($p \leq 0.005$) respectively, but not significantly so for the academy TID setting ($p > 0.05$), where a large proportion (20%) were unsure.

Their responses overall for the second question, "The EFF facilitates upgrading courses for the coaches in relation to talent identification", were answered as follows: Disagree 61(100%), and Agree 0 (0%). All the administrators overall (100%; $p \leq 0.0001$) thus do not believe that the EFF upgrade coaches in relation to talent identification program and this was also the finding ($p \leq 0.0001$) for each TID setting.

Administrator's responses overall for the third question, "My club/ team/ academy offers/ facilitates a refreshment courses for the coaches regarding talent identification program", were answered as follows: Disagree 46 (75%) and Agree 3 (5%). The significant majority of the administrators overall (75%; $p \leq 0.0001$) thus indicated that their team administrators did not facilitate a course for talent identification program and this trend was also the case ($p \leq 0.05$) for each TID setting, but not significantly so in the academy setting, where a large proportion (13%) were unsure.

The first set of questions aimed to know the administrator's knowledge and experiences of talent identification program. It has been suggested that Robinson (2010), that whether we like it or not we must follow the scientific way of talent identification program. It has been suggested that what underlines excellent scouting is not only watching a player in the game with different criteria (FIFA manual, 2002). Although, these results are similar to some published studies (Vrljic & Mallett, 2008), they are consistent with those that show that knowledge and experience of football coaches for talent identification are preferred to more scientifically based methods. These results confirm the importance of knowledge and

experience to identify talented players. Most administrators also have knowledge and experiences of the talent identification process. On the other hand, almost all respondents agree that the EFF did not organize a course that helps the talent identification program.

4.5.3.2 Problems and Solutions Raised by Administrators for Talent Identification Program

The next table reflects the problems and solutions raised by administrators (n=61) who had previous experience with respect to talent identification program.

Table 4.26: Problems and Solutions Raised by Administrators for Talent Identification Program

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
TIP is major factors affect players performance	Disagree	7	35	p≤0.0001	2	13	p≤0.0001	8	31	p≤0.0001	17	28	p≤0.0001
	Neutral	10	50		9	60		13	50		32	52	
	Agree	3	15		4	27		5	19		12	20	
	Total	20	100		15	100		26	100		61	100	
TIP is important to my team	Disagree	1	5	p≤0.0001	0	0	p≤0.0001	0	0	p≤0.0001	1	2	p≤0.0001
	Neutral	0	0		0	0		0	0		0	0	
	Agree	19	95		15	100		26	100		60	98	
	Total	20	100		15	100		26	100		61	100	
Players were motivated TIP.	Disagree	10	50	p≤0.05	6	40	p>0.05	11	42	p≤0.05	27	44	p≤0.0001
	Neutral	2	10		3	20		5	19		10	17	
	Agree	8	40		6	40		10	39		24	39	
	Total	20	100		15	100		26	100		61	100	

p values by chi-square analysis

The results of the second set of administrator's responses are given about Problems and Solutions Raised by Administrators for Talent Identification Program. Their responses overall for the first question, "Talent identification program is the major factors that affect player's performances", were answered as follows: Disagree 17 (28%), Neutral 32 (52%) and Agree 12 (20%). The significant majority of the administrators overall (28%; $p \leq 0.0001$) thus have lack of talent identification program was not a major problem that affect the performance of players and this was also the finding ($p \leq 0.0001$) for each TID setting. Where a large proportion (52%) (50, 60, 50 and 52% of club, academy, EFF and overall respondents respectively), were unsure.

Administrators responses overall for the second question, "Acceptable talent identification program was important to my team", were answered as follows: Disagree 1 (2%), and Agree 60 (98%). The significant majority of the administrators overall (98%; $p \leq 0.0001$) thus have agreed that talent identification program was important and this was also the finding ($p \leq 0.0001$) for each TID setting.

Administrator's responses overall for the third question, "During my team conduct talent identification process, the players were motivated", were answered as follows: Disagree 22 (44%) and Agree 24 (39%). The significant majority of the administrators overall (44%; $p \leq 0.0001$) thus have indicated that the players were not well motivated during the tests and this trend was also the case ($p \leq 0.05$) for each TID setting, but not significantly so in the academy setting, where a large proportion (17%) were unsure.

The second set of questions aimed to know the problems and solutions for talent identification program. Hyballa (2011) emphasizes that the complexity of the criteria and the talent identification of football was always dependent upon the social, physical and mental aspects and that football federations and clubs must develop guidebooks for talent identification and coaching of players to their performance level. Regarding how to identify talent Sæther (2014) suggested using football population and geographical location. O'Connor et al. (2016) and Vaeyens et al. (2006) argued that young football players must be measured throughout the process rather than just their outcomes to predict their long-term

potential. They also showed that football talent identification was complex and different methods were suitable.

4.5.3.3 Administrators' Responses about Work or Implementations for Talent Identification Program

The next table reflects the work or implementations of talent identification program (n=61) who had previous experience with respect to talent identification program.

Table 4.27: Administrators' Responses about Work or Implementations for Talent Identification Program

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
TIP was implemented in my team	Disagree	11	55	p≤0.01	9	60	p≤0.05	16	62	p≤0.0001	36	59	p≤0.0001
	Neutral	6	30		4	27		6	23		16	26	
	Agree	3	15		2	13		4	15		9	15	
	Total	20	100		15	100		26	100		61	100	
EFF supervises the implementation of TIP	Disagree	20	100	p≤0.0001	15	100	p≤0.0001	26	100	p≤0.0001	61	100	p≤0.0001
	Neutral	0	0		0	0		0	0		0	0	
	Agree	0	0		0	0		0	0		0	0	
	Total	20	100		15	100		26	100		61	100	
Teams evaluate the performances of players	Disagree	8	40	p≤0.0001	5	33	p≤0.005	9	35	p≤0.0001	22	36	p≤0.0001
	Neutral	7	35		6	40		10	38		23	38	
	Agree	5	25		4	27		7	27		16	26	
	Total	20	100		15	100		26	100		61	100	
EFF work jointly with my teams to TIP	Disagree	19	95	p≤0.0001	20	100	p≤0.0001	26	100	p≤0.0001	60	98	p≤0.0001
	Neutral	0	0		0	0		0	0		0	0	
	Agree	1	5		0	0		0	0		1	2	
	Total	20	100		15	100		26	100		61	100	

p values by chi-square analysis

The results of the third set of administrator's responses are given about work or implementations for talent identification program. Their responses overall for the first question, "There was a talent identification program in my team", were answered as follows: Disagree 36 (59%), and Agree 9 (15%). The significant majority of the administrators overall (59%; $p \leq 0.0001$) thus have indicated there was no talent identification program and this was also the finding for club ($p \leq 0.01$), academy ($p \leq 0.05$) and EFF ($p \leq 0.0001$) TID setting respectively

Administrators responses overall for the second question, "The EFF expertise supervises my team regarding the implementation of talent identification program", were answered as follows: Disagree 61 (100%), and Agree 0 (0%). Administrators overall (100%; $p \leq 0.0001$) thus have mentioned that EFF expertise never supervised a TID and this was also the finding ($p \leq 0.0001$) for each TID setting.

Administrator's responses overall for the third question, "I believe that my club/team/academy scheduled to evaluate the present level of the physical performances of the players", were answered as follows: Disagree 22 (36%) Neutral 23 (38%) and Agree 16 (26%). The significant majority of the administrators overall (36%; $p \leq 0.0001$) thus have mentioned that they did not evaluate the present level of the physical performances of the players and this was also the finding for club ($p \leq 0.0001$), academy ($p \leq 0.005$) and EFF ($p \leq 0.0001$) TID setting respectively. Where a large proportion (38%) were unsure.

Administrators responses overall for the last question, "The EFF work jointly with my teams to TIP", were answered as follows: Disagree 60 (98%), and Agree 1 (2%). The significant majority of the administrators overall (100%; $p \leq 0.0001$) thus have mentioned that EFF did not work jointly with the teams for talent identification program and this was also the finding ($p \leq 0.0001$) for each TID setting.

The third set of questions aimed to know the work or implementations of talent identification program. In the study conducted by Abbott and Collins (2010) it was shown that an effective TI system was an essential precursor to TD as it will directly support those individuals who

have the greatest potential to achieve senior international success in the sport. This group of researchers also indicate that sport administrators' emphasis on the capacity of an individual to develop to performance levels at the time of testing. Given appropriate support, the key determinants of the capacity that an individual must know the value of talent identification program.

4.5.3.4 Administrators' Responses about Materials and Equipment's for the Talent Identification Program

The next table reflects the materials and equipment for the talent identification program by administrators (n=61) who had previous experience with respect to talent identification program.

Table 4.28: Administrators' Responses about Materials and Identifiers for the Talent Identification Program

		Club			Academy			EFF			Overall		
Question		**n**	**%**	**p-value**	**n**	**%**	**p-value**	**n**	**%**	**p-value**	**N**	**%**	**p-value**
Clubs, teams and academies have talent identifiers	Disagree	20	100	p≤0.0001	15	100	p≤0.0001	26	100	p≤0.0001	61	100	p≤0.0001
	Neutral	0	0		0	0		0	0		0	0	
	Agree	0	0		0	0		0	0		0	0	
	Total	20	100		15	100		26	100		61	100	
Clubs, teams and academies have test materials for TIP	Disagree	18	90	p≤0.0001	13	87	p≤0.0001	23	89	p≤0.0001	54	88	p≤0.0001
	Neutral	2	10		2	13		3	11		7	12	
	Agree	0	0		0	0		0	0		0	0	
	Total	20	100		15	100		26	100		61	100	
Coaches must be responsible for TIP	Disagree	0	0	p≤0.0001	0	0	p≤0.0001	0	0	p≤0.0001	0	0	p≤0.0001
	Neutral	0	0		0	0		0	0		0	0	
	Agree	20	100		15	100		26	100		61	100	
	Total	20	100		15	100		26	100		61	100	

p values by chi-square analysis

The results of the fourth set of administrator's responses are given about materials and identifiers for the talent identification program. Administrators responses overall for the first question, "My club/ team/ academy has adequate talent identifiers", were answered as follows: Disagree 61 (100%), and Agree 0 (0%). Administrators overall (100%; $p \leq 0.0001$) thus have indicated that there were no talent identifiers and this was also the finding ($p \leq 0.0001$) for each TID setting.

Administrators responses overall for the second question, "My club/ team/ academy had adequate test materials for talent identification", were answered as follows: Disagree 54 (88%), and Agree 0 (0%). The significant majority of the administrators overall (88%; $p \leq 0.0001$) thus have indicated that there were not adequate materials for talent identification program and this was also the finding ($p \leq 0.0001$) for each TID setting.

Administrators responses overall for the last question, "The coaches must be a responsible for talent identification program on the club/ team/ academy", were answered as follows: Disagree 0 (0%) and Agree 61 (100%). Administrators overall (100%; $p \leq 0.0001$) thus believed that the coaches must be responsible for talent identification and this was also the finding ($p \leq 0.0001$) for each TID setting.

The fourth set of questions aimed to know the manpower and materials_for the talent identification program. The study by Unnithan et al. (2012) underlines the importance of coaches for talent identification program. Hailu et al. (2016) and Reilly et al. (2000) also suggest that there are many problems in Ethiopian sport and the major ones are the lack of sports facilities, manuals and skilled manpower. They also stress the importance of finance to promote talented players from the youth to the senior team. The results of this study indicate that the coach is the most important for talent identification and then the materials and other ingredients. The clubs did not provide appropriate material for the talent identification program. About the test materials, the research findings are that there are no available test materials and equipment during the tests. The result also indicated that coaches have a major responsibility for the talent identification program.

4.6 QUALITATIVE ANALYSIS

Qualitative analysis of open-ended responses to questionnaire completed by administrators (n=61) discovered three themes representing characteristics of the talent identification program (TIP) in Ethiopia. The thematic results as reflected in figure 4.1 and 4.2, are presented in the following order: (a) Problems, (b) Solutions and (c) Suggestions. The first section of the results is about problems that challenge or affect the TIP. The second section provides solutions which they took during the TIP. The last section gives administrators' suggestions or recommendations for a better way to implement the TIP in Ethiopia.

Figure 4.1: Thematic Qualitative Analysis Collage

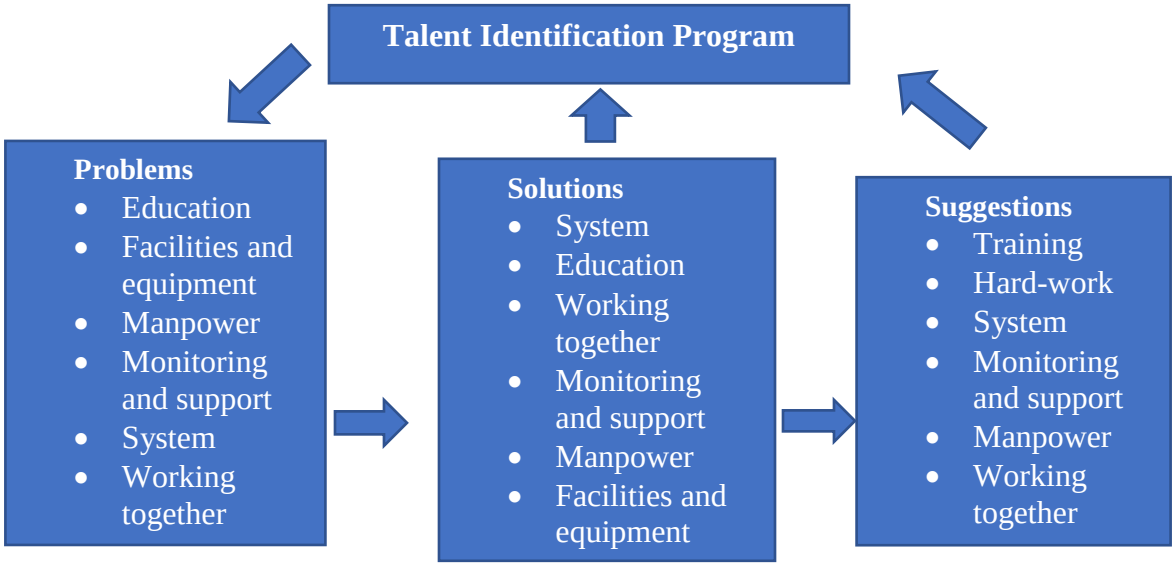

Figure 4.2: Themes Representing Characteristics of the Talent Identification Program

4.6.1 Problems

Administrators answered the following question. “In your opinion, what are the major factors that affect to implement the TIP in Ethiopia?’ Six specific areas of interest were identified by the administrators. These areas were related to their own administrative experiences. The areas as reflected in figure 4.2, are education, facilities and equipment, manpower, monitoring and support, system and working in collaboration. Themes and meaning units were developed in each area. These are shown as nodes in figure 4.3 and that frequency is depicted in figure 4.4.

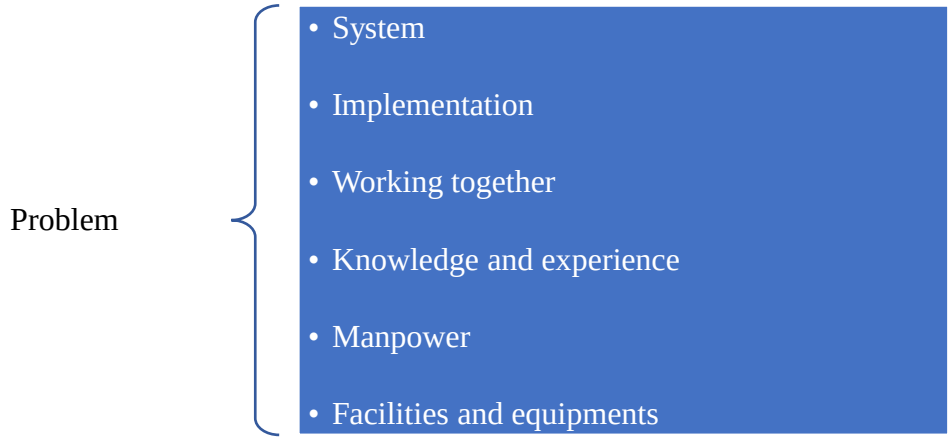

Figure 4.3: Nodes Identified by Quantitative Analysis for Problems in the Talent Identification Program

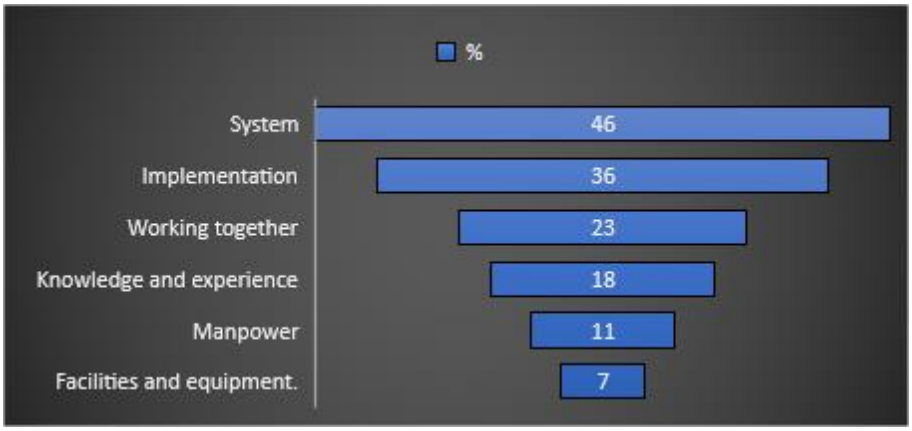

Figure 4.4: Frequency of Problems Affecting the Talent Identification Program

4.6.1.1 System

The most frequently cited characteristic n=28(46%). Administrators mentioned throughout the questions that the system for the TIP was working for the overall players' development but that football in Ethiopia, specifically the TIP, does not have a well-established system. They pointed out some aspects of the system to add additional improvements.

> *There has been no kind of selecting or recruiting yardstick.... Our club …do not have a means to identify players having talent. The coaches do not have adequate and much competition for the teenagers and the youth. The trainings organized by the EFF are not well organized … The responsible bodies are not organized.... Our clubs do not have a means to identify players having talent. Most of the club's work only youth around the age of 17 and 20 years. The process in which we have recruited players so far is improperly. A process of identifying and recruiting youth in different age ranges into our club and it is not scientific. … The means to select players only by observation. No TIP in our country. The system is not suitable to identify … Most of the Ethiopian clubs are government owned. No organized recruitment criteria… In Ethiopia, there is the recruitment, but the means of the recruitment is not scientific. The committee select players by vote … Most of committees around Football are working on tournaments rather than youth development. Most of the age of the youth are not in the correct age. Organizational problems. There are no youth programs. There are no wider youth matches. They don't have the procedure. There has not been a curriculum. We expect only winning results from the youth… The leaders expect cup for their club from under 17 years young players. Budget problem. The federation shall intervene to correct the procedure and give directions. TID program is not offered independently....*

4.6.1.2 Implementation

Another important characteristic of the problem theme was the category of challenges for implementation. Implementation was viewed as a fundamental problem in the TIP n=22 (36%) of administrators in this study. The administrators indicated that they had a high degree of implementation problems around football coaching. Especially in football talent

identification practice, administrators could understand this implementation problems as they saw it in actual practices.

> *From the federation lack of monitoring and support has been observed. No work has been undertaken identifying on the bases of tests. The EFF do not work on the youth…There is some activities but it is not feasible …The federation doesn't undertake special work … Sport Commission did nothing about TIP. There is a start TID program but it is not at the required level. The EFF done nothing to the clubs enabling them to … Good programs and good youths are not enough, if there are implementation gaps. The federation focuses on conducting tournaments in different divisions rather than … Responsible bodies like EFF, Sort commission, Clubs are nothing has been done about TID. The clubs are not working on the TIP. There has not been any work undertaken in this area … The coaches do not know that much time shall be given to the football …TID is not being implemented in the country. When the youth enrolled from the clubs and regions, no scientific TIP has been implemented … The federation emphasizing on the tournaments rather than works on the youth. The EFF emphasizes on tournaments instead of emphasizing on development/empowerment of players. The federation only emphasizing on tournaments. Who are working on the youth undertake the work with certificates not exceeding one or two weeks training … The EFF have done nothing in TIP. TIP is not incorporated in the curriculum …*

4.6.1.3 Working Collaboration

Another aspect that affects the TIP was lack of working collaboration. From the total respondents, 14 (23%) of them pointed out that lack of working collaboration was also the problem. Administrators mentioned the lack of team-work that they observed. Administrators understood their deficits to implement the TIP. Most coaches in Ethiopia do every activity including the TIP alone. They mentioned that football is a team sport. We do nothing alone. The coaches must work cooperatively.

> *The EFF does not have a relation with the clubs … in TIP. The EFF, Sport Commission and Universities are not undertaking … joint work ... The EFF, Sport Commission and Universities are not working together … to identify the talent of the children. There is*

no work that such three organizations (The EFF, Sport Commission and Universities) are working together or jointly. The EFF, Sport Commission and Universities are not working jointly. There are no relationships between Football federation, University and Sport commission. Sport Commission has not been successful while working with the schools. The Sport Commission and the federation haven't done anything regarding the TIP. University, Federation, club and academy have been nothing that they worked jointly. Lack of monitoring and support has been observed... There have been no good relationships within EFF, Sport Commission, Universities and Clubs.

4.6.1.4 Knowledge and Experience

From the number of administrators, 11 (18%) said that scarcity of knowledge and experience affected the TIP. The administrators indicated that they had a problem of educated people around football coaching, especially in football talent identification. They had control over what drills they were running at practice. Administrators observed the following challenges and obstacles in actual practices.

Most of the coaches doesn't have the idea to implement the TID. The committee recruit players not on the bases of scientific… TID done on the bases of observation. The practical activities of the physical education courses offered in the schools, such activities do not have full-fledged… lack of knowledge of the leaders…The federation didn't create a forum for the youth … Limitation of knowledge for the area … Capacity problem of coaches. Lack of knowledge. EFF, clubs and the academy don't know about the importance of TIP. The coaches luck the knowledge and the skill of TIP. TIP has not been incorporated in the curriculum.

4.6.1.5 Manpower

From the results, 7 (11%) of respondents pointed out that shortage of skilled manpower was also a problem during the TIP. Administrators pointed out the problems or the shortage of manpower to implement the TIP. Manpower was better accumulated in the academy than in club or EFF football teams, because academies have more highly trained coaches than club

coaches and they have an individual development philosophy, whereas, football clubs emphasize team wins, rather than individual skill improvements.

> *In our country, the coaches are in difficulties owing to the high degree of the responsibilities ... The EFF doesn't make expertise support to the clubs. In our country, there is lack of responsibility … Clubs use only former players who used to play with more experience... There is no adequate manpower … The demand is high to an academy, the capacity of accepting is limited. There is shortage of professionals in our club.*

4.6.1.6 Facilities and Equipment

The final problems monitored by the respondents 4 (7%) was shortage of facilities and equipment for the TIP. The administrators could develop the overall scarcity of the facilities and equipment to the TIP. There was consensus that the facilities and equipment were not the only problem but an essential one for the program.

> *There are no conducive atmospheres… Awareness and shortage of money... There are no facilities… No suitable exercising place facilities, equipment and other essential elements are not available for the youth program.*

4.6.2 Solutions

Administrators answered the following question: "What are the practical solutions, do you think to improve or implement the TIP in Ethiopia?" Six specific areas of interest were identified by the administrators. These areas as reflected in figure 4.2, are related to their own administrative experiences: system, education, working in collaboration, manpower, monitoring and support and facilities and equipment. Themes and meaning units were developed in each area. These are shown as nodes in figure 4.5 and that frequency is depicted in figure 4.6.

Figure 4.5: Nodes Identified by Qualitative Analysis for Solutions in the Talent Identification Program

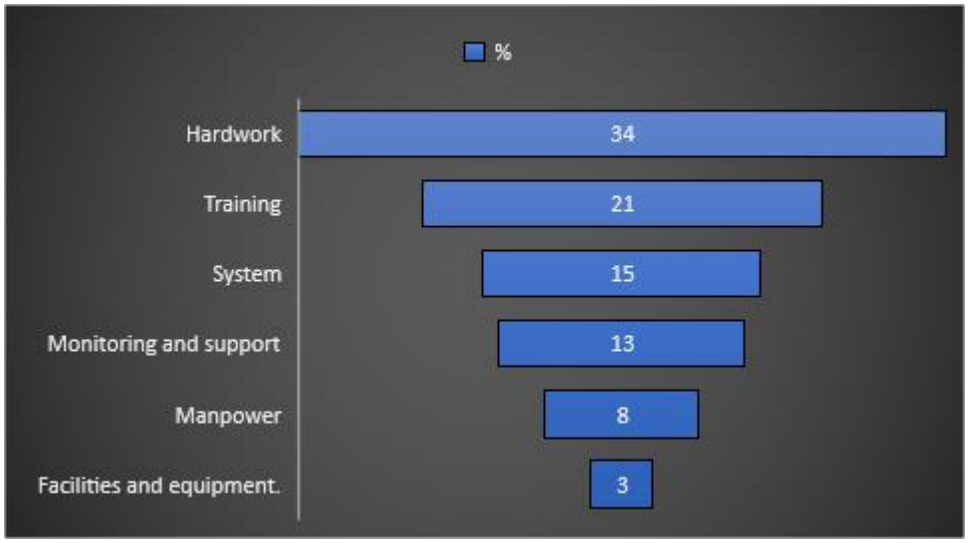

Figure 4.6: Frequency of Solutions for the Problems of the Talent Identification Program

4.6.2.1 System

The most frequently cited characteristic for the solution n=16 (26%). Administrators mentioned that a better system is the first essential element for the TIP. The questions that the system for the TIP was working for the overall skill of players development but that for

football in Ethiopia specifically the TIP does not have a well-established system. They pointed out some aspects of the system to add additional improvements.

> *The recruitment of the youth shall be made on the bases of defined criteria. The TIP is being worked at the national level … The EFF better to have a plan … The technical department in EFF is carrying out the TD work. Establish the system. EFF works on development of players … it can produce elite players to the country. The Federation ought to have worked on youth development. EFF shall identify potential areas … The clubs shall identify talent areas … Conducting tournament in schools. To identify talents, works shall be undertaken with schools. The country has s its own philosophy on the TIP. Work in all areas on the youth long term program. The policy makers shall give decisions… We will open the ways through which we work by adjusting the existing relations.*

4.6.2.2 Education

Another important characteristic of the solution was education. Education was viewed as a fundamental solution in the TIP as 15 (25%) of administrators mentioned it. Administrators mentioned that a high degree of educated people around football coaching, especially in the TIP was an important. Administrators gave the following solutions for the actual practices.

> *All the manuals incorporate about talent identification ... The universities better assimilated the TID in their curriculum. All the coaching manuals incorporate the talent identification … The Sport Commission, by itself, must offer trainings … The EFF … has been conducting various trainings. The EFF must offer trainings. EFF offer trainings that talent as one part of the trainings. Equipping or empowering the coach's knowledge of the program. TIP shall be incorporated in each course. Universities better include this TIP in their curriculums. Youth development undertaken in schools.... It is better to train those who have talents in the areas of the universities … Facilitating and organizing consecutive, relevant and quality training to our trainers … Prepare manual for the program ….*

4.6.2.3 Working Collaboration

Another characteristic that respondents pointed for the solution was talks about working collaboration. From the total respondents, 7 (11%) of them pointed out that positive working collaboration was also a solution for TIP. Administrators suggested that working collegially was important for the TIP. Lack of team work was observed. Administrators understood their deficits in implementing the TIP. Most coaches in Ethiopia, did every activity including the TIP alone. They mentioned that football is a team sport. We do nothing alone. The coaches must work cooperatively.

> *The EFF and the Sport Commission have jointly attempted to work … The Sport Commission had reached agreement with schools to work jointly … The investors and government shall invest on the youth programs. … the stakeholders work jointly. The Federation, Sport Commission, Schools and Academies shall widely deliberate and work on it. Professionals work jointly in TIP. The Football Federation must work with the clubs.*

4.6.2.4 Manpower

From the total number of administrators, 5 (8%) of them listed skilled manpower as an important aspect for the TIP. Administrators pointed out that skilled manpower was crucial to implement the TIP. The manpower was better accumulated in the academy than in club or EFF football teams, because academies have more highly trained coaches than club coaches and that they have an individual development philosophy.

> *Physical education instructors of the universities to the training/the science have been undertaken. We can easily get sport teachers in the schools … It is better to use instructors of the universities by offering additional training. Manpower is required... Capacity building is the foremost and basic thing…*

4.6.2.5 Monitoring and Support

From the results, 4 (7%) of respondents suggested the solution was monitoring and support. Administrators mentioned that monitoring and support was also the main solution in the process of TIP. Administrators understood their deficits in implementing the TIP. Regarding filling the gap, they need support and monitoring from the appropriate body.

> *All the responsible bodies must work accurate and correct work on the youth. The Football Federation shall take the responsibility at the national level. There have been problems in implementation. The EFF works on player development.*

4.6.2.6 Facilities and Equipment

The final solution suggested by three of the respondents (5%) was filling the gap or shortage of facilities and equipment for the TIP. The administrators could develop solutions for the implementations of TIP regarding to facilities and equipment. There was consensus that fulfilling the need for facilities and equipment is not the only solution but the main one needed to implement the TIP.

> *Facilities and equipment are mostly available in schools. So, we better to use also the schools. Researches shall be conducted.*

4.6.3 Suggestions

Administrators were answered the following question: "What do you suggest implementing the TIP in your club /team/ academy?" Six specific areas of interest were identified by the administrators. These areas as reflected in figure 4.2, are related to their own administrative experiences: hard-work, training, a system, monitoring and support, manpower, and facilities and equipment. Themes and meaning units were developed in each area. These are shown as nodes in figure 4.7 and that frequency is depicted in figure 4.8.

Figure 4.7: Nodes Identified by Qualitative Analysis for Suggestions for the Talent Identification Program

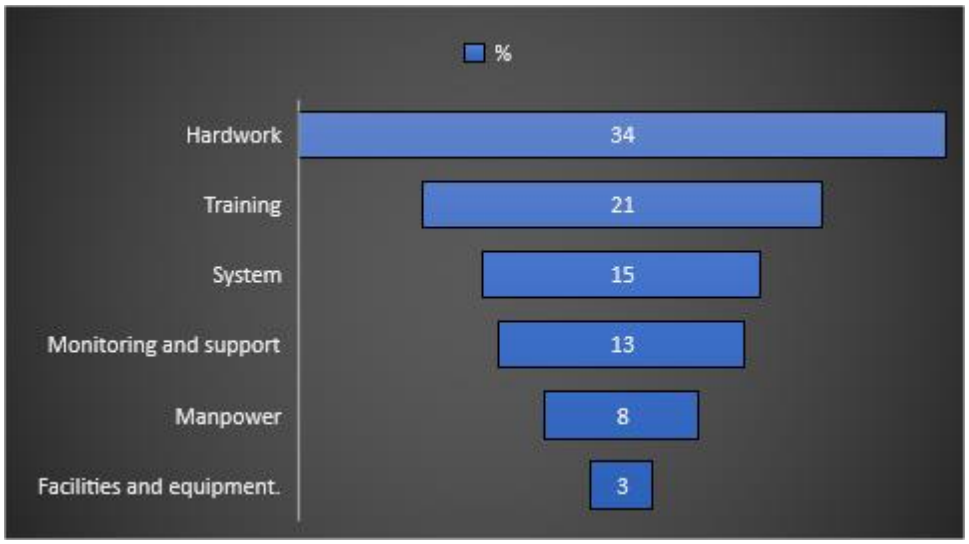

Figure 4.8: Frequency of Suggestions for the Problems of the Talent Identification Program

4.6.3.1 Hard-Work

The most frequently cited characteristic of the administrators' suggestions was n=28 (46%). Administrators suggested that for the work or an implementation of the TIP, challenging work is very crucial for the TIP.

The academy, club, region and federation must implement the TIP. The clubs shall identify talent areas. The clubs much better to work on the youth … Coaches are offered consecutive training… they undertake the works of identifying the youngsters by observing them… The coaches must consider the TIP as their own work. It is good to work on schools to implement the TIP. Our academy admitted players are above 15 years old… The TIP has not been implemented. Federation works on development. Federation and the sport Commission work with an academy. The youth didn't take any test. The club's works are better to be done by the means of talent identification youth development… The Federation and the Commission shall work with an academy. The coaches must do more works … The federation and the clubs work together… Clubs work accurate and correct on the youth. Some universities like, Arba-Minch University, Ambo University and Haremaya University are trying to do better on the bases of youths. The EFF shall mandatorily work together … It is good where our academy undertakes pilot works. The Federation works on development, we expect it to offer training for the technical and coach staff.

4.6.3.2 Training

Another important characteristic of the suggestions was the category of training. Training was viewed as fundamental for the TIP, as 13 (21%) of administrators mentioned. The administrators suggested that training for football TIP was crucial for the coaches and other responsible bodies.

The EFF shall better to offering trainings to the authorities of the clubs. Refreshment training must be offered to the coaches. Raising awareness for the clubs … Increase the competence levels of the coaches. The African Football Confederation has prepared training manuals. The federation shall put pressure … Give training for the club authorities. The Football Federation extends assistance and create awareness. The Federation offer trainings for the technical and coaching staff. Coaching course and trainings … Different related courses enable the trainers … EFF offers various trainings to … Organizes programs of awareness raising to all organs that manage or organize the system.

4.6.3.3 System

Another respondent suggestion for better TIP was system. From the total respondents, 9 (15%) of them pointed out that the TIP must have its own system. Administrators suggested throughout the questions that a system for the TIP was important. The system was not working and in Ethiopian football specifically the TIP does not have a well-established system. They suggested some aspects of the system to add additional improvements.

> *The EFF give guidance … Sport leaders must to give emphasis for the TID program. The clubs look for children whose ages are below 13 years… The strategy of the clubs has not been structured in satisfactory manner. The coaches must have the big share. Player's age is not in the correct age. Though the need is too much at the academic level, the capacity of accepting is however limited. The clubs ought to organize their technical section … It is better where not only the schools but also clubs and the concerned organs properly work…*

4.6.3.4 Monitoring and Support

From the total of administrators, 8 (13%) highlighted that monitoring and support plays a significant role in achieving better TIP. Administrators suggested that monitoring and support was crucial in the process of TIP. Administrators understood their deficits in implementing the TIP. Regarding filling the gap, they need support and monitoring from the appropriate body.

> *Focusing quality, the training offered by our clubs assessed … EFF shall order other organizations to prepare to produce better players. The federation making the operation of the club's uniform… There by to get them join into this TIP must be facilitated. The Football Federation consider the clubs and support them. The Football Federation shall be required to extend assistance to the clubs. The Football Federation shall consider the clubs as its own part and extend support for them. The Football Federation and Sport Commission, they extend support to the clubs and academies in recruiting the youth.*

4.6.3.5 Manpower

From the results, 5 (8%) of respondents suggest that fulfilling the high demands of manpower was also an important aspect for the TIP. Administrators suggested that for the better implementation of TIP, manpower is an important ingredient. The manpower was better accumulated in the academy than in club or EFF football teams. This was because academies have more highly trained coaches than club coaches and that they have an individual development philosophy, whereas football clubs emphasize team wins, rather than individual skill improvements.

> *The coaches must conduct the program. Capacity building. A club better to have a coach member of staff who makes talent identification. The clubs must have a professional. The coaches shall be the leaders of TIP. Professionals or experts are caused to work in the sector, they will do much more things both in what we are talking now, TIP, as well as other sectors of the sport.*

4.6.3.6 Facilities and Equipment

The last suggestion mentioned by two of the respondents (3%) was to give more emphasis on the facilities and equipment to proceed the TIP. The administrators could suggest facilities and equipment for the TIP. There was consensus that the facilities and equipment were not the only problem but the main things for the program**.**

> *Sport fields and goods or materials are the primary things to implement the TIP in Ethiopia. Children shall have sport fields in their schools and residential or neighbourhood areas very easily.*

4.6.4 Discussion

In this investigation, the aim was to analyses the Talent Identification Program (TIP) practice in Ethiopian football. In summary, as shown in Figures 4.4, 4.6 and 4.8 are the three themes, problems, solutions and suggestions for the Ethiopian football TIP. Within these three themes, there were different points raised by sport administrators. The main points were

system, knowledge and experience, challenging work, training, monitoring and support, manpower, and facilities and equipment.

As administrators mentioned throughout the questions, the system for the TIP was working for the overall players' development but for football in Ethiopia specifically the TIP does not have a well-established system. A better system is the first essential element for the TIP. They suggested that a system must established for the TIP.

A systematic process designed to progress athletes step-by-step was highlighted, where pressure to win at each stage was detrimental to long-term development (Cushion et al., 2012). Cushion et al. also say that age group squad selection is not an automatic ticket to senior status, athletes may move in and out of squads and late developers have opportunity to become successful. All the players commented that they had two or more practices and usually one game per week. This followed the recommendations for the training-to-train stage of the TD model which recommends a 60/40 ratio between times spent practicing and competing (Balyi et al., 2013).

Administrators said that scarcity of knowledge and experience affect the TIP. They said that formal education and different trainings are a part of the solutions. Education was viewed as a fundamental solution. Training was also viewed as a fundamental suggestion for the TIP.

Studies found that players' relationships have been developed or influenced by knowledgeable and experienced coaches. The more experienced coaches directed better learning for players and a more acceptable experience (Schempp, 2006). On the other hand, some administrators commented about types of coaches that they would be beneficial for the academy teams. Some of the administrators, when they responded, said that coaches in Ethiopia need more education. Balyi et al. (2013) also suggest that these findings support the TIP principles, which suggest that players within the Training to Train stage are refining their basic skills, as well as tailoring new tactical knowledge for the players.

Within the Training to Train stage of the TID model, which these players are currently in, the environment was developed with skill repetition as a priority. The purpose of this was so

that execution becomes reliable and that acquired skills may be transferred from a practice to a competitive game scenario (Balyi et al., 2013).

As Buekers et al. (2015) mentioned, parents appeared to be very objective and valid assessors. This was important observation as parents are in most cases the first adults to assess the possible presence of talent. For assessing players in terms of education, studies connect coaches' philosophies, knowledge and planning to their practice (Cushion, Ford, & Williams, 2012; Cushion et al., 2012). The TIP model is a stage-by-stage developmental model that allows every child the opportunity to engage in lifelong sport participation and to reach their highest level of optimal potential (Balyi et al., 2013).

The TIP model states that having a winning by any costs attitude, from an early age, can lead to short-term results but does not support long-term engagement within sport (Balyi et al., 2013). The Long-Term Player Development Model states that early sport training and competition should not be focused entirely on one sport, but rather, optimal performance in one sport is enhanced by participating in a variety of sports during the early years (Balyi et al., 2013). Players' evaluation of their activity participation supported this component of the TIP.

For players who fail in making this step, Vaeyens et al. (2008) highlighted that it was important for players to develop through sport the necessary competencies to succeed in other life contexts. Academy coaches play a significant role in making football fun and enjoyable so that players both understand the game, and love it. Allowing players to play football for life will contribute to their overall health and wellness, which is one of the main goals for participating in sport (Balyi et al., 2013). While all players indicated that football was their favourite sport, they also communicated that they enjoyed a variety of sports as well.

While the TIP does not specifically detail what the player-coach relationship entails, the model does infer that the relationship should be based on respect. In support of this, all the administrators commented on the problems, solution and suggestion for the TIP. Since the

aim of a club's youth academy is to identify and develop promising young players who can later progress to the first team, it is crucial that talent models can distinguish between an athlete's adolescent performance level and future potential (Vaeyens et al., 2008 and Cushion et al., 2012). Finally, it was appreciated everyone can't make it to the top; in line with this a strong educational character was also dominant.

CHAPTER 5 : CONCLUSION AND RECOMMENDATIONS

The purpose of this chapter is to conclude the study, mention the limitations and to recommend further research areas. The aim of the study was to investigate the existing challenges that hindered the implementation of talent identification programs and set players' basic anthropometric and physical performance standards that will help the talent identification process for the male Ethiopian youth (13 – 17 years of age) football players.

5.1 SUMMATIVE CONCLUSIONS

Based on the result and discussion parts of the paper, the following summative conclusions can be drawn. Primarily, the talent identification program appeared to be crucial at all levels for the development of football performance in the country.

One of the main findings of the study was the anthropometric profile differences in players within different player settings, climatic altitude conditions, geographical locations and age groups in Ethiopia. The comparisons according to players' settings and players' weight and height showed that the club football players were significantly taller and heavier than the academy players. There were no significant differences for weight, height, BMI, percentage of body fat and LBM. The differences in players based on their climatic altitude conditions showed that the highland football players were significantly heavier, and their LBM was much better. Based on their geographical locations, eastern and northern players were significantly heavier than the southern and western players. Eastern and northern players were significantly taller than the southern players.

The second main findings of the study were the physical performance differences in players with different player settings, climatic altitude conditions, geographical locations and age groups in Ethiopia. The comparisons according to players' settings showed that academy players at 10 and 20m, the club and EFF football players attained significantly better results than club and EFF players. In 40m speed the club players attained significantly better results than academy and EFF football players. For the sit and reach flexibility tests, academy players attained significantly better results than EFF football players. Based on their climatic

altitudes, players living in the high altitude at 10 and 20m speed, the low and moderate football players attained significantly better results. In 40m speed the moderate players attained significantly better results than low altitude football players. For the sit and reach flexibility tests high altitude players attained significantly better results than moderate altitude football players. For players based on their geographical locations, in 10m speed, the eastern football players attained significantly better results than the western players. In 20m speed the east, west and southern players attained significantly better results than the northern football players. In 40m speed the east, southern and northern players attained significantly better results than the western football players. For the sit and reach flexibility tests the western, southern and northern players attained significantly better results than the eastern football players. For the agility test the southern players attained significantly better results than the eastern football players, the western and southern players attained significantly better results than the northern players. For $\dot{V}O_2$ max the western, southern and northern players attained significantly better results than the eastern football players. For the differences in players based on their ages, in 10m and 20m speed, U-16 and U-17 football players attained significantly better results than U-14 players. In 40m speed U-14 players attained significantly better results than U-15 players.

The other findings assessed the correlation matrix comparing the relationship of variables in anthropometry and performance to each other. The results showed that, BMI was negatively related to 10m and 40m speed. Height is negatively related to 20m and 40m speed and agility. This implies that the taller players were slower and less agile. Lean body mass (LBM) is negatively related to 10m, 20m and 40m speed and agility. The players with more LBM were slower and less agile.

The study also investigated and measured the current anthropometric profile and physical performances of youth Ethiopia players. There was no significant difference in the age of all players based on their development setting. All players (240) were measured on each of eight anthropometric measurements: body mass weight, standing height, body mass index, sub scapular, triceps, BF % and LBM as showed in Table 5.1. The mean value and standard deviation of the total players age was 15.53yrs (0.90), body mass was 55.47kg (6.14),

standing height was 1.7m (0.06), body mass index was 19.12kg (1.99), sub scapular was 6.88mm (1.37), triceps was 5.95mm (1.51), BF% was 15.53% (2.91) and LBM was 46.82kg (5.11). The range for player's age 13.8 – 17.4yrs, for body mass 40 – 74kg, for standing height 1.5 - 1.96m, for body mass index 13.54 – 24.39 kg/m^2, for BF% 9.74 – 25.53% and for LBM 34.48 - 65.4kg. The mean values of player's age, body mass, standing height, body mass index, BF% and LBM help to put basic players anthropometric profile standards. This result help for the Ethiopian youth (13–17yr) football players as basic anthropometric profile standards for the TIP.

Table 5.1: Anthropometric Profiles of Players (N=240)

Variables	Minimum	Maximum	Mean	Std. Deviation
Players age (years)	13.80	17.40	15.53	0.90
Body mass (kg)	40.00	74.00	55.47	6.14
Standing height (m)	1.50	1.96	1.70	0.06
Body mass index (kg/m^2)	13.54	24.39	19.12	1.99
Sub-scapular skinfold (mm)	3.90	12.00	6.88	1.37
Triceps skinfold (mm)	2.90	11.70	5.95	1.51
Body fat percentage (%)	9.74	25.53	15.53	2.91
Lean body mass (kg)	34.48	65.40	46.82	5.11

Seven physiological tests were conducted and included one $\dot{V}O_2$ max and six anaerobic performance tests: 10, 20, and 40m (speed), Illinois (agility), sit and reach (flexibility) and standing vertical jump (power) as showed in Table 5.2. The mean time and standard deviation of the total players for: 10m speed was 2.15sec (0.19), 20m speed was 3.51sec (0.29), 40m speed was 5.96sec (0.31); the mean value and standard deviation of the sit and reach flexibility test was 12.94cm (7.89); the mean value and standard deviation of the vertical jump of the players was 42.93cm (6.58); and using the YIRT1 the mean predicted value and standard deviation for $\dot{V}O_2$ max was 49.73 ml/kg/min (5.42). The range for 10m speed was1.71 - 2.82sec; for the 20m speed it was 3.05 - 5.19sec, for 40m it was 5.23 - 7.46sec; for the sit and reach flexibility test it was 1.00 – 49.50cm; for the vertical jump power test it was 25 – 64cm; for the Illinois agility test it was 15.41 - 20.4sec; and for YIRT1

was 216 - 2840m. The mean values of 10m, 20m, 40m, sit and reach flexibility test, Illinois agility test, vertical jump power test and YIRT1 help to create basic standards for the Ethiopian youth (13–17y) football players as in the context of the TIP.

Table 5.2: Anthropometric Profiles of Players (N=240)

Parameters	Minimum	Maximum	Mean	Std. Deviation
Speed 10 meters (s)	1.71	2.82	2.15	0.19
Speed 20 meters (s)	3.05	5.19	3.51	0.29
Speed 40 meters (s)	5.23	7.46	5.96	0.31
Illinois Agility Test (s)	15.41	20.40	17.45	0.83
Sit & Reach Flexibility (cm)	1.00	49.50	12.94	7.86
Vertical Jump Power (cm)	25.00	64.00	42.93	6.58
YIRT1 (m)	216.00	2840.00	1587.90	644.70
$\dot{V}O_2$ max (ml/kg/min)	38.21	60.26	49.74	5.42

In this investigation, the objectives included investigating players, coaches and administrators' knowledge and experience of talent identification programs and to identify problems and solutions raised by coaches and administrators with respect to talent identification programs.

Questionnaire responses of the talent identification program practice in Ethiopian football showed that most of the players (62%) have knowledge and experience of talent identification programs, and this was also the case for each TID setting. The significant majority of the coaches overall (51%) have knowledge and experience of talent identification programs, and this trend was also apparent across TID settings, but not significantly so. Also, the significant majority of the administrators overall (72%) have information and knowledge about talent identification programs and this was also the finding for EFF and club respectively, but not significantly so for the academy TID setting.

This study also identified the problems and solutions that were raised by coaches for the talent identification program. Among the coaches overall, the majority (66%) indicated that talent identification was a part of the course or coaching program; 77% believe that, in the process of coaching football, a talent identification program must be incorporated;69% indicated players were motivated during TIP; 82% were of the opinion that the teams do evaluate the physical performances of the players; 90% believed that lack of a talent identification program was a major problem that affects the development of physical performance of players. With respect to the administrators overall - 28% felt that a lack of talent identification programs was not a major problem that affects the performance of players, but a large proportion (52%) were unsure. The majority (98%) agreed however that a talent identification program was important but a large group (44%) indicated that the players were not well motivated during the tests.

Another main finding focused on the qualitative analysis of the talent identification program practice in Ethiopian football. Three themes were problems, solutions and suggestion for the Ethiopian football TIP. The main problem factors mentioned by sport administrators were system, knowledge and experience, challenging work, training, monitoring and support, manpower, and facilities and equipment. Football TIP in Ethiopia does not have a well-established system. The better system is the first essential element for the TIP. They suggested that a system must established for the TIP. Scarcity of knowledge and experience also affect the TIP. Education and training were a part of the solution.

5.2 LIMITATIONS OF THE STUDY

The limitations of the study were that dependent variables like temperature, humidity and wind velocity could have affected the results, but the research was field-based and conducted in a real-world resource constrained environment, thus strengthening the ecological validity of the results.

5.3 RECOMMENDATIONS

Based on these results, discussions and findings of the research, the following recommendations are made. This research will contribute in addressing the anthropometric profiles of football players for coaches and managers to understand, formulate, designing and implementing effective strategies for the coaching program.

5.3.1 Recommendation for Coaches

Football coaches should be adopting a scientific approach to coaching and systematic talent identification and selection is needed rather than relying on traditional non-scientific prognostic approaches. Ethiopian sport coaches must understand the role of anthropometry and physical fitness on football performance and emphasize talent selection, detection and recruiting players for team.

5.3.2 Recommendation for Administrators

Ethiopian sport administrators' must should acknowledge and understand the role of anthropometry and physical fitness on football performance and emphasize talent selection, detection and recruiting players.

5.3.3 Recommendation for Players

The study also helps to canvass the Ethiopian Football Federation to recruit talented players based on their anthropometric traits and football performance measures of youth players for the development and growth of young potential players. As the Ethiopian nation competes in football with the world, all concerned bodies must use anthropometrical profile and physical performance tests of top world class players as benchmarks for optimizing physical quality of our football players. More TIP should be implemented with coaches, parents and sport administrators.

5.3.4 Recommendation for Further Research

The findings of the research may help as a reference for researchers who will conduct further research as well as young researchers on sport, specifically football in Ethiopia and the development needs of the field. In addition, it will help others as research work on depth studies on the problem is undertaken. This study can be a groundwork for future research in Ethiopia where the talent identification programs need to be implemented. Ethiopian sports scientists and researchers must understand the role of anthropometry on football performance and give emphasize during talent selection, detection and recruiting players for teams. The sport science curriculum from undergraduate to postgraduate level should also be reviewed to see whether it is producing qualified professionals who can identify talents or who can support club coaches to identify talents. Future studies should consider technical, tactical and psychological factors in talent identification.

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APPENDICES

APPENDIX A: GATEKEEPER REQUEST LETTERS

UNIVERSITY OF
KWAZULU-NATAL

Biokinetics, Exercise and Leisure Sciences
School of Health Science
Westville Campus
Private Bag X54001
DURBAN
4000

13 April 2015

Ethiopian Sports Academy
Addis Ababa, Ethiopia

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN ETHIOPIA

Dear/Sir

My name is Professor Johan Van Heerden, and I am a supervisor for Mr. Eyasu Merhatsidk Gebreegziabher and he is a PhD student at the University of KwaZulu-Natal. The research he wish to conduct for his Doctoral dissertation involves "Talent Identification & Development of Football in Ethiopia". This project will be conducted under my Supervision at the University of KwaZulu-Natal, South Africa.

I am hereby seeking your consent to "approach a number of youth football teams to provide participants for this project". This is required for the ethical review process at the University of KwaZulu-Natal.

The student has provided you with a copy of his dissertation proposal which includes copies of the measurement protocol, consent and assent forms to be used in the research process. Once full Ethical Clearance has been received, we will provide you with proof thereof.

Upon completion of the study, we undertake to provide you a certain copy of the full research report. If you require any further information, please do not hesitate to contact me.
Yours truly,

Prof. HJ van Heerden

Head of School and Supervisor

Tel: + 27 31 260 7394 Fax: + 27 31 260 7903 e-mail: vanheerdenj@ukzn.ac.za
School of Health Sciences

UNIVERSITY OF
KWAZULU-NATAL

Biokinetics, Exercise and Leisure Sciences
School of Health Science
Westville Campus
Private Bag X54001
DURBAN
4000

13 April 2015

Ethiopian Football Federation
Addis Ababa, Ethiopia

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN ETHIOPIA

Dear/Sir

My name is Professor Johan Van Heerden, and I am a supervisor for Mr. Eyasu Merhatsidk Gebreegziabher and he is a PhD student at the University of KwaZulu-Natal. The research he wish to conduct for his Doctoral dissertation involves "Talent Identification & Development of Football in Ethiopia". This project will be conducted under my Supervision at the University of KwaZulu-Natal, South Africa.

I am hereby seeking your consent to "approach a number of youth football teams to provide participants for this project". This is required for the ethical review process at the University of KwaZulu-Natal.

The student has provided you with a copy of his dissertation proposal which includes copies of the measurement protocol, consent and assent forms to be used in the research process. Once full Ethical Clearance has been received, we will provide you with proof thereof.

Upon completion of the study, we undertake to provide you a certain copy of the full research report. If you require any further information, please do not hesitate to contact me.

Yours truly,

Prof. HJ van Heerden
Head of School and Supervisor

Tel: + 27 31 260 7394 Fax: + 27 31 260 7903 e-mail: vanheerdenj@ukzn.ac.za

School of Health Sciences

APPENDIX B: GATEKEEPER PERMISSION LETTERS

የኢትዮጵያ እግር ኳስ ፌዴሬሽን
ETHIOPIAN FOOTBALL FEDERATION

በ፲፱፻፴፭ ተመሠረተ FOUNDED IN 1943
የኢንተርናሽናል እግር ኳስ ፌዴሬሽን አባል ፲፱፻፵፭
MEMBER OF FIFA - 1952
የአፍሪካ እግር ኳስ ኮንፌዴሬሽን አባል ፲፱፻፵፱
MEMBER OF CAF - 1956

Ref. No. ቁጥር 21E.F.FIC51/203

Date ቀን April - 29 2015

To: University of Kwazulu-Natal, College of Health Sciences
Research and Ethics Committee
Department of Bio Kinetics, Exercise and Leisure Science
Durban

Subject:- Offering a Permission Letter to do Research

The Ethiopia Football Federation has overlooked the research topic: **"Talent Identification & Development of Football in Ethiopia" proposed by Mr. Eyasu Merhatsidk Gebreegziabher** who is a doctoral student at UKZN.

The Federation accepts the requesting proposed by Mr. **Eyasu Merhatsidk Gebreegziabher** to do his research. The Ethiopia Football Federation sent to you this consent permission letter to continue his research.

Best Regards,

ZERIHUN BIADGILIGN ALMAW
GENERAL SECRETARY

cc.

- **Mr. Eyasu Merhatsidk Gebreegziabher**
  University of Kwazulu-Natal, College of Health Sciences
  Durban

ዓለም አቀፍ ደረጃ ያለው እግር ኳስ በሀገራችን እንዲኖር እንጥራለን !!
STRIVING TO CREATE WORLD CLASS FOOTBALL ENVIRONMENT !!

☎ +251-11-558 52 41, 515 62 05, 558 52 73, 515 62 67, Fax +251-11-551-58 99 - E-mail:eff1@ethionet.et
✉ 1080 - አዲስ አበባ ኢትዮጵያ Addis Ababa, Ethiopia

የኢትዮጵያ ወጣቶች የስፖርት አካዳሚ
ETHIOPIAN YOUTH SPORTS ACADEMY

ቁጥር _____
Ref.No
ቀን April 24, 2015
Date

Prof. HJ van Heerden
Head of School and Supervisor

University of KwaZulu-Natal

College of Health Science

Department of Biokinetics, Exercise Science and Leisure Science

Westville campus

Durban, South Africa

E-mail: vanheerdenj@ukzn.ac.za

Subject: GIVING A CONSENT LETTER TO CONDUCT RESEARCH IN ETHIOPIA

Dear/Sir
My name is Dr. Sirak Habtemariam, and I am Director General of the Ethiopian Youth Sports Academy. I know that Mr. Eyasu Merhatsidk Gebreegziabher is a PhD student at the University of KwaZulu-Natal and he wish to conduct for his research in title "Talent Identification & Development of Football in Ethiopia".

I understand that the purpose of his research project is to identify the existing challenges that hindered the implementation of football talent identification program and set players physical performance standards. I hope such research will help to improve the teaching and training process of our academy and the coaching science at large.

Thus, the academy is ready to mobilize a number of youth football teams to participate in this research project. And I give my consent freely to conduct his research project in Ethiopian Youth Sports Acedemy.

With Regards,

SIRAK HABTEMARIAM (Ph.D)
Director General

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

02 September 2015

Mr EM Gebreegziabher
Discipline of Biokinetics, Exercise and Leisure
School of Health Sciences
eyasu.merhe@gmail.com

Protocol: Anthropometric profile and physical performances of youth football players in the Ethiopian football talent identification program.
Degree: PhD
BREC reference number: BE274/15

EXPEDITED APPLICATION

A sub-committee of the Biomedical Research Ethics Committee has considered and noted your application received on 08 June 2015.

The study was provisionally approved pending appropriate responses to queries raised. Your responses dated 05 August 2015 to queries raised on 27 July 2015 have been noted by a sub-committee of the Biomedical Research Ethics Committee. The conditions have been met and the study is given full ethics approval.

This approval is valid for one year from **02 September 2015**. To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 2-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2015), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx.

BREC is registered with the South African National Health Research Ethics Council (REC-290408-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The sub-committee's decision will be **RATIFIED** by a full Committee at its meeting taking place on **13 October 2015**

We wish you well with this study. We would appreciate receiving copies of all publications arising out of this study.

Yours sincerely

Professor J Tsoka-Gwegweni
Chair: Biomedical Research Ethics Committee

cc: supervisor: vanheerden@ukzn.ac.za
cc: postgrad: nerecp1@ukzn.ac.za

APPENDIX C: LANGUAGE EDITING LETTER

One Stop Solution
24 Firenze Gardens
Warbler Road
Cotswold Ext
Port Elizabeth
6045
www.onestopsolution.co.za
18 January 2018

TO WHOM IT MAY CONCERN

I, Carol Christie, declare that I have done the language editing for the dissertation of:

Eyasu Merhatsidk. Gebreegziabher (214564752)

entitled:

ANTHROPOMETRICAL PROFILE AND PHYSICAL PERFORMANCES OF YOUTH ETHIOPIAN FOOTBALL PLAYERS IN THE TALENT IDENTIFICATION PROGRAM

Submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in the College of Health Science in the School of Biokinetic, Exercise and Leisure Sciences at the University of KwaZulu-Natal.

I cannot guarantee that the changes that I have suggested have been implemented nor do I take responsibility for any other changes or additions that may have been made subsequently.

Any other queries related to the language and technical editing of this treatise may be directed to me at 076 481 8341.

Carol Christie

APPENDIX D: TEST TOOLS

APPENDIX D1: VERTICAL JUMP

Vertical jumping ability – in other words, Peak Power – has a direct correlation to ability to accelerate and burn, in practice and at game-time.

Equipment

A smooth wall with a ceiling higher than the highest jumper's jump height. A flat floor with good traction

Chalk of an assorted colour than the wall, measuring tape or stick and one tester/ recorder

Procedure

I rub chalk on the fingertips of the player's dominant hand. The player stands with the dominant shoulder about 13 cm from the wall and, with both feet flat on the floor, reaches as high as possible with the dominant hand and makes a chalk mark on the wall.

The player then lowers the dominant hand and, without a preparatory or stutter step, performs a countermovement by quickly flexing the knees and hips, moving the trunk forward and downward, and swinging the arms backward. During the jump, the dominant arm reaches upward, while the non-dominant arm moves downward relative to the body.

At the highest point in the jump, the athlete places a second chalk mark on the wall with the fingers of the dominant hand using a swiping motion of the fingers. The score is the vertical distance between the two chalk marks. The best of three trials is recorded to the nearest 1cm.

APPENDIX D2: FLEXIBILITY SIT-AND-REACH

The test will be performed with a measuring tape or stick.

Personnel: One tester/recorder

Procedure: Tape the measuring stick or tape measure to the floor. Place one piece of tape about 61 cm long across the measuring stick and at a right angle to it at the 38-cm mark. Have the athlete sit shoeless with the measuring stick between the legs with its zero end toward the body, the feet 30 cm apart, the toes pointed upward, and the heels nearly touching the edge of the taped line at 38-cm mark

The athlete slowly reaches forward with both hands as far as possible on the measuring stick, holding this position momentarily. To get the best stretch, the athlete should exhale and drop the head between the arms when reaching. The hands adjacent to each other and does not lead with one hand. The fingertips should remain in contact with the measuring stick. The tester may hold the athlete's knees down, if necessary, to keep them straight. The best of three trials will be recorded to the nearest 1 cm.

APPENDIX D3: SPEED: 10, 20 AND 40 METERS SPRINT

Technical analysis of field sports shows that most young athletes will execute straight-line sprints for an average of 3 seconds (up to a maximum of 5 sec.) before encountering an obstacle or altering direction to gain tactical advantage. For this reason, the 10, 20 and 40-meter sprints are more accurate.

Equipment: Stopwatch and Flat running surface with start and finish lines

Personnel: One timer/recorder.

Procedure: Have the athlete warm up and stretch for several minutes. Allow at least two practice runs at submaximal speed. The athlete assumes a starting position. On a whistle signal, the athlete sprints at maximal speed. The average of two trials will be recorded to the

nearest 0.1 second. Sprint and high-speed running or high-intensity running performance is a proven.

APPENDIX D4: ILLINOIS AGILITY TEST

The length of the course was 10 meters and the width (distance between the start and finish points) was 5 meters. Four cones were used to mark the start, finish and the two turning points. Another four cones were placed down the centre an equal distance apart. Each of the centre cones was spaced 3.3 meters apart

Purpose of test: To measure the ability of players to run fast and rapidly change the direction of the body by combining speed, coordination and balance.

Equipment used: Flat non-slip surface, cones, timing gates, whistle and measuring tape.

Procedure: Players assumed a prone position a meter behind the timing gates and hands by their shoulders. On the 'Go' command the player got up as quickly as possible and ran around the course in the direction indicated, without knocking the cones over, to the finish line, at which the time taken to complete the course was recorded on the timing gate. The best trials time score from two trials was taken as the final score.

APPENDIX D5: YO-YO INTERMITTENT RECOVERY TEST

According to the recommendation of (Castagna et al., 2009), the YIRT1 for young players to predict their future performances. The YIRT1 is a 20meter shuttle run test. Athletes start out shuttling from one end to the other. Each bout of intense running (2x20m shuttle) is followed by 10 seconds of recovery.

Temperature Limits at Various Ranges of Relative Humidity for Strenuous Exercise Testing. The use of the table below is to control the percentage of the humidity on the moment of the test in relation to temperature. If the relative humidity will be 0%, the test can be conduct with the limit temperature of 35 °C. If it will be beyond, the test will not be conduct. During

the test if the relative humidity will be b/n 1 & 20, the test can be conduct with the limit of 32 °C (Baechle et al., 2008).

Table 1: Relative Humidity and Temperature Limit

Relative humidity (Percent)	Temperature limit
0	95 °F (35 °C)
1-20	90 °F (32 °C)
21-50	85 °F (29 °C)
51-90	80 °F (27 °C)
91-100	75 °F (24 °C)

A 20m and 5m section and mark with cones (A, B and C). There should be one lane for every one player and one tester. The tester or the recorder, holds a stop watch, an Endurance Test Record form and a pen at an end of the lane. The runner, stands with at least one foot on the line between the two cones that define a gate at the end of the lane. The runner faces the far end of the lane.

Procedure: After the warm-up and set-up are both completed, I will explain the test to the players. A whistle is used to indicate the start and completion of the test.

Runner Instructions: The runner is to start at one end of the lane, facing the other end. At the start, the player must have one foot between the two cones that define the gate. At each lane "go" voice from the tester, the player must run to the gate at the opposite end, and get a foot between the cones at that opposite end gate. If the runner does not arrive early enough to place a foot in the cone gate, that is, on the imaginary line connecting the two cones, a miss will be recorded. Two misses in a row retire the runner from the test.

Recorder Instructions: The recorder must line through the number corresponding to the repetition number. The recorder marks along each row, from left to right, until all repetitions at the speed are completed. When the runner is completed each 40m, the recorder put on the

stop-watch to the control the 10sec recovery period. If the runner starts late or late from the recovery period, the recorder must circle the repetition failed and warn the runner ("warning!") If the runner misses for the second time, the recorder circles the second failed repetition. Ensure that the test is accurately measured. I must ensure that the recorders understand the instructions, particularly that each successfully completed the recovery period, and that two misses in a row are required to retire a runner. I must ensure that the runners who arrive early at the start gate wait until the end of the recovery period & the go instruction from the recorder.

APPENDIX E: TEST SCORE SHEET

Table 2: Test Score Sheet

									Speed			
	First Name	Last Name	Club Team	Birth year	Test date DD/MM/YY	Height cm	Body mass kg	Vertical jump/cm	10m	20m	40m	YIRT1
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
	Testing information								Notes			
	Location											
	Date											
	Temperature											
	Recorder											

APPENDIX F: QUESTIONNAIRE FOR PLAYERS

Adapted from: Lippitt (2012); Mudege (2011) and Pandelani (2011)

Please indicate your age: years and date of birth

DD / MM / YYYY

Please indicate the highest educational qualification that you have achieved.

X or tick √ next to the appropriate response

Table 3: Test Score Sheet

	Tick if applicable
Elementary school (1-8)	
Secondary school (9–10)	
Preparatory school (11-12)	
Matric qualification	
Other	

At what age did you start playing soccer? (X or tick √ next to the appropriate response)

Table 4: Playing Experience

	Age in Years
At home/informally	
For a school team	
For a youth team outside school	

As a young soccer player, I attended a TIP.

(X or tick √ next to the appropriate response) Yes | | / No

Please X or tick √ the number according to the weight of your answer. **1= Strongly Disagree, 2= Disagree, 3= Somewhat Disagree, 4= Neutral, 5= Somewhat Agree, 6= Agree, 7= Strongly Agree**

Table 5: Questions for Players

No	**Questions**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1	I have enough information about TIP.							
2	My family supports my involvement in the football TIP.							
3	My coach or the tester motivates me during the TIP.							
4	There is adequate rest and water during the test.							
5	The field is convenient to conduct the tests.							
6	Tests were appropriate to evaluate or to identify my performance.							
7	The testing materials had quality.							
8	I have got an opportunity to part a TIP.							
9	I have identified as talented footballer and get training properly							
10	I am interested in the taste batteries that organized by the coach.							

APPENDIX G: QUESTIONNAIRE FOR COACHES

Please Indicate Your Age Category

< 25	D. 45 - 55
25 - 35	E. 55 – 65
35 - 45	F. 65 <

Please indicate the highest educational qualification that you have achieved. X or tick √ next to the appropriate response

Table 6: Coach's Educational Qualification

	Tick if applicable
Did not complete high/secondary school	
Matric qualification	
Post matric qualification (e.g. certificates/diplomas)	
1st degree (BA, Bed, BSc, etc.)	
2nd degree (MA, MSc, Med, etc.)	
3rd degree (PhD)	

Please indicate the highest coaching level that you have achieved. (X or tick √ next to the appropriate response)

Table 7: Coaching Level

	Tick if applicable
1st level	
2nd level	
CAF C level	
CAF B level	
CAF A level	
Pro-license	
Other	

At what age did you start coaching football? ----------.

Please X or Tick √ the number according to the weight of your answer.

1= Strongly Disagree, 2= Disagree, 3= Somewhat Disagree, 4= Neutral, 5= Somewhat Agree, 6= Agree, 7= Strongly Agree

Table 8: Questionnaires for Coaches

No	Questions	1	2	3	4	5	6	7
1	I attended football coaching courses adequately.							
2	I have a profound knowledge of talent identification.							
3	I have attended different courses that related to talent identification.							
4	I always upgrade my coaching knowledge that related to talent identification.							
5	When I took different coaching courses, the courses incorporate talent identification as apart.							
6	I have done a coaching plan always.							
7	In my experience, when I draft annual training plan I include TIP.							
8	As a coach, I follow talent identification processes when I select the players.							
9	In the process of coaching football, TIP is must be incorporated.							
10	I always follow the manual while identifying player's talent.							
11	The coaching manual contains appropriate measurements.							
12	When I conducted the tests, the players are motivated highly.							
13	Those testing materials that I used are appropriate.							
14	The EFF provides an appropriate training in the TIP for the coaches.							
15	My team set program to evaluate level of performances of the players							
16	I agree that lack of TIP is major problems that affect the development of performances.							

APPENDIX H: QUESTIONNAIRE FOR ADMINISTRATORS

Please X or tick √ the number according to the weight of your answer.

1= Strongly Disagree, 2= Disagree, 3= Somewhat Disagree, 4= Neutral, 5= Somewhat Agree, 6= Agree, 7= Strongly Agree

Table 9: Questionnaires for Administrators

No	Questions	1	2	3	4	5	6	7
1	I do have knowledge about TIP.							
2	There is a TIP in my team.							
3	The EFF expertise supervises my team to implement the TIP.							
4	The EFF facilitates upgrading course for the coaches in relation with talent identification.							
5	My team evaluate the performances of players							
6	Lack of TIP is major problems affect the development of player's performance.							
7	My team offer/facilitate a refreshment courses for the coaches in regarding TIP.							
8	My club/team/academy have adequate talent identifiers.							
9	My club/team/Academy has adequate test materials for talent identification.							
10	Coaches must be a responsible for TIP on the club/team/Academy.							
11	EFF work jointly with my team to improve TIP							
12	Acceptable TIP is important to my team.							
13	During my team conduct talent identification process, the players were motivated.							

Open ended questionnaires

Table 10: Open Ended Questionnaires for Administrators

No	Question
1	From your opinion, what are the major factors that affect to implement the TIP in Ethiopia?
2	What are the practical solutions do you think that to improve or implement the TIP in Ethiopia?
3	What do you suggest to implementing the TIP in your club /team/ academy?

Adapted from: Erica Lippitt (2012); Mudege (2011) and Pandelani (2011)

APPENDIX I: INFORMATION SHEET AND INFORMED CONSENT FORM FOR PLAYERS

Male youth (13-17years) EF players: a research for football TIP in Ethiopia. Thank you for showing an interest in this study. Please read the information carefully before deciding to participate. Thank you for your participation. If you decide not to take part there will be no disadvantage to you of any kind.

The General Objective of the Study

To identify the existing challenges that hindered the implementation of football TIP and set players physical performance standards that help the football TIP for the male Ethiopian youth (13 – 17) football players.

T**ype of Participants**

Youth (13-17 years old) physically healthy male football player. He is a member of a team and who will live in or around the team's training pitch for the 3 continuous months (December 2015 to February 2016). A subject will be excluded if he is not able to fulfil the minimum requirements.

What will a participant be asked to do?

If you are interested to take part in this study, you will be asked to fill personal information questionnaire, read and sign consent form, anthropometric measurements, and fitness tests (speed, Explosive power, agility, flexibility & endurance), involve in a continuous regular training programs and tests.

The following tests and evaluations will be performed:

a) Pre-exercise evaluation: You will be required to take physical and medical examination by selected sport physicians.

b) Anthropometric tests: this includes his height (cm/m), weight (kg), BMI and body composition.

c) Physical Fitness tests: To assess your physical fitness performances changes following 10 weeks of study: speed, Explosive power, agility, flexibility & endurance tests.

Possible risks and discomforts: As comparing to the usual training program with the tests, there is no risks and discomforts when you conduct this test.

Sponsorship: This project is fully sponsored by the Federal Democratic Republic of Ethiopia Ministry of Education (FDRMoE). For the time being a total of 70,000 South African Rand is released from the MoE to conduct the research.

Confidentiality: I understand that the information provided by this study may be used for research purposes, including publications in research journals. All individual information will be coded and at no time will my personal identity be revealed.

Withdraw from the study: You can withdraw from participation in the study at any time and without any disadvantage to yourself of any kind.

What do participants have to avoid prior to testing? You are expected to avoid caffeine consumption, eating too much, heavy training/physical activity, smoking, and alcohol intake not only before every test but also throughout the study.

Liability: I have voluntarily agreed to participate in this study. I release all involved researchers and any other personnel involved in the study from any liability for any injury or illness that I may suffer while participating in this research study, or subsequently occurring about the study. The policy of University of KwaZulu-Natal does not provide for compensation for medical treatment for subjects because of physical or other injury resulting from this research activity.

Confidentiality: All data and information collected in this study will be maintained in complete confidence and privacy will be protected. Subjects will have ID codes. It will not be identified in any report or presentation by name because of this study.

Termination of Participation: I understand that if the screening and data collection procedures provide evidence that the tests or activities cannot be safely performed, or if I have a pre-existing condition which will not allow me to participate in the study, I will be informed at that time and will not be included in the study. I understand that the investigator will explain the reason for the exclusion to me.

What if a participant has any questions? If you have any questions about the study, either now or in the future, please feel free to contact either:

Table 11: Contact Persons and Office

Eyasu Merhatsidk Gebreegziabher Department of Sport Science Telephone Number: +2519 1117 5336(Eth) +2761 636 0320 (SA) Email: eyasu.merha@gmail.com	Professor Johan van Heerden Discipline of Sport Science University Telephone Number: 031 2607985 Email: vanheerdenj@ukzn.c.za	Research office contact Govan Mbeki centre Westville campus University of KwaZulu-Natal Tel: +27(31) 260 7291 Fax: +27(31) 260 2384

This study has been reviewed and approved by the Research Ethics Committee of College of Health Sciences (University of KwaZulu-Natal).

I, _____ hereby consent to take part as a volunteer in the research project entitled ‘football TIP in Ethiopia.

I acknowledge that I have read the information sheet in relation to the above - mentioned project. I have had the project, so far as it affects me, fully explained to my satisfaction by the research worker(s). My consent is given freely.

I understand that the purpose of this project is to identify the existing challenges that hindered the implementation of football TIP and set players physical performance standards that help the football TIP for the male Ethiopian youth (13 – 17yrs) football players.

I have had all risks explained to me.

I have been informed that I will not be identified and personal results will not be divulged while information is gained during the study for publication and/or presentation.

I understand that I am free to withdraw from the project at any time.

I have taken a copy of this consent form and the information sheet.

Signature of Subject: _____ Date: _____

I, the undersigned, was present when the study was explained to the subject/s in detail and to the best of my knowledge and belief it was understood.

Signature of Researcher: _____ Date: _____

APPENDIX J: INFORMATION SHEET AND INFORMED CONSENT FORM FOR PARENTS

Dear Parents,

My name is Eyasu Merhatsidk Gebreegziabher. I am a PhD candidate at the UKZN college of Health Science in the department of Bio kinetics, Exercise and leisure science. I am conducting a research study, on "Football talent identification in Ethiopia: A search for the age of 13 – 17 years men football players".

The aim of this study is to investigate the existing challenges that hindered the implementation of TIP and set players physical performance standards that help the talent identification process for the male Ethiopian youth (13 – 17yrs) football players.

The findings will be beneficial to the entire football organizations. In addition, it will further assist sport administrators, coaches, governmental and nongovernmental football organizations: -

Players will be asked to answer to health-related questions at the beginning of the study and will also go through some simple measurements such as height, weight, and functional tests like flexibility and power tests.

The study will not cause any problems with your son's training or performance and there is no cost for you to pay.

If you are comfortable with your son taking part in this research, please sign the attached consent form. If your son is comfortable with taking part in the study, kindly let him sign the attached assent form. Please note that your son can stop being part of the study at any time if he is unhappy.

Yours faithfully,

To see football TIP, I volunteer to allow my son to answer to questions also participate about basic measurements such as height, weight and functional tests like flexibility, and power tests.

Explanation of the measurements: The measurements will be carefully explained and conducted by trained coaches/data collectors.

Risks and discomforts: There are no more risks than doing normal exercises and training when performing tests.

Expected benefits from participation: This project will let us know whether we can investigate the existing challenges and set players physical performance standards that help the talent identification process.

Enquiries: You can ask questions about the program. If you have any further questions or need additional information, you can contact and speak to the coaches, investigator and/or the data collectors.

Freedom of consent: Your permission to allow your son participation in this study is strictly voluntary. You can say no if you want. You can stop your son from being part of the study at any time if you want.

I have read this form carefully and fully understand the study procedures. I consent to my son participating in this study.

_____ _____ _____

Name of parent/guardian Witness Signature Date

APPENDIX K: INFORMATION SHEET AND INFORMED CONSENT FORM FOR COACHES

Dear coaches,

My name is Eyasu Merhatsidk Gebreegziabher. I am a PhD candidate at the University of KwaZulu-Natal college of Health Science in the department of Bio kinetics, Exercise and leisure science. I am conducting a research study, on "Football talent identification in Ethiopia: A search for the age of 13 – 17 years men football players".

The aim of this study is to investigate the existing challenges that hindered the implementation of TIP and set players physical performance standards that help the talent identification process for the male Ethiopian youth (13 – 17yrs) football players.

The findings will be beneficial to the entire football organizations. In addition, it will further assist players, sport administrators, coaches, governmental and nongovernmental football organizations: -

You will be asked to answer questions that related to the study. The questions will not cause any problems with your personality. If you are interested to take part in this study, you will be asked to fill questionnaire, read and sign consent form.

If you are comfortable with you taking part in this research, please sign the attached consent form. If you are not comfortable with taking part in the study, you can leave and you can stop being part of the study at any time if you are unhappy.

Yours faithfully,

_____	_____	_____
Name	Signature	Date

APPENDIX L: INFORMATION SHEET AND INFORMED CONSENT FORM FOR ADMINISTRATORS

Dear administrators,

My name is Eyasu Merhatsidk Gebreegziabher. I am a PhD candidate at the University of KwaZulu-Natal college of Health Science in the department of Bio kinetics, Exercise and leisure science. I am conducting a research study, on "Football talent identification in Ethiopia: A search for the age of 13 – 17 years men football players".

The aim of this study is to investigate the existing challenges that hindered the implementation of TIP and set players physical performance standards that help the talent identification process for the male Ethiopian youth (13 – 17yrs) football players.

The findings will be beneficial to the entire football organizations. In addition, it will further assist players, sport administrators, coaches, governmental and nongovernmental football organizations: -

You will be asked to answer questions that related to the study. The questions will not cause any problems with your personality. If you are interested to take part in this study, you will be asked to fill questionnaire, read and sign consent form.

If you are comfortable with you taking part in this research, please sign the attached consent form. If you are not comfortable with taking part in the study, you can leave and you can stop being part of the study at any time if you are unhappy.

Yours faithfully,

_____

Name Signature Date

1. የጽሁፍ-መጠይቅ

APPENDIX M: QUESTIONNAIRE FOR PLAYERS IN AMHARIC

ለተጫዎች የሚቀርብ የጽሁፍ-መጠይቅ

1. እባክዎ እድሜዎን፡- በትውልድ ቀንና ዓመት ያመላክቱ

ቀን ወር ዓ.ም

2. እባክዎ ያጠናቀቁትን የትምህርት ደረጃ እንዲያመለክቱ ይሁን አግባብ ካለው ምላሽ ቀጥሎ X ወይም √ ምልክትን ያስቀምጡ

Table 12: Educational Qualification of players in Amharic

	አግባብነት ካለው ምልክት ያደርጉ
1ኛ ደረጃ ት/ቤት (1-8)	
2ኛ ደረጃ ት/ቤት (9-10)	
መሰናዶ ት/ቤት (11-12)	
ማትሪክ ማጠናቀቅ	
ሌላ	

3. እግር ኳስ መጫወት የጀምሩት በምን ያህል እድሜዎ ነው? (አግባብ ካለው ምላሽ ቀጥሎ X ወይም √ ምልክትን ያስቀምጡ)

Table 13: Playing Experience in Amharic

	እድሜ በአመት
በቤት/ይፋዊ ባልሆነ መንገድ	
ለት/ቤት ቡድን	
ከትምህርት ቤት ውጪ ለወጣት ቡድን	

4. እንደወጣት እግር ኳስ ተጫዋች የልዩ ችሎታ መለያ መርሃ ግብር ተካትያለሁ፡፡ (አግባብ ካለው ምላሽ ቀጥሎ X ወይም √ ምልክትን ያስቀምጡ)

□□	□□

እባክዎ በመልስዎ ክብደት መሰረት X ወይም √ ምልክት ያደርጉ

1= በጣም አልስማማም፣ 2= አልስማማም፣ 3= በመጠኑ አልስማማም 4= ገለልተኛ ነኝ፣ 5= በመጠኑ እስማማለሁ፣ 6= እስማማለሁ፣ 7= በጣም እስማማለሁ

Table 14: Questionnaires for Players in Amharic

ቁ.	**ጥያቄዎች**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1	ስለችሎታ መለያ መርሃ ግብር በቂ መረጃ አለኝ፡፡							
2	ቤተሰቤ ስለ እግር ኳስ ችሎታ መለያ መርሃ ግብር ያለኝ ተሳትፎ ይደግፋል							
3	በችሎታ መለያ መርሃ ግብር አፈጻጸም ጊዜ አሰልጣኜ ወይም ፈታኜ ያበረታታኛል							
4	በፈተና ጊዜ በቂ እረፍት እና ውሃ አለ							
5	ሜዳው ፈተናዎች በሚካሄዱበት ጊዜ ተስማሚ ነው							
6	ፈተናዎቹ የአካላዊ ጥንካሬ ለመገምገም ወይም ለመለየት አግባብነት አላቸው							
7	የመፈተኛ ቁሳቁሶቹ ጥራት አላቸው							
8	በችሎታ መለያ መርሃ ግብር ለመሳተፍ እድሎችን አግኝቻለሁ							
9	‘‘ችሎታ’’ ያለው እግር ኳስ ተጫዋች ተብዬ የተለየሁ ሲሆን በትምህርት ወይም በክለብ ስልጠና በአግባቡ አግኝቻለሁ							
10	በአሰልጣኝ ወይም በሌላ ማንኛውም ኃላፊነት ባለው ሰው የተዘጋጁ የፈተና/ፍተሻ ባትሪዎች ያስደስቱኛል							

APPENDIX N: QUESTIONNAIRE FOR COACHES IN AMHARIC

ለአሰልጣኞች የጽሁፍ-መጠይቅ

1. እባክዎ የእድሜዎን ምደባ ያመልክቱ

ሀ. < 25 መ. 46-55

ለ. 25-35 ሠ. 56-65

ሐ. 36-45 ረ. 65 <

እባክዎ ያጠናቀቁትን የትምህርት ደረጃ እንዲያመለክቱ ይሁን አግባብ ካለው ምላሽ ቀጥሎ X ወይም √ ምልክትን ያስቀምጡ

Table 15: Coach's Educational Qualification in Amharic

	አግባብነት ካለው ምልክት ያደርጉ
ከፍተኛ ሁለተኛ ደረጃ ት/ቤት ያላጠናቀቀ	
ማትሪክ ማጠናቀቅ	
ድህረ ማትሪክ ማጠናቀቅ (ለምሳሌ የምስክር ወረቀት/ዲፕሎማ)	
የመጀመሪያ ዲግሪ (ቢኤ፣ ቢኢዲ፣ ቢኤስሲ ወዘተ)	
ሁለተኛ ዲግሪ (ኤምኤ፣ ኤምኤስሲ፣ ኤምኢዲ ወዘተ)	
ሶስተኛ ዲግሪ (ፒኤችዲ)	

እባክዎ የደረሱበትን ከፍተኛ የአሰልጣኝነት ደረጃ እንዲያመለክቱ ይሁን? (አግባብ ካለው ምላሽ ቀጥሎ X ወይም √ ምልክትን ያስቀምጡ)

Table 16: Coaching Level in Amharic

	አግባብነት ካለው ምልክት ያደርጉ
1ኛ ደረጃ	
2ኛ ደረጃ	
ካፍ ሲ ደረጃ	
ካፍ ቢ ደረጃ	
ካፍ ኤ ደረጃ	
ፕሮፌሽናል ፈቃድ	
ሌላ	

2. የእግር ኳስ አሰልጣኝነት የጀመሩት በምን እድሜዎ ነው?

እባክዎ በመልስዎ ክብደት መሰረት X ወይም √ ምልክት ያደርጉ

1= በጣም አልስማማም፣ 2= አልስማማም፣ 3= በመጠኑ አልስማማም 4= ገለልተኛ ነኝ፣ 5= በመጠኑ እስማማለሁ፣ 6= እስማማለሁ፣ 7= በጣም እስማማለሁ

Table 17: Questionnaires for Coaches in Amharic

ተ. ቁ	ጥያቄዎች	1	2	3	4	5	6	7
1	የእግር ኳስ አሰልጠኝነት ኮርሶችን በበቂ ሁኔታ ተከታትያለሁ							
2	ስለችሎታ መለየት በቂ እውቀት አለኝ							
3	ከችሎታ መለየት ጋር በተያያዘ የተለያዩ ኮርሶችን ወስጃለሁ							
4	ከችሎታ መለየት ጋር የተያያዙ የአሰልጠኝነት እውቀቴን ሁሌም አሻሽላለሁ							
5	የተለያዩ የአሰልጠኝነት ኮርሶችን ወስጃለሁ፤ ኮርሶቹ የችሎታ መለየትን በውስጣቸው ያካተቱ ናቸው							
6	የአሰልጣኝነት እቅድን ሁልጊዜም እሰራለሁ							
7	በእኔ ልምድ አመታዊ የስልጠና እቅድ በማረቅበት ጊዜ የችሎታ መለያ መርሃ ግብርን አካትታለሁ							
8	እንደአሰልጣኝ ተጫዋቾችን በምመርጥበት ጊዜ የችሎታ መለያ ሂደቶችን እከተላለሁ							
9	ተጫዋችን በማሰልጠኑ ሂደት የችሎታ መለያ መርሃ ግብር የግድ መካተት አለበት							
10	የተጫዋችን ችሎታ በምልይበት ጊዜ ሁልጊዜም መመሪያውን እከተላለሁ							
11	የአሰልጣኝነት መመሪያ አግባብነት ያላቸውን የመለኪያ መሳሪያዎች የያዘ ነው							
12	ፈተና በማካሂድበት ጊዜ ተጫዋቾች በከፍተኛ ሁኔታ ይነቃቃሉ							
13	የምጠቀማቸው የመፈተኛ ቁሳቁሶች አግባብነት ያላቸው ናቸው							
14	የኢትዮጵያ እግር ኳስ ፌዴሬሽን ለችሎታ መለያ መርሃ ግብር አግባብነት ያለው ስልጠና ለአሰልጣኞች ይሰጣል							
15	የተጫዋቾች የአካላዊ ብቃት የአሁን ደረጃን ለመገምገም ክለቤ/ቡድኔ/አካዳሚዬ የመርሃ ግብር ጊዜ እንደሚያወጣ አምናለሁ							
16	የችሎታ መለያ ፕሮግራም አለመኖር የተጫዋቾቹን አካላዊ ጥንካሬ እንዳይጎለብት ከሚያደርጉት ዋነኛ ችግር ነው፡ለ							

APPENDIX O: QUESTIONNAIRE FOR ADMINISTRARERS IN AMHARIC

ለአስተዳዳሪዎች/ሰራ አስኪያጆች/ የጽሁፍ-መጠይቅ

እባክዎ በመልስዎ ክብደት መሰረት X ወይም √ ምልክት ያደርጉ

1= በጣም አልስማማም፣ 2= አልስማማም፣ 3= በመጠኑ አልስማማም 4= ገለልተኛ ነኝ፣ 5= በመጠኑ እስማማለሁ፣ 6= እስማማለሁ፣ 7= በጣም እስማማለሁ

Table 18: Questionnaires for Administrators in Amharic

ቁ.	ጥያቄዎች	1	2	3	4	5	6	7
1	ስለችሎታ መለየት መርሃ ግብር እውቀት አለኝ							
2	በቡድኔ ውስጥ ችሎታ መለየት መርሃ ግብር አለ							
3	የኢትዮጵያ እግር ኳስ ፌዴሬሽን ባለሙያዎች ችሎታ መለየት መርሃ ግብር አፈጻጸምን በተመለከተ ለቡድኔ እገዛ ያደርጋሉ፡፡							
4	ኢትዮጵያ እግር ኳስ ፌዴሬሽን ለአስልጣኞች ከችሎታ መለየት መርሃ ግብር ጋር በተያያዘ ራስን የማሻሻያ ኮርሶች ያዘጋጃል							
5	አሁን ያለውን የተጫዋቾች የአካላዊ ጥንካሬያዊ ደረጃ ለመገምገም ክለቤ/ቡድኔ/አካዳሚዬ የጊዜ ሰሌዳ እንዳለው አምናለሁ							
6	የችሎታ መለየት መርሃ ግብር አለመኖር ለተጫዋቾች አካላዊ ጥንካሬ መጎልበት ዋነኛው ችግር ነው፡፡							
7	ችሎታ መለየት መርሃ ግብር ጋር በተያያዘ ለአሰልጣኞች የማነቃቂያ ኮርሶችን ክለቤ/ቡድኔ/አካዳሚዬ ይሰጣል/ያመቻቻል							
8	ክለቤ/ቡድኔ/አካዳሚዬ በቂ ችሎታ ለይዎች አሉት							
9	ክለቤ/ቡድኔ/አካዳሚዬ ለችሎታ መለየት በቂ የፈተና ቁሳቁሶች አሉት							
10	በቡድን/ክለብ/አካዳሚ የችሎታ መለየት መርሃ ግብር አሰልጣኞች ኃላፊነት ያለባቸው መሆን አለባቸው							
11	የኢትዮጵያ እግር ኳስ ፌዴሬሽን የችሎታ መለያ መርሃ ግብር ጥራት ለማሻሻል ወይም ለማቋቋም ከክለቤ/ቡድኔ/አካዳሚዬ ጋር በጋራ ይሰራል፡፡							
12	ተቀባይት ያለው የችሎታ መለየት መርሃ ግብር ለቡድኔ ጠቃሚ ነው፡፡							
13	ቡድኔ የችሎታ መለያ ሂደት በሚያሂድበት ጊዜ ከተጫዋቾቹ ይነቃቃሉ/ይበረታታሉ፡፡							

ክፍት የጽሁፍ-መጠይቅ

Table 19: Open Ended Questionnaires for Administrators in Amharic

1	በኢትዮጵያ የችሎታ መለየት መርሃ ግብርን ለማሻሻል ወይም ለፈጸም ይሆናሉ ብለው የሚያስቧቸው መፍትሔዎች ምንድናቸው?
2	በእርስዎ አስተያየት የችሎታ መለየት መርሃ ግብርን ለመፈጸም ዋነኞቹ አላማዎች/ምክንያቶች ምንድናቸው? እንደመፍትሔነት ያለዎት አስተያየት ምንድነው?
3	ለክለብዎ/ለቡድንዎ/አካዳሚዎ ስለ ችሎታ መለየት መርሃ ግብር የሚሰጡት አስተያየት ምንድነው?