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# The EFFECT OF STRENGTH TRAINING ON SELECTED SKILL-RELATED FITNESS COMPONENTS OF DEBRE TABOR MALE U-17 FOOTBALL TRAINEES

Desalegn, Wondifraw

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**BAHIR DAR UNIVERSITY**

**SPORT ACADEMY**

**POSTGRADUATE PROGRAM**

**THE EFFECT OF STRENGTH TRAINING ON SELECTED SKILL-  
RELATED FITNESS COMPONENTS OF DEBRE TABOR MALE U-17  
FOOTBALL TRAINEES**

**BY**

**DESALEGN WONDIFRAW**

**JULY, 2022**

**BAHIR DAR UNIVERSITY**

BAHIR DAR UNIVERSITY

SPORT ACADEMY

DEPARTMENT OF SPORT SCIENCE

THE EFFECT OF STRENGTH TRAINING ON SELECTED SKILL-RELATED  
FITNESS COMPONENTS OF DEBRE TABOR MALE U-17  
FOOTBALL TRAINEES

A THESIS SUBMITTED TO SPORT ACADEMY, BAHIR DAR UNIVERSITY, IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE  
IN FOOTBALL COACHING

BY

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ADVISOR

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July, 2022

BAHIR DAR

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## DECLARATION

I, **DesalegnWondifraw**, hereby declare that the material contained within this research now submitted to the Sport Academy of Bahir Dar University in partial fulfillment for the award of Degree of **Master of Science in Football Coaching** is entirely my own work. I have followed all ethical principles of scholar in the preparation, data collection, data analysis and completion of this thesis. Any materials accessed and utilized and ideas acquired in the process of conducting this research have been cited and acknowledged. All scholarly matter that is included in the thesis has been given recognition through citation. I affirm that I have cited and referenced all sources used in this document. Every serious effort has been made to avoid any plagiarism in the preparation of this thesis.

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**Bahir Dar University  
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I hereby certify that I have supervised, read, and evaluated this thesis titled “**The Effect Of Strength Training on Selected Skill-Related Fitness Components of Debre Tabor Male U-17 Football Trainees**” by **Mr. DesalegnWondifraw** prepared under my guidance. I recommend the thesis be submitted for oral defense.

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We hereby certify that we have examined this dissertation/thesis entitled “**The Effect Of Strength Training on Selected Skill-Related Fitness Components of Debre Tabor Male U-17 Football Trainees**” by **Mr. Desalegn Wondifraw**. We recommend that the thesis is approved for the degree of Master of Science in Football Coaching.

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## **DEDICATION**

This thesis is dedicated to my brother, MollaWondifraw and his familyand my wife AbebaTadesse and my son BetamariameDessaagne for their constant physical, emotional, and financial support throughout my educational career and life.

## **STATEMENT OF THE AUTHOR**

First, I declare that this thesis is my genuine work and that all sources of materials used for this thesis have been duly acknowledged. This thesis has been submitted in partial fulfillment of the requirements for MSc. Degree at Bahir Dar University and is deposited at the university library to be made available to browsers under the rule of the library. I solemnly declare that this thesis is not submitted to other institutions anywhere for the award of any academy degree diploma or certificate. Brief quotations from this thesis are allowed without special permission provided that accurate acknowledgments of sources are made. Requests for permission for extended quotation form or duplicate of this manuscript in whole or in part may be granted by the head of the department/school or the Director of Postgraduate Directorate when he/ she reaches judgment that the proposed use of the material is in the interest of scholarship. However, in all other instances permission must be obtained from the Author.

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## **BIOGRAPHICAL SKETCH**

The author was born on April 2, 1982, in South Gonder Amhara Regional State. He started his elementary education at NefasMewechapprimary school and he attended his secondary and preparatory education at NefasMewechapreparatory and senior secondary school.

Then he joined Bahir Dar University, academy of sports science in 1997 and graduated with a Bachelor of Degree in sport science (BSc) in 2000.

He was employed as a health and physical education teacher inNefasMeweCHASECONDARY School. After five years of service, he joined the South Gonder youth and sports office.

## **ACKNOWLEDGMENTS**

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## **ABBREVIATION AND ACRONYMS**

ACSM American College of Sport Medicine

CG Control Group

DFB \_ "Deutscher Fussball-Bund" (German Football Association)

DT \_ During Training

EG \_ Experimental Group

FIFA \_ Federation International Football Association

MoE \_ Ministry of Education

NSCA \_ National Strength and Conditioning Association

PoT \_ Post Test

PT \_ Pre Test

Soccer \_ another Name for Football

ST1 \_ Speed test 1 (10 m dash)

ST2 \_ Speed test 2 (40 m dash)

TT \_ T-test

U-17 \_ Soccer trainees with age between 15-17

VJ \_ Vertical jump test

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## **ABSTRACT**

*The aim of this study is to examine the effect of strength training on speed, agility and anaerobic power on U-17 football trainees. Strength training has been widely used by trainers recently in order to improve performance of soccer trainees. But the researcher doubt that what effect it brings and how much coaches who works at Ethiopian soccer projects/programs aware its effect. Alloftwenty eight (28) footballtrainees who was the only soccer training project team at DebereTabore town with age U-17 were conveniently selected and participated voluntarily in the research. Among those half of them were randomly selected as EG which specially prepared strength training was applied and the rest were CG. Weight and height averages of U-17 EG and CG were similar which are 56.92 Kg and 57.77 Kg in weight and 1.68m and 1.71m in height respectively. Before training, PT of two groups of fourteen (14) trainees (TT of agility tests, VJ tests of anaerobic power tests and 10m & 40m dash speed tests) were recorded. The strength training were implemented on the EG twice a week, 35 to 40 min a day. Consequently after six (6) weeks of strength training, DT was taken in each parameters and a little improvement in each test results were observed and training was continually given by increasing its intensity. After two months, posttest measurement on the same parameters was taken. The difference between the tests were analyzed statistically, with paired sample “t” test at  $p < 0.05$  Consequently it was observed that strength training implemented on junior level trainees brought about significant improvements between pre and post test results of agility, in which duration to complete TT was decreased by a mean difference of 0.75143 seconds at  $P = 0.001$ . Speed in which duration of 10m and 40m dash speed test result was decreased by a mean difference of .140seconds at  $P = .00298$  and .202seconds at  $P = .0036$  respectively. And power, in which height and length of VJ test result were increased by a mean difference of .057857 at  $P = .001$  respectively. As result the investigator recommended that adding strength training on their soccer training program helps to improve trainees speed, agility and power.*

**Keywords;** -strength training, skill related, physical fitness,

# CHAPTER ONE

## INTRODUCTION

In this section the investigator discussed about the background of the study, statement of the problem, , general and specific objectives of the study, research questions, significance, scope, limitation, operational definitions of key terms and organizations of the study.

### 1.1. Background of the Study

Soccer is the most popular sport in the world. From the Andes to Greenland, people just can't seem to resist kicking a leather ball around or watching others doing the same. The figures are staggering approximately 250 million people play the game regularly. In fact, if soccer trainees made up a nation, it would be the fourth most populous on the planet. You could almost say that soccer is a universal language. If you found yourself in a strange country with no knowledge of the local tongue, you would still be able to strike up a conversation by using a few hand gestures accompanied by the names of some prominent trainees. Place one hand at chest level while saying "Pele," then raise it with the word "Maradona" and you'll quickly start making friends (Goldbatt and David, 2011). And it is obvious that this football legend gets their popularity through hard working since their childhood.

As a result, now a day's our country, Ethiopia also gives recognition for youth football program as a founding stage for the replacements and developments of elite athletes in the future. But so as to gain the full cumulative effects of youth football training program or to gain an improvement in performance, training shall meet certain criteria. And they should be equipped with the basic and advanced technical, tactical, physical, and psychological demands of modern football. Within this standing truth developing well-structured youth football development program is primarily mandatory (Asrat Abate, 2014).

Durandt, (2009) Stated that soccer trainees require a moderate to high levels of aerobic and anaerobic power, good agility, speed and a variety of technical and tactical skills to bolster the likelihood of their success in the sport and to meet the physical demands of play as well as training components. And coaches now a day's give variety of aerobics, strength and power

trainings which involve large muscle group especially lower and upper extremities so as to meet the physical demands of U-17 soccer trainees.

But the ideas of improving and conditioning the core muscle which is the founding areas that helps to maintain balance, convert stored energy into explosive power and strong kicking and jumping actions of lower extremities during soccer match was discussed lately. And its effect is not assessed much.

As Shinkle et al, (2012) definition, the core is considered a box with the abdominals and gluteal in back the diaphragms the roof, obliques, as the side and the pelvic girdle and hip girdle musculature serving as the bottom. And core training as the training of abdominal and lumbar region. He added that strengthening core muscle is not only necessary for sportive performance but also provide a correct posture. A strong core will allow a transfer of force from the lower body to the upper body with the minimal dissipation of energy in the torso. And if power is created but not transferred or no strong core muscle, performance may be affected negatively (Afyon, 2014). Similarly, the benefits of this core training which is given for the sake of Developing core muscles strength helps to improve sporting performance, improving musculoskeletal systems ranging from maintaining low back pain and prevent knee ligament injury is studied by (Nesser et al., 2012).

Additionally, Afyon, (2014) stated soccer as a team sport of intense tackle so strong central body area decrease injury, improves explosive power, improve higher rate of anaerobic energy and technical movements with and without the ball. additionally in the same investigation he, stated in his research conducted on the effects of 12 weeks of core strength training on motor capabilities of 16 years old soccer player, a significant effect was observed in standing long jump, shuttle, push up, speed plank and vertical jump, which are almost an indicators and assessment tools of strength, anaerobic power, and speed of a soccer player.

Even if different researchers examined that this strength training helps for improving and strengthening muscles for better performance, effective motor capabilities, endurance and strength of abdominal muscles and reduce back injuries, its contribution towards skill related fitness components including anaerobic power, speed and agility was investigated merely with scientific researches. And due to lack of investigation of the effects of strength training on the

above listed fitness components especially with local youth soccer trainees, the investigator conducted experiments and identified the effect of strength training on selected skill related fitness components of U-17 soccer trainees.

## **1.2 Statement of the Problem**

Lots of sport organizations, sport journals, and sports science professionals agreed that designing a well-planned grass root and youth football training program is a founding stage of the replacement and development of tomorrow's elites.

But their agreement can only be true if and only if there is an application of scientific soccer training which is supported by progressive assessments of players' performance, fitness qualities as well as training methodologies.

Even if coaches who work on the grass root level give lots of aerobic, strength, and other soccer-related skill training to their Children and know little about the real impacts of their training on health-related fitness components, they still lack of assessing the skill-related fitness components with the type of exercise they prescribed.

Dessie, Babul, and Hirko (2021) show that strength training has an effect on the performance of players, this research was conducted in Digotsion Town, which is not allowed to conclude the overall country's youth football players. Similarly; Membere, Melese, and Getasew (2021) also shows that strength training is important to improve power, speed and agility of players. This research was conducted in south Wollo zone Amhara region but my research will be conducted in Debre-tabor town South Gonder zone Amhara region which is different in topography of the research area, climate and nourishment of players as compared to the above-mentioned research.

In addition; since I have been working as a sports expert for the last 18 years at sports offices, I had an opportunity to see that football trainers didn't give much attention to strength training and hence training wasn't as such adequate to make players be strong. As a result; I could observe that lack of skill-related fitness was a major problem for these players when they were playing in the field.

From my practical experiences, based on the above standing point of views, and due to lack of investigation related with our countries youth soccer training and players performance

assessments, the researcher selected this problem to investigate through implemented some soccer and skill related fitness tests and examined the effects of strength training on U-17 soccer trainees so as to recommend some possible solutions for the problem to have been investigated in the study.

### **1.3 Objectives of the Study**

#### **1.3.1 General objective**

To assess the effect of strength training on selected skill related fitness components of U-17 soccer trainees in Debre Tabor city

#### **1.3.2. Specific objectives**

1. To examine the effects of strength training on agility of U-17 soccer trainees in Debre Tabor.
2. To test the effect of strength training on power of U-17 soccer trainees in Debre Tabor..
3. To evaluate the effect of strength training on speed of U-17 Soccer trainees in Debre Tabor.

### **1.4. Hypothesis of the Study**

The study was attempt to test the following hypothesis

1. HO: strength training has no significant effect on agility of soccer trainees.  
HA: strength training has a significant effect on agility of soccer trainees.
2. HO: strength training has no significant effect on Power of soccer trainees.  
HA: strength training has a significant effect on Power of soccer trainees.
3. HO: strength training has no significant effect on speed of soccer trainees.  
HA: strength training has a significant effect on speed of soccer trainees.

### **1.5 Significance of the Study**

The finding of this study was help that it may serve as an initial indicator to those who want to carry out further studies on the related topic, it helps to understand more about effects of strength training method on power, speed, and agility, it serves as a benchmark for trainers to research related topic and as a reference to understand the effects of strength, training of power, speed,

and agility. Furthermore, it would help to understand the advantages of conducting strength training for power, speed, and agility.

The findings of this study may have a great contribution to add new ideas to the existing knowledge of the coaches related to utilizing strength training for the development of speed, power and agility of those project players to be successful development.

Besides, this research may also serve as a reference material for Federal and Regional soccer federations and the community at large who would like to get further information from a new perspective and outlook of the effect of strength training program on agility, power and speed of football project trainees in the league situation from the respective regions as well as the country in general. Even though the focal point of this study was on Debre Tabor city youth u-17 football project trainees, the findings of the study may also be implemented to different soccer leagues because of the characteristics of the players in those league shares as younger players

### **1.6.Scope of the Study**

Conducting the study in all of soccer and skill related fitness components were difficult, challenging and unmanageable. As a result, the researcher assessed the effect of three months of strength training on speed, power and agility of U-17 soccer trainees in Debre Tabor town. There are multifaceted types of tests to measure speed, power and agility, but the researcher delimited the types of tests; 40 meter run test for speed, vertical jump test for power and t-test for agility. Since this soccer project/program team was the only pre organized men youth football trainees in Debre Tabor town, which is the researcher's working place, the investigation again delimited on the above listed trainees. This study was delimited on the training season of 2022.

### **1.7.Limitations of the Study**

Research with out limitation is impossible, so that the following points might be considered as limitations of the study. The study focused on speed, power and agility; hence, the findings may not be generalizable and applicable to the other factors for skill related physical fitness qualities of u-17 male football trainees. Moreover, the sample project trainees were taken regardless of trainees' position, so that the difference responsibilities of the trainees may have an impact on

the results of this study, this may be considered as the limitations of this particular study though, important steps were taken to systematically handle this possible limitation.

### **1.7. Operational Definitions of Key Terms**

For the purpose of this study, the following terms were operationally defined:

- **Agility:** The ability to explosively accelerate, decelerate, and change direction
- **Power:** Is the ability to move the body parts swiftly while applying the maximum force of the muscles
- **Speed:** speed is defined as the capacity of the individual to perform successive movements of the same pattern at a faster rate. -Is the quickness of movement of a limb, whether this is the legs of a runner or the arm of the shot putter, (Grabard, 1987).
- **Skill related fitness;** skill-related components are movements that are necessary for an individual to successfully demonstrate a variety of motor skills and movement patterns.
- **Strength Training:**It is the use of the resistance of muscular contraction to build the strength on aerobic endurance and size of skeletal muscle. (Paul Rogers 2013)
- **Soccer** another Name for Football, and it is a game played on a field between two teams of 11 players each with the object to propel a round ball into the opponent's goal by kicking or by hitting it with any part of the body except the hands and arms
- **U-17** Soccer trainees with age between 15-17

### **1.8. Organization of the Study**

This experimental research was organized in five chapters. The first chapter presents the background of the study, incorporating the discussions about the effect of strength training on some selected skill related fitness; speed, agility and power, and all of them are succinctly described in this section. This chapter also comprises the statement of the problem, research hypotheses, general objective of the study, specific objectives, and significance of the study, delimitation of the study, limitation of the study, operational definitions of key terms and organization of the study in detail.

Chapter two concentrates on a review of related literature. In this section, relevant research works of both conceptual and empirical analysis was thorough and deeply reviewed so as to support and substantiate the problem and the findings of the study utmost and the missing part that needs to be fulfilled.

The third chapter of this study explains the research methods that include the description of the study area, the research approach, research design, study population, sample and sampling techniques, source of data, data collection instrumentation, method and procedure of data collection, exercise training protocol, method of data analysis, ethical consideration were discussed in detail.

In chapter four the results obtained in the study and analysis were presented, which investigates the nature of the effect of strength training on some selected skill related fitness; speed, agility and power at Debre Tabor u-17 football project trainees. In addition, this chapter portraits discussion of the results with the existing and past research works scrutinized in line with the present findings.

Finally, in chapter five summaries of the study presented, based on the findings, conclusions, recommendations, and directions for intervention avowed to possible improvement for future research.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURES**

This section dealt with the meaning and anatomy of core muscles, effects of strength exercise on soccer trainees, characteristics of U-17 soccer trainees, physical and skill demands of the soccer game, the importance of implementing fitness tests, guidelines of a fitness test, and soccer-related skill tests including power, speed and agility test.

#### **2.1. Strength training**

Strength training is a type of physical exercise specializing in the use of resistance to induce muscular contraction which builds the strength, anaerobic endurance, and size of skeletal muscles. When properly performed, strength training can provide significant functional benefits and improvement in overall health and well-being, including increased bone, muscle, tendon, and ligament strength, and toughness, improved joint function, reduced potential for injury, increased bone density, increased metabolism, increased fitness, improved cardiac function, and improved lipoprotein lipid profiles, including elevated HDL ("good") cholesterol. Training commonly uses the technique of progressively increasing the force output of the muscle through incremental weight increases and uses a variety of exercises and types of equipment to target specific muscle groups. Strength training is primarily an anaerobic activity, although some proponents have adapted it to provide the benefits of aerobic exercise through circuit training ([www.Wikipedia.com](http://www.Wikipedia.com)).

Sports, where strength training is central, are bodybuilding, weightlifting, powerlifting, strongman, Highland games, shot-put, discus throw, and javelin throw. Many other sports use strength training as part of their training regimen, notably tennis, American football, wrestling, track and field, rowing, lacrosse, basketball, pole dancing, hockey, professional wrestling, rugby union, rugby league, and soccer. Strength training for other sports and physical activities is becoming increasingly popular ([www.Wikipedia.com](http://www.Wikipedia.com)).

#### **2.2 Strength Training for Soccer Trainees**

Strength and power share importance with endurance in soccer play. Maximal strength is one basic quality that influences power performance. An increase in maximal strength is usually

connected with an improvement in relative strength and, therefore, with an improvement of powerful abilities. ([www.nasca.jscr.org](http://www.nasca.jscr.org))

A significant relationship has been observed between 1RM and acceleration and movement velocity. This maxi-mal strength/power performance relationship is supported by jump test results as well as in 30m sprint results. By increasing the available force of muscular contraction in appropriate muscles or muscle groups, acceleration, and speed in skills critical to soccer such as turning, sprinting, and changing pace may improve. Soccer play is dominated by acceleration and braking, and Newton's second law of motion ( $F = m \cdot a$ ) establishes that for a given mass (the player's body weight), acceleration is proportional to force magnitude. This states the close relationship between force and sprint and jump results (Jan Hoff et al., 2004).

### **2.3 Guidelines of Strength Training**

Based on the national strength and conditioning association the following are the recommended guidelines of strength training ([www.nasca.jscr.org](http://www.nasca.jscr.org)).

All athletes should be taught proper exercise and spotting techniques. Exercises should initially be taught with no load to allow the proper technique to be learned.

All training sessions should be supervised by an experienced fitness professional.

- Each child should be physically and emotionally prepared to participate in strength training.
- Training program. Also, consider the athlete's maturity level when introducing more advanced exercises.
- Children should have realistic expectations/goals.
- The exercise area should be safe and free from hazards general warm-up, followed by several sport-specific warm-up exercises performed at a Light intensity.
- Equipment should be properly sized for a child.
- Begin lifting, preferably, with bodyweight exercises. Athletes can also engage in basic machine exercises if they use light loads that allow the athlete to complete 12- 15 repetitions.

- The program should progress to ultimately encourage athletes to perform one-three sets of exercises on two three non-consecutive days. Each set should consist of six15repetitions.
- Never increase the load being lifted by more than five percent for the upper body or 10Percent for lower body exercises.
- Competition between children should be discouraged since this may lead to athletes performing maximum lifts.
- Strength training should be stopped at any sign of injury and the child should be
- Evaluated before re-entering the strength program.
- Never force a child to participate in a resistance-training program.

## **2.4 Effects of Core Muscle Strength for Soccer Trainees**

The core seems to play an important role in soccer. The core stabilizes through every agile movement, every kick, and every landing. Sprinting and kicking are known to be related to core strength, for example, the glutei stabilize the trunk and allow for powerful forward movements of the leg. Therefore, the core stabilizes during every shot and pass. Investigators Niewolna and Zwierko (2015), looked at soccer trainees and untrained subjects to see the effects of unexpected perturbations on core stability.

They found that soccer trainees required less time than recreationally active people to activate the various core muscles and less postural sway in response to a change in surface stability. This suggests that these muscles are important and incorporated in soccer training.

In soccer, core strength does not only impact the athlete's ability to move fast and change direction quickly but also helps to win tackles. And core muscles are important for a soccer player as they serve as a base for endurance, posture, strength, power, coordination, and reducing the likelihood of injury ([www.athleticlab.com](http://www.athleticlab.com)).

### **2.4.1 Endurance and Posture**

The erector spine (which means spine stiffener) and the stabilizer muscles determine posture and back strength. Having a strong back can help improve your endurance. After all, if the athlete's back is tired, chances are there will be a noticeable change in posture which can reduce

mechanical efficiency. Furthermore, improved posture allows the athlete to stand taller, allowing a better chance to head high balls. Finally, to a much lesser extent, enhanced posture can improve kicking efficiency, making shots and passes more effective and precise ([www.athleticlab.com](http://www.athleticlab.com)).

#### **2.4.2 Strength and Power**

Several core muscles assist in generating powerful, explosive movement. Whether it's for fighting off an opposing player or making that powerful kick to score, your core muscle plays an important role.

#### **2.4.3 Coordination**

Muscles aid in coordinating upper and lower body synchronous movement. This is important when volleying balls and even simply making the ball go where the player is intending.

#### **2.4.4 Reducing Likelihood of Injury**

A strong core is an essential part of overall strength and fitness which has obvious effects on reducing injury. Muscles of the core also support the spine which in turn improves spinal regulation of the nervous system. Strength in the hips and lower back can help prevent injuries to leg muscles which are the most predominantly injured in soccer.

### **2.5. Physiological Demands of Soccer Game**

The physiological demands of soccer are complex. This complexity is partly a consequence of the nature of the exercise pattern. The requirement for frequent changes in both the speed of movement (e.g., walking, jogging, high intensity running, and sprinting) and direction, makes the activity profile intermittent. The intermittent exercise associated with soccer necessitates contributions from both the aerobic and the anaerobic energy systems. Training programs for trainees will therefore need to include activities and exercise prescriptions that stress these systems. Trainees also need to possess muscles that are both strong and flexible. These attributes are important for the successful completion of the technical actions (e.g., passing, shooting, etc.) which ultimately determine the outcome of the match.

Effective ways to develop both strength and range of movement, especially in the lower limbs, also need to be systematically planned and performed in training. The need to include several components of fitness into the training programs of soccer trainees would indicate that the exercise prescription should be multi-dimensional. The inclusion of specific training plans for the development of several energy systems as well as specific muscle exercises would lead to a need for multiple types of physical training sessions. The completion of a large number of such training sessions is problematic in a sport such as a soccer for various reasons.

The need to include training that is focused on the development of technical skills and sessions that impact the tactical requirements of soccer prevents the completion of numerous physical training sessions. Technical and tactical sessions are frequently the priority in the training plan and will therefore often take precedent over all other training activities. A large number of competitive fixtures, as well as the need for frequent travel, further limits the time that is available to undertake physical training in the competitive season.

These restrictions promote the need for a more global approach to the training of trainees by devising sessions that promote the simultaneous development of physical, technical, tactical, and mental qualities (Morgans et al., 2014).

As Niessen, (2014) Football is a sport of intermittent nature that requires multiple and constant changes of direction running intensity, accelerations, and types of movements (running forwards, backward, lateral movements, jumps, tackle, etc.). The specificity of training principle in sports science states that the most effective training is the one that resembles the demands of a sport/game as close as possible. Therefore, a broad understanding of the physical demands of football is essential for developing sport-specific conditioning programs for youth football trainees.

## **2.6 .General Characteristics of the U-17 Age Group**

- May have a lengthened attention span
- Able to better understand moral principles
- Strong identification with admired adults
- Very sensitive to praise and recognition; feelings are easily hurt

- Fear of ridicule and being unpopular
- Friends set the general rules of behavior
- Strong need to conform exists
- Dress and behave like their peers to belong
- Experiences physical changes - very concerned with their appearance and very self-conscience about their physical changes
- Often a rapid weight gain at the beginning of adolescence poses an enormous appetite (US soccer model 2012).

## **2.7. Components of Skill Related Physical Fitness**

Physical fitness is classified into two. Health-related which contribute to the overall health improvements of an individual and skill-related component are demanded highly for performance improvements of a particular athlete who participates in a specific sport. And the following are lists of skill-related fitness components ([www.teachpe.com](http://www.teachpe.com)).

### **2.7.1 Speed**

Most sports and activities require some form of speed. Even long-distance running often requires a burst of speed to finish the race ahead of your competitors. Speed is defined as the ability to move a body part quickly. Speed is not always about how quickly you can move your whole body from a to b, it also relates to body parts. For example, when playing golf, the speed of your arms and upper body in creating the swing is vital in driving the ball over a long distance.

### **2.7.2 Reaction Time**

Reaction time is how quickly your brain can respond to a stimulus and initiate a response. This is important in most sports. The most obvious example will be, being responded to the gun at the start of a short distance run, a goalkeeper saving a penalty, or a badminton player reacting to a smash shot. The examples in sport are endless.

### **2.7.3 Agility**

Being agile is all about being able to change your direction and the speed at which you are traveling quickly and efficiently. This is common in sports such as football and rugby where the player with the ball dodges a defender, or in badminton or tennis, moving around the court quickly to reach the shuttlecock/ball in time.

### **2.7.4 Balance**

Balance is the ability to maintain equilibrium whilst stationary or moving. Balance whilst moving is often called dynamic balance. Balance is important in all kinds of sporting situations, most notably in gymnastics and ballet. But also in contact sports, having a good balance may prevent you from being tackled to the floor. Balance is also linked to agility, to quickly and efficiently change the direction you must be balanced.

### **2.7.5 Coordination**

Coordination is the ability to use the body parts and senses together to produce smooth and efficient movements. If someone is uncoordinated; his/her movement looks awkward and shaky. Being co-ordinate is vital in all sports, for example, hand-eye coordination in racket sports and the co-ordination to use the opposite arm and leg when sprinting.

### **2.7.6 Power**

Power is the product of strength and speed. While performing a task as quickly and as forcefully as we can, the result is powerful. For example, a sprint starts, a shot-put, or javelin throw.

## **2.8. Practical Guidelines for Fitness Tests**

Fitness assessment tests need to be administered properly and in a structured manner to achieve accurate and consistent results. In addition, the athlete's health should get top priority, and tests, therefore, need to be safely conducted. The following subsections provide various guidelines that will ensure tests are administered safely and in an organized manner Freeman

### **2.8.1 Test Preparation**

Trainees need to be properly warmed up before conducting any test to avoid injuries and to improve the reliability of the results of the tests. On days with multiple tests, a general warm-up of jogging and dynamic stretching before the first test should be adequate. However, if there is a long waiting period between tests, the athlete may need to repeat the warm-up procedure Freeman (2009).

### **2.8.2 Test Sequence**

Ideally, tests that assess anaerobic and aerobic endurance should be conducted on separate days from the other tests. In many situations, however, all assessments are completed on the same day. In such an event, the tests should be ordered in a way that gives the most reliable results.

Indeed, assessments that require skilled movements and coordination should be administered before ones likely to induce fatigue. Administer tests in the following sequence on occasions when they are all done on the same day (Durandt, 2009).

1. Consultation: there should be an agreement between the subjects and the investigator or the one who is going to administer a test (see consent form).
2. Anthropometry: the player should not perform any physical activity before the measurements of body composition. This test should always take place first and directly after the consultation.
3. Flexibility tests (sit and reach, overhead squat)
4. Agility tests (t-test)
5. Power tests (vertical jump)
6. Speed tests (40 and 10-yard sprint)
7. Strength endurance tests (push up and bodyweight squat)
8. Anaerobic endurance tests (300-yard shuttle)
9. Aerobic endurance tests (1.5-mile run)

### **2.8.3 Testing Conditions**

Practice locations (gyms, playing fields) are likely to change as you progress throughout the different phases of the season, especially in areas that experience extreme weather conditions

however, to get consistent results from the different testing periods, it is recommended that the test conditions (running surface, running track, equipment, etc.) remain the same. Environmental factors such as temperature and humidity are uncontrollable; but if possible, conduct tests on days with similar weather conditions as large variations can significantly affect test results. Additionally, ensure the tests are conducted in the same order, by the same testing personnel, at the same time of day, and when athletes are sufficiently rested.

#### **2.8.4 Safety Considerations**

All athletes should get medical clearance before being allowed to partake in physical activity and fitness assessment procedures. In addition, coaches should be able to identify hazardous testing conditions. These include extreme weather (very hot, very humid) and slippery or uneven running surfaces. Coaches must also recognize symptoms associated with adverse health outcomes such as chest pains, dizziness, lightheadedness, nausea, and shortness of breath; and seek medical attention if necessary. In both cases, testing should not be carried out or immediately stopped.

#### **2.8.5 When and How Often**

A fitness assessment is a powerful tool for the coach, but it is important not to go overboard and conduct fitness assessments every week. On the other hand, assessments need to be conducted a sufficient amount of time to monitor the progress of your trainees and the effectiveness of the conditioning program. Consider administering tests at the following points throughout the training year:

- At the beginning of the off-season to get baseline measurements and identify areas of weaknesses
- At the end of off- and pre-season to determine the effectiveness of the methods implemented during these phases
- At the midpoint during the competitive season to identify how the playing season has affected conditioning levels and determine areas that need to be addressed
- If you have not already done so, it is recommended that you keep detailed records of the results from previous years, so that you have an idea of where your team stands at

beginning of the season as well as how individuals compare from season to season.  
(Cresser, 2012)

### **2.9.10 meters and 40-meter sprint**

The purpose of this test is to determine acceleration, maximum running speed, and speed endurance, depending on the distance run. 17 The test involves running a single maximum sprint over a set distance, with time recorded. After a standardized warm-up, the test is conducted over a certain distance, such as 10, 20, 40, and/or 50 meters or yards, depending on the sport and what you are trying to measure. The starting position should be standardized, starting from a stationary position with a foot behind the starting line, with no rocking movements. If you have the equipment (e.g., timing gates), you can measure the time to run each split distance (e.g., 5, 10, 20m) during the same run, and then acceleration and peak velocity can also be determined. It is usual to give the athletes an adequate warm-up and practice first, and some encouragement to continue running hard past the finish line.

### **2.9.2 Power test**

#### **2.9.2.1. Vertical Jump Test**

The purpose of this test is to measure leg muscle power. And the test is conducted as the athlete stands side on to a wall and reaches up with the hand closest to the wall. Keeping the feet flat on the ground, the point of the fingertips is marked or recorded. This is called the standing reach height. The athlete then stands away from the wall and leaps vertically as high as possible using both arms and legs to assist in projecting the body upwards. The jumping technique can or cannot use a countermovement (see vertical jump technique). Attempt to touch the wall at the highest point of the jump. The difference in distance between the standing reach height and the jump height is the score. The best of three attempts is recorded.

#### **2.9.3 Agility T-Test**

The purpose of this test is to test the agility of athletes, and includes forward, lateral, and backward running. It is conducted by Setting out four cones (5 yards = 4.57 m, 10 yards = 9.14 m). The subject starts at cone A. On the command of the timer, the subject sprints to cone B and touches the base of the cone with their right hand. They then turn left and shuffle sideways to cone C, and also touch its base, this time with their left hand. Then shuffling sideways to the

right to cone D and touching the base with the right hand. They then shuffle back to cone B touching with the left hand and run back to cone A. The stopwatch is stopped as they pass cone A.

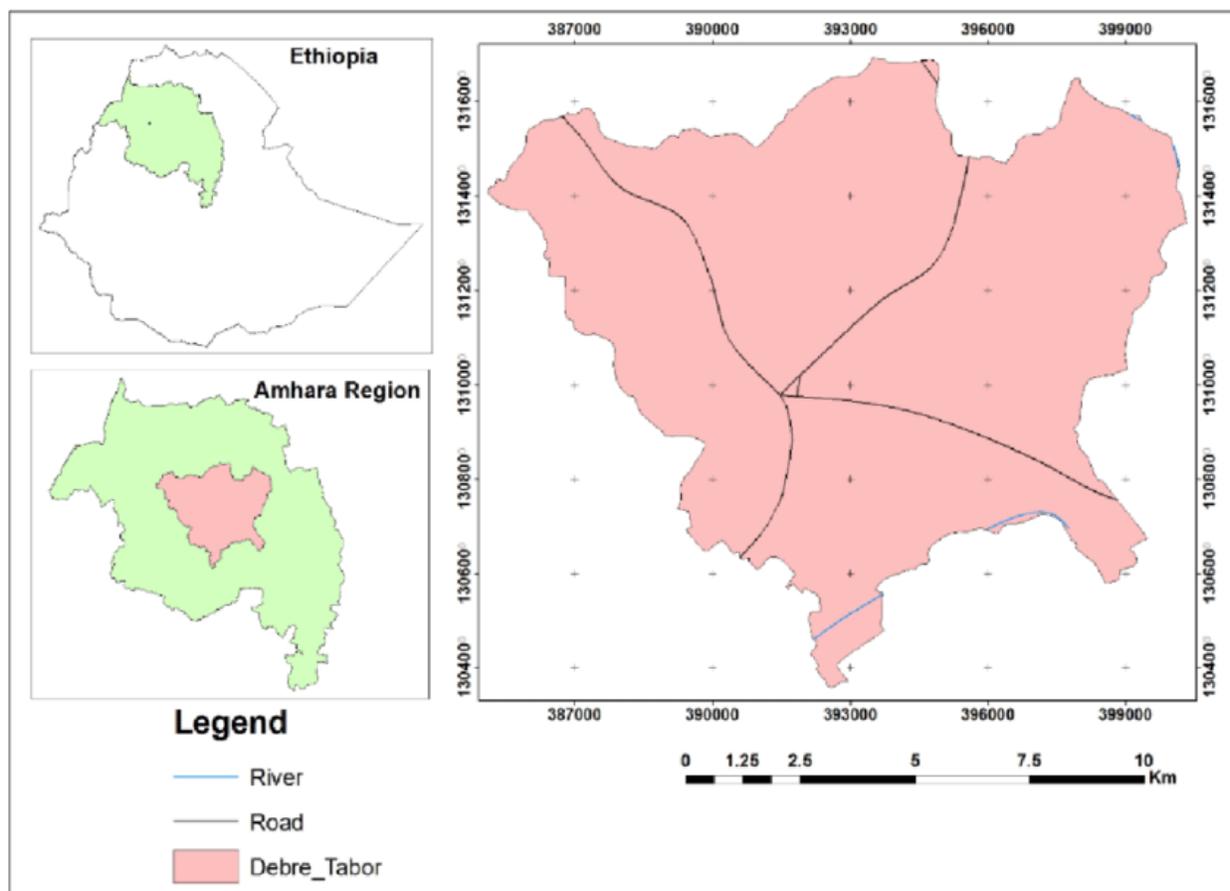
## **CHAPTER THREE**

### **RESEARCH METHODS**

In this section description of the study area, experimental materials, source of data, treatment and study design, description of population and sampling methods, methods and procedures of data collection, experimental measurement, methods of data analysis, data quality control, protocols and ethical consideration were discussed.

#### **3.1. Description of the Study Area**

This research was conducted at DeberTabore town, capital of South Gonder zone, Amhara region for three consecutive months, starting from March to May 2022. And DbereTabore is place which is located at latitude of 11°51' North, longitude of 38°1' East with an altitude of 2,706 m above sea level and its annual temperature is 25-29 c. And it's located on South Gonder zone at 103 km far from the capital Bahir Dar. According to 2007, national census report from a total of 55,952 people whom 27,644 were men and 27,952 were women. The majority of the inhabitants practiced Ethiopian Orthodox Christianity, with 96.72% reporting that as their religion, while 2.54% of the population said they were Muslim.



**Figure 1: Map of Debre Tabor Town (Source: Ethio-GIS, 2016)**

### **3.2. Research Approach**

To conduct the research, the researcher used quantitative research approach. Because quantitative research approach is characterized by the collection of information which can be analyzed numerically, the results of which are typically presented using statistics, tables and graphs.(Deslandes& Bertrand, 2005).

### **3.3.Research Design**

For the successful completion of this study, an experimental type of research design was used. Before and after experimental research design was adopted. In this research pre-test score of the physical fitness of trainees was measured and after twelve weeks of strength training intervention post-test test of the player's physical fitness was measure. All the subjects were involved in the study. Trainees was selected randomly (n=14) control group (CG) and (n=14) experimental

group (EG) was implemented. A total of 28 male soccer trainers was train for three consecutive months of soccer training in Debra tabor town which is organized and supported by the Amhara football federation and trained by the investigator himself and one assistant coach, who voluntarily participated in the research. And regular yearly soccer training program was implemented on the control group (CG). While specially designed strength training of 35 to 40 minutes two times a week for twelve consecutive weeks in addition to the regular training program was implemented on the experimental group

### **3.4. Population, Sample Size, and Sampling Techniques**

The source of the population for this study was conveniently selected all available 28 U-17 male soccer trainees in Debre tabor town since there is no other soccer training program at the given age. And amongst them, the researcher randomly select n=14, control group (CG), and n=14, experimental group (EG) which a special treatment was applied. As a result, the sampling method in this study was convenience type.

### **3.5. Source of Data**

To do this study the researcher uses the primary data source to get an adequate amount of information regarding the effect of strength training on football project trainees' physical fitness component. So, the primary data was taken from Debre Tabor Town u-17 male football project trainees as pre and post-test measurements in the field. The data for the study was collected from the result of field tests given from pre and post-test of both experimental and control groups.

### **3.6. Experimental Materials**

The following materials were used in this study, stop watch, measuring tapes, record sheets, paper, pen, whistle, marking cones and chalk for marking wall.

### **3.7 Study variables**

This study was the following variables as dependent and independent variables.

#### **3.7.1 Dependent Variables**

The dependent variables were speed agility and power of the trainees.

### **3.7.2 Independent Variables**

The independent variables for this study were strength training

### **3.8 Methods and Procedures of Data Collection**

The researcher used quantitative data collection method to collect data from the subjects. by using pre, and post soccer related skill tests including T tests of agility, VJT of power tests and 10m& 40m dash of speed test results were collected and recorded by the researcher with the help of assistant who took training for two days. Each test was held at a field near to Debertabore preparatory school's which was the trainees training site.

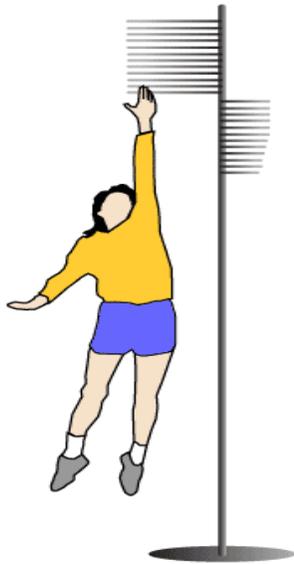
### **3.9 Measurement Tools and Applications**

#### **3.9.1 Medical Examination**

Even if all the participants are already pre organized and selected based on their family's interest and consensus as well as medical checkup early, while they join in to the team, the researcher prepared questionnaire for the identification of their current health status and additional consensus format and translated in to local language for ease of understanding and got confirmation to involve actively in this study. And the researcher used following serious of skill related fitness tests and testified the hypothesis.

### 3.9.2 Vertical jump test

The purpose of this test was to measure the leg muscle power of subjects.

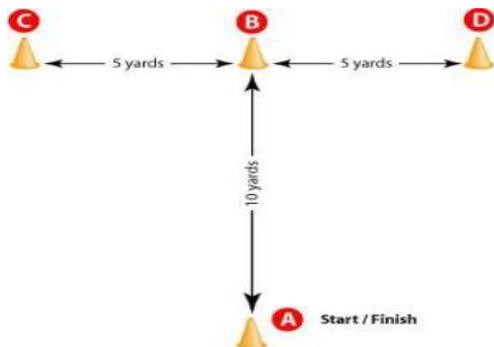


#### 3.9.2.1. Procedures and analysis

The athlete stands side on to a wall and reaches up with the hand closest to the wall. Keeping the feet flat on the ground, the point of the fingertips is marked or recorded. This is called the standing reach height. The athlete then stands away from the wall, and leaps vertically as high as possible using both arms and legs to assist in projecting the body upwards. And jump height is usually recorded as distance score Getchell (1979).

### 3.9.3 T-Test

The main purpose of this test is, testing agility of athletes, and includes forward, lateral, and backward running.



### 3.9.3.1 Procedure and Analysis

Set out four cones as illustrated in the diagram above (5 yards = 4.57 m, 10 yards = 9.14 m). The subject starts at cone A. On the command of the timer, the subject sprints to cone B and touches the base of the cone with their right hand. They then turn left and shuffle sideways to cone C, and also touch its base, this time with their left hand. Then shuffling sideways to the right to cone D and touching the base with the right hand. Then shuffle back to cone B touching with the left hand, and run backwards to cone A. The stopwatch is stopped as they pass cone A.

### 3.9.4 Speed Tests

The purpose of this test was to determine acceleration, maximum running speed of subjects



#### 3.9.4.1 Procedure and Analysis

The test involves running a single maximum sprint over a set distance, with time recorded. After a standardized warm up, the test is conducted over a certain distance, such as 10, 20, 40 and/or 50 meters or yards, depending on the sport and what you are trying to measure. The starting position should be standardized, starting from a stationary position with a foot behind the starting line, with no rocking movements. If you have the equipment (e.g., timing gates), you can measure the time to run each split distances (e.g., 5, 10, 20m) during the same run, and then acceleration and peak velocity can also be determined. It is usual to give the athletes an adequate warm-up and practice first, and some encouragement to continue running hard past the finish line.

#### **3.9.4.2 Methods of data analysis**

The data collected through a series of skill related physical fitness tests was presented as a group mean value and standard deviations. And the effects of strength training on variables were analyzed in separate two pre coded groups experimental (EG) and control group (CG) twice, pre and posttests. And the difference between each test result was analyzed statically with “t” test at  $p < 0.05$  through the use of computerized statically package software (SPSS) version 21. But based on the data analyzed level of significance in all parameters were less than 0.05 ( $p < 0.05$ ). Therefore, the investigator rejected the entire null hypothesis.

#### **3.9.4.3 Data Quality Control**

To ensure data quality, all the field test procedures, collection of data and handling information was carried out in accordance with standard protocols and measurements. And the researcher used assistant to collect data. And in order to avoid error, training had been given for assistant data collector on how to use data collecting instruments and measurements during data collection.

And the researcher created awareness for subjects about test and recommended precondition which they tried to do prior to take a test. And furthermore, the researcher tried to aware the control groups and they are not participated in training or exercises beyond to the regular soccer training so as to control them and increase validity and reliability of the test results.

And regarding to create awareness about each test the trainees took additional audiovisual lectures beyond field practices and demonstrations. And only standardized materials were used to keep the quality of the data. Additionally, all the above-mentioned tests were recorded and faded in to the software twice with different persons to avoid errors in data feed.

### **3.10. Protocol and Ethical Consideration**

The study was deal with the ethical issue related to the investigation. It protected the privacy of research participant and makes guaranty and confidentiality of the information that had given to the study, and risk harm due to participation. Participation of subjects in this study was purely a voluntary based activity and their right not to participate and can resign at any time of training

session have been respected. Therefore, the study was conducted all action based on the university rule, code of conduct and policies concerning research ethics. Ethical approval had been obtained from institutional research ethics review committee (IRERC) of Bahir Dar University sport academy. The protocol was approved by the university guidelines and written consent had been given and informed the concerned bodies.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.1. RESULTS**

This chapter discussed the analysis of data collected from the samples of study and its results. The purpose of this study was to investigate the effect of three months of strength training on agility, power and speed of Debre Tabor town U-17 soccer trainees. All 28 Debre Tabor town soccer trainees who trained as the only youth soccer project site under the establishment and support of Amhara football federation was selected through convenience sampling method. And a pretest of Agility (t-test), power (Vertical jump) and speed test of 10- and 40-meter dash test were given. And continued their soccer training which was given two times per a week, simultaneously half of them were randomly selected and subjected to three months of strength training. Consequently, during test on the same parameters and tests were given after six weeks of training and Then at the end of three months of strength training (post) similar tests were given for all 28 soccer trainees regardless of their groups so as to evaluate whether strength training affects agility, power and speed of U-17 soccer trainees or not.

Then finding obtained after three months training program are presented below in tables and analyzed graphically. Table 1 shows physical features and Table 2, 3 and 4, show the statistics for agility, power and speed test scores. The abbreviations used in the research were as follows: Experimental Group (EG), Control Group (CG), T-test (TT), Vertical Jump Test (VJT), 10-meter dash (ST1) and 40-meter dash for speed test (ST2).

Body weight averages of the groups in the research are as follows; U-17 EG=56.92 Kg; CG=57.77 and height averages of the groups in the study are as follows; U-17 EG=1.68 m; CG=1.71m.

**Table 1. Body weight and height averages of the groups (Kg)**

Groups	N	Weight (Kg)	Height (m)
U-17 EG	14	56.92	1.68
U-17 CG	14	57.77	1.71
Total	28		

As shown in table 1 above, the average of body weight of both experimental and control group participants of u-17 football project trainees in Debre Tabor city were lies on 56.92 and 57.77 kg respectively. Regarding the average of height of both experimental and control group participants of u-17 football project trainees in Debre Tabor city were lies on 1.68 and 1.71m respectively. This result indicated that both experimental and control group that assigned by the researcher were almost similar in body weight and height of u-17 football project trainees at Debre Tabor city.

**Table 2: PT, DT&POT results of T-test of the Groups.**

Groups	N	PT (X, $\pm$ SD)	DT (X, $\pm$ SD)	PoT (X, $\pm$ SD)	$\Delta$ X	(PoT P and PT)
TT result of EG	14	11.3629 $\pm$ .45920	11.2 $\pm$ 0.46	10.6114 $\pm$ .29646	.75143	0.001
TT result of CG	14	11.5721 $\pm$ .44974	11.395 $\pm$ 0.3976	11.1264 $\pm$ .44683	.44571	0.001

EG= experimental groups, TT= t-test of agility, X=mean value of each test,  $\Delta$ X= (MD) mean difference, PT=pretest result, DT= during training PoT= post test results, t-t value, df=degree of freedom, p=significance level.

As shown in table 2thePT, DT and PoT test results of the EG was11.3629, 11.2 and 10.6114 respectively. And also, the CG was 11.5721, 11.395 and 11.1264 respectively. So, these data indicated that there is a significant difference and gradual improvement between PT, DT and PoT test results of both the EG and CG. In which incase of the EG, duration of T-test was

significantly decreased by a PT and PoT mean difference of .75143. At  $P \leq 0.001$  after three months of strength training. And also, in case of the CG, in which duration of T-test was significantly decreased by a mean difference of .44571 at  $P \leq 0.001$ .

As a result the investigator accepted alternative hypothesis 1 and rejected the null hypothesis..

**Table 3: PT, DT&POT results of VJT of the Groups**

Groups	N	PT (X, $\pm$ SD)	DT (X, $\pm$ SD)	PoT(X, $\pm$ SD)	$\Delta$ X(MD)	P
VJT result of EG	14	.8214 $\pm$ .03110	0.834 $\pm$ 0.03031	.88 $\pm$ .038	-0.057857	0.001
VJT result of CG	14	.8150 $\pm$ .04784	0.8207 $\pm$ 0.04269	.85 $\pm$ .070	-0.036429	0.035

EG= experimental groups, N= number of trainees in a group, VJT=vertical jump test, SLJT= standing long jump test, PT=test before training, DT=during training PoT=test after three months of training, t=value, df= degree of freedom, p= level of significance,  $\Delta$ X= (MD) mean difference.

As Table 3: shows that EG Pre, during and post VJT test mean was .8214, .834 and .88 respectively. And of the CG, PT, DT and PoT result of VJT mean was .8150, .8207 and .85 respectively. So, these data indicated that there is a significant difference and gradual improvement between PT, DT and post test results of both groups. In which incase of the EG, height of VJT test result was significantly increased by a PT and PoT mean difference of -0.057857 at  $P \leq 0.001$ , after three months of strength training. And in case of the CG, height of VJT result was significantly increased by a mean difference of -0.036429 At  $P = 0.035911$ .

Since the only improvement was shown by the EG, the researcher accepted alternative hypothesis 2 and rejected the null one.

**Table 4: PT, DT&PoT results of 10m and 40m dash tests of both groups**

Groups	N	PT (X, $\pm$ SD)	DT (X, SD)	PoT (X, $\pm$ SD)	$\Delta$ X(MD)	P
ST1 of EG	14	1.8671 $\pm$ .13522	1.837 $\pm$ 0.11618	1.7271 $\pm$ .11789	0.140000	0.002
ST1 of CG	14	2.0193 $\pm$ .14419	1.9743 $\pm$ 0.13461	1.8707 $\pm$ .17274	0.148571	0.006
ST2 of EG	14	7.5950 $\pm$ .26079	7.5064 $\pm$ 0.25117	7.3921 $\pm$ .28372	0.202857	0.003
ST2 of CG	14	7.6457 $\pm$ .29351	7.5921 $\pm$ 0.29676	7.5021 $\pm$ .36211	0.143571	0.002

EG= experimental groups, N= number of trainees in a group, ST1=speed test 1(10-meter dash), ST2= speed test 2(40-meter dash), PT=test before training, DT= test during training, PoT=test after three months of training, t=value, df= degree of freedom, p= level of significance,  $\Delta$ X= (MD) mean difference.

As Table 4: shows that Pre, during and posttest result of ST1 (10mdash) test mean of EG was 1.8671, 1.837and1.7271 respectively. And of the CG, Pre DT and PoT test mean was 2.0193, 1.9743 and1.8707 respectively. And also, pre, during and post ST2 test results of the EG was7.5950, 7.5064 and 7.3921respectively. And also, the CG was 7.6457, 7.5921 and 7.5021 respectively. Therefore, these data indicated that there is a significant difference and gradual improvement of trainees' speed between three consecutive tests of both the EG and CG. In which incase of the EG, duration of 10m dash speed test (ST1) was significantly less by a PT and PoT mean difference of 0.14at P=.0003 and duration of 40m dash speed test (ST2) was significantly decreased by a mean difference of 0.202857. At P=0.003634 after three months of strength training. And also, in case of the CG, in which duration of 10m dash speed test (ST1) was significantly less by a mean difference of .148571 at P=.006424 and duration of 40m dash speed test (ST2) was significantly decreased by a mean difference of.143571 at P=.002445. As a result, the investigator accepted alternative hypothesis 3 and rejected the null hypothesis. And the following researchers supported this study.

## 4.2. DISCUSSION

This chapter discussed the analysis of data collected from the samples of study and its results. The purpose of this study was to investigate the effect of three months of strength training on agility, power and speed of Debre Tabor town U-17 soccer trainees. All 28 Debre Tabor town soccer trainees who trained as the only youth soccer project site under the establishment and support of Amhara football federation was selected through convenience sampling method. And a pretest of Agility (t-test), power (Vertical jump) and speed test of 10- and 40-meter dash test were given. And continued their soccer training which was given two times per a week, simultaneously half of them were randomly selected and subjected to three months of strength training. Consequently, during test on the same parameters and tests were given after six weeks of training and Then at the end of three months of strength training (post) similar tests were given for all 28 soccer trainees regardless of their groups so as to evaluate whether strength training affects agility, power and speed of U-17 soccer trainees or not.

Current result of T test of agility is confirmed with the research work of Pankajbhai and Shantilal, (2015) found in their research conducted on effect of core stability training on speed of running in female cricket trainees that, two weeks of strength training improves speed of running and agility in selected female cricket trainees as measured by 4x10 m shuttle run test and T test for agility.

The result of vertical jump testis compatible with research findings such as ,Tarik (2016) found in their research conducted on Relationship between core stability, dynamic balance and jumping performance in soccer trainees that core stability is associated with jump height in soccer trainees. Likewise,Heydar, et al. (2013) showed in their research conducted on the effect of six-week core stability exercises on performance of male athlete, 11-14 years old that significant increment was observed in Performance tests of (Standing Broad Jump, Vertical Jump, 9.1 m Sprint, Shuttle Run) and recommend the core stability exercises to improve general performance of athletes. Thus, it is in conformity with the finding of this study.

The result of Speed in 10m and 40m study have similar to the previous study; Thomas and William, (2009) argued and found in their research conducted on a female volleyball team that 40 m sprint speed improved after core training: thus, it is in conformity with the finding of this

study. Furthermore, consistent with previous results, Natalia Niewolna and Teresa Zwierko, (2015) found in their research conducted on The Effect of three months Stability and Functional Exercises on Selected Speed and Strength Parameters in Expert Female Footballers, there was also a significant reduction in the time of 30-meter sprint at  $p < 0.05$ , Thus it is also in conformity with the finding of this study.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Summary**

Strength is the ability to control the position and motion of the trunk over pelvis and leg to allow optimum production, transfer and control of force and motion to the term segment in integrated kinetic chain activities. Researcher aim was to evaluate the effect of strength training on speed, power and agility of U-17 soccer trainees. After obtaining an informed consent, soccer trainees of the only project team in Debre Tabor town with Age under 17 years which consists of 28 subjects was conveniently selected and half of them were selected as Experimental groups and the remaining as control group for this study. And all of them took a pre t test (TT) of agility test, vertical (VJT) of power test and 10m dash (ST1) and 40m dash (ST2) of peed test. Then the regular soccer training has been continued besides the strength training on the EG twice a week, 35 to 40min a day for three months by the investigator himself. Only regular soccer training within yearly training program was implemented on the CG.

Consequently, after six weeks of training during test was implemented and trainees were in a gradual improvement and again continued their training. After three months, posttest measurement on the same parameters was taken. The difference between the tests were analyzed

statistically, with paired sample “t” test at  $P < .05$ . Consequently, it was observed that strength training implemented on junior level trainees brought about significant improvements between pre, during and post test results of agility, in which duration to complete TT (t test) was decreased by PT and PoT mean difference of 0.75143 seconds at  $P = \leq 0.001$ . Speed in which duration of 10m dash (ST1) and 40m dash (ST2) speed test result was decreased by a PT and PoT mean difference of .140 seconds at  $P = .002$  and .2023 seconds at  $P = .003$  respectively. And power, in which height and length of VJT (vertical jump test) test result were increased by a PT and PoT mean difference of .057857m at  $P = \leq .001$  respectively.

As a result, the investigator recommended that adding strength training on their soccer training program helps to improve trainees speed, agility and power. Thus, it concludes that strength training for three months relatively improves power, agility and speed of U-17 soccer trainees.

## **5.2. Conclusions**

Based on the major findings of the study the following points were stated as a conclusion.

- ❖ The result of the study showed that 3months of strength training has relative positive effect on agility of U-17 soccer trainees as measured by T-test.
- ❖ The output of the study showed that 3 months of strength training has a significant improvement on power of U-17 soccer trainees.
- ❖ The finding of this study yields a significant benefit on improvement of soccer trainee’s speed.
- ❖ In general, after three months of strength training, statistically significant improvement and change were observed in U-17 soccer player’s agility, power and speed. And is supported by this finding conducted by Afyon. A, stated in his research done on 16 years old soccer trainees that 12 weeks strength training has an explosive effect on player’s motoric capabilities such as; standing long jump, shuttle run, speed, plank, and vertical jump which are some of an important parameters of soccer speed power and agility. Therefore, this finding complies with this study.

### **5.3. Recommendations**

- ❖ Based on the above results, discussions and findings of the research done on the effect of three months of strength training on selected skill related fitness components of Debre Tabor town U-17 soccer trainees. And since it has a great importance in addressing and evaluating the effects of strength training on soccer related skills and performance for trainees, coaches, clubs as well as coaching staffs in broad. The following recommendations are forwarded.
- ❖ U-17 soccer trainees of Debre Tabor town shall give emphasis and practice strength training so as to improve their speed, power and agility.
- ❖ Coaches, physical education teachers and other football trainers who support this project shall consider and aware of the impact of strength training on skill related fitness components and add it on their regular soccer training.
- ❖ Sport offices and professionals who support and sponsored this youth soccer projects shall aware and prepare trainings for soccer trainers/coaches about progressive assessment and evaluation of each training sessions they give and their trainees' performance too.
- ❖ And further study shall be done on other specific fitness components through increasing subjects, adding trainees of other teams and classifying by their positional play.

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## **APPENDIXS**

### **Appendix-A**

#### **Information record form**

The questionnaire prepared for researching entitled “the effect of strength training on soccer skills related fitness components on Deberetabore town u-17 soccer players at South gonder zone Amhara regional state.” so you are kindly requested to give appropriate information for the following question regarding to your current health status.

Thank you.

I. Player’s information Name \_\_\_\_\_ Telephone number \_\_\_\_\_

Sex \_\_\_\_\_ Age \_\_\_\_\_

Grade \_\_\_\_\_ Section \_\_\_\_\_ Positional interest of  
play \_\_\_\_\_ **Emergency contact information**

Full name \_\_\_\_\_ address \_\_\_\_\_ tel. \_\_\_\_\_

II. Personal health history (answer yes or no and give description if necessary)

1. Have you taken a physical fitness test beyond your regular soccer training before? \_\_\_\_\_

2. Have you taken any soccer related skill tests before? \_\_\_\_\_

3. Do you know your current level of physical fitness? \_\_\_\_\_

4. Are you currently undergoing any medical treatment or under observation?

5. Have you fallen sick in the past 3 months? \_\_\_\_\_ if yes, please write your  
problem

6. Have you injured seriously while you play soccer in the past three months/summer?  
\_\_\_\_\_ if yes what parts of injury you got and in which body  
parts? \_\_\_\_\_  
\_\_\_\_\_

7. Had you a major surgery in the last 3 months \_\_\_\_\_ I  
have read and understand the form and have given accurate information regarding to my current  
health status. Signed (participant player) \_\_\_\_\_ date \_\_\_\_\_

Signed (examiner) \_\_\_\_\_ date \_\_\_\_\_

## **Appendix –B**

### **Skill related fitness test consent form**

Researcher's Name: DesalegnWondifraw

Supervisor's Name: DagnachewNigeru(PhD)

Thesis title: The Effect of Strength Training on Selected Skill Related Fitness Components of Deberetabore Town U-17 Soccer Trainees in South gonder zone Amhara Regional State.

### **Purpose of the study:**

The purpose of this study is to investigate the effects of strength training on soccer skills related fitness components/anaerobic power speed and agility of Deberetabore town u-17 soccer players.

**Procedure and duration:**

You are kindly requested to participate in this research study as described below. This study will be governed by the regulation on human beings. These regulations require that researcher should obtain a signed agreement (consent) from you/the players/ to participate in this research project.

even if taking such soccer related skills test is one component of your regular soccer training program, the researcher will explain detail about the purpose of the project, the procedure will be used, the potential benefit and the possible risk of participation in this thesis. And you can ask the researcher any question and doubts that you have about the study and you shall expect satisfactory responses regarding your questions. So if you are interested and ready to participate. Please confirm your agreement by your signature with the researcher and language translators. You can discontinue at any time from the study if you choose to do so. A basic explanation of the project will be summarized below.

**Risk and safeguard:**

Since subjects are somehow experienced and had regular soccer training for the last 2 years the expected injury in administering such skill related fitness tests for you may be little. But while in application of the regular soccer trainings and administering the tests you may experience muscle fatigue, usually happened soccer related injuries such as muscle soreness and little sprain may exists due to intense demand of soccer game but not the test only. But if any unexpected physical injuries occur, appropriate first aids will be provided, but no financial compensation will be given.

**Confidentiality:**

The information obtained from the participants (you) will be kept in confidence, but it will be free to release to their own owners, to the local worda's, zonal as well as regional sport federation offices if it is needed. And all the collected information will be used only for scientific purpose through grouping without identifying them as an individual.

**Rights:**

Participation in this study will be a fully voluntary based. You have the right to declare to participate or not in the study. And if you decide to participate, you have the right to withdraw from the study at any time and this will not label you for any loss of benefits which you otherwise are entitled.

**Contact address:**

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**Appendix- C****Sample Consent Form**

I (print name) \_\_\_\_\_ hereby consent to participating in the anthropometric test and three months of scientific studies which is conducted on the effect of core strength training on U- 17 soccer trainees on the following terms:

I have been informed about the wellness, current status of health assessment and questionnaires, the training procedures and understand what I will be required to do. And I understand that I will be partaking in three months of strength training besides the regular soccer training.

I understand that there is always a risk of injury associated with strength and soccer training. And I can withdraw my consent, freely and without prejudice, at any time.

I understand that the information obtained from the test will be treated confidentially, with my right to privacy assured. However, the information obtained may be used for statistical analysis or scientific purpose with my right to privacy retained.

And I accept that: this is my personal interest and willingness to participate in any of the necessary procedures which involves in any steps of this study as possible.

Participantsignature\_\_\_\_\_Date\_\_\_\_\_

Parent/Guardian name (if under the age of 18) \_\_\_\_\_

Parent/Guardian signature\_\_\_\_\_Date\_\_\_\_\_

## Appendix –D

Table of Paired sample T test results of both groups

Table.1. Descriptive statistics of the CG

Pre and Posttest statistics of CG	Mean	N	Std. Deviation
pretest result of TT	11.5721	14	.44974

during test result of TT	11.3950	14	.39760
post test result of TT	11.1264	14	.44683
pretest result of VJT	.8150	14	.04784
during test result of VJT	0.8207	14	.04269
post test result of VJT	.85	14	.070
pretest result of ST1	2.0193	14	.14419
during test result of ST1	1.9743	14	.13461
post test result of ST1	1.8707	14	.17274
pretest result of ST2	7.6457	14	.29351
during test result of ST2	7.5921	14	.029676
post test result of ST2	7.5021	14	.36211

Table 2. Paired Sample T test of CG

Paired Differences T	df	Sig. (2-tailed)	T	Df	Sig. (2-tailed)
95% Confidence Interval of the Difference					
Upper					

Pair 1 pretest result of TT- post test result of TT	0.644410	4.846144	13	0.000
Pair 2 pretest result of VJT- Post test result of VJT	-0.070066	-0.002792	13	-2.339662
Pair 3 pretest result of ST1 - post test result of ST1	0.247568	3.242216	13	0.006424
Pair 4 pretest result of ST2 - post test result of ST2	0.226367	3.746164	13	0.002445

Table.3. Descriptive Statistics of the EG

Pre and Posttest statistics of EG	Mean	N	Std. Deviation
pretest result of TT	11.3629	14	.45920
during test result of TT	11.5721	14	.44974
post test result of TT	10.6114	14	.29646
pretest result of VJT	.8214	14	.03110
during test result of VJT	.834	14	.03031
post test result of VJT	.88	14	.038
pretest result of ST1	1.8671	14	.13522
during test result of ST1	1.837	14	0.11618
post test result of ST1	1.7271	14	.11789
pretest result of ST2	2.0193	14	.14419
during test result of ST2	7.5064	14	0.25117
post test result of ST2	1.8707	14	.17274

Table.4. Paired Sample T test of EG

	Paired Differences T	df	Sig. (2-tailed)	95% Confidence Interval of the Difference	Upper	T	Df	Sig. (2-tailed)
Pair 1 pretest result of TT- post test result of TT	.94347					8.453	13	0.000
Pair 2 pretest result of VJT-Post test result of VJT	-0.035304					-5.542029	13	0.000
Pair 3 pretest result of ST1 - post test result of ST1	0.223055					3.641561	13	0.002985
Pair 4 pretest result of ST2 - post test result of ST2	0.326701					3.538704	13	0.003634

Appendix-E

Table of Test Protocols/Norms

Table.5. Table of T- test protocols

Rating	Males (seconds)	Females (seconds)
Excellent	< 9.5	< 10.5
good	9.5 to 10.5	10.5 to 11.5
Average	10.5 to 11.5	11.5 to 12.5
Poor	> 11.5	> 12.5

(Davis B. et al; Physical Education and the Study of Sport; 2000)

Table.6. Table of Vertical Jump Test Protocol

Rating	Males		Females	
	(inches)	cm)	(inches)	(cm)
Excellent	> 28	> 70	> 24	> 60
very good	24 – 28	61-70	20 - 24	51-60
Above average	20 - 24	51-60	16 - 20	41-50
Average	16 - 20	41-50	12 – 16	31-40
Below average	12 - 16	31-40	8 - 12	21-30
Poor	8 - 12	21-30	4 – 8	11-20
Very poor	< 8	< 21	<4	< 11

Table 7. Test protocol for Speed 40 meter test

Time to run 40 meters (in seconds)

---

Rating	men	Women
very good	< 4.80	< 5.30
Good	4.80 - 5.09	5.30 - 5.59
average	5.10 - 5.29	5.60 - 5.89
Fair	5.30 - 5.60	5.90 - 6.20
Poor	> 5.60	> 6.20

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For Australian team sport athletes

Appendix-F

Description of the training program

In sport training a well-designed and prepared plan is needed. The purpose of the training plan is to identify the work to be carried out to achieve agreed objectives and to be effective in training outcomes. And in sport the training can have be a short or a long term plan. Basically some fitness components may needs short term training and others may needs a long years of sport training to get performance improvements. Due to this reason the researcher will plan and implement a three consecutive months of core strength training through following the general guidelines of strength training and principles of core strength training together. <http://www.acefitness.org/blog>.

NSCA's recommendations for youth strength training

- All athletes should be taught proper exercise and spotting technique. Exercises should initially be taught with no load to allow proper technique to be learned.
- All training sessions should be supervised by an experienced fitness professional
- Each child should be physically and emotionally prepared to participate in strength
- Training program. Also consider the athlete's maturity level when introducing more advanced exercises.
  - Children should have realistic expectations/goals.
- The exercise area should be safe and free from hazards general warm-up, followed by several sport specific warm-up exercises performed at a Light intensity.
  - Equipment should be properly sized for a child.
- Begin lifting, preferably, with body weight exercises. Athletes can also engage in basic machine exercises if they use light loads that allow the athlete to complete 12- 15 repetitions.
  - The program should progress to ultimately encourage athletes to perform one-three sets of the exercises on two-three non-consecutive days. Each set should consist of six 15 repetitions.
  - Never increase the load being lifted by more than five percent for upper body or 10 Percent for lower body exercises.

- Competition between children should be discouraged since this may lead to athletes performing maximum lifts.
  - Strength training should be stopped at any sign of injury and the child should be evaluated prior to re-entering the strength program.
  - Never force a child to participate in a resistance-training program.
- 
- Keep the program fun

As a result through giving a general and a specific 15 to 20 minutes of warming up that are appropriate to the move in the training will be conducted. And all the moves and exercises will be conducted with time and repetitions methods and rests that are suitable to the load will be given throughout a total of 35 up to 40 minutes of core strength training.

## **Appendix-G**

## Three Months of strength Training plan

Table 8: First Month Training Schedule (March ,2022)

Days per a week	Types of Exercises	Time					Total time (35-40min)	Intensity	
		No. rep	No. set	time in each sets	Recovery time				
Monday 5:00-5:40 PM	1 .General and specific warming up exercises walking, jogging, running on spot with relaxation, rotating activities and stationed general and specific stretching activities.						10m	60-70%	of maximum strength
	1.side bend								
	2. reverse plank with leg raise	10	2	35sec	30sec				
	3.squat	15	2	-	30sec				
	4.situps	10	2	-	30sec	2min			
	5.six inch	-	2	-	30sec				
	6. Russian twist	15	3	15sec	30sec	2min			
	7.leg and hip raiser	15	3	-	20sec	3min			
	8. Cool down breathing, stretching exercises.		3	-	30sec				
							3min		
Wednsd ay5:00-5:40 PM	1. Warming up by 3 Vs 3 ball game and specific warming up running on spot with relaxation, rotating activities and stationed general and specific stretching activities.						10min	60-70%	of maximum strength
	1. Crunches			-	15sec	3min			
	2. Reverse crunches	15	3	-	20sec	3min			
	3. Hip raiser	15	3	15sec	20sec	2.5min			
	4.the L sit	15	2	-	15sec	1.5min			
	5.pushup to side plank	-	3	20sec	10sec	2min			
	6.flutter kick	15	3	-	10sec	1.5min			
	7.russian twist	-	2	-	20sec	2.5min			
	8.single climbers	20	3	-	20sec	2min			
	9.cooling down and stretching exercises	25	3			6min			
Friday at 7:00-7:40 AM	1 .General and specific warming up exercises walking, jogging, running on spot with relaxation, rotating activities and stationed general and specific stretching activities.	20					10min	70-90%	of maximum strength
	2. Oblique	20	3	-	10sec	3min			
	3. Alternative crunch	15	2	-	15sec	3min			
	4.Bicycle	15	2	-	15sec	2.5min			
	5. Superman	20	3	-	10sec	1.5min			
	6.bird dog	-	3	-	15sec	2min			
	7.single plank	-	2	20sec	10sec	1.5min			
	8.single leg stabilizers	20	2	25sec	10sec	2.5min			
	9.outsiders		3	-	20sec	3min			
	10. Cooling down and stretching activities					6min			

Table 9: Second Month Training Schedule (May,2022)

Days per a week	Types of Exercises	Time					Total time (35-40min)	Intensity	
		No. rep	No. set	time in sets	each	Recovery time			
Monday 5:00-5:40 PM	1. General and specific warming up exercises walking, jogging, running on spot with relaxation, rotating activities and stationed general and specific stretching activities.						10m	60-70% of maximum strength	
	1. side bend								
	2. reverse plank with leg raise	10	2	35sec		30sec			
	3. squat	15	2	-		30sec			
	4. situps	10	2	-		30sec	2min		
	5. six inch	-	2	-		30sec			
	6. Russian twist	15	3	15sec		30sec	2min		
	7. leg and hip raiser	15	3	-		20sec	3min		
	8. Cool down breathing, stretching exercises.		3	-		30sec	3min 3min		
Wednesday 5:00-5:40 PM	1. Warming up by 3 Vs 3 ball game and specific warming up running on spot with relaxation, rotating activities and stationed general and specific stretching activities.						10min	60-70% of maximum strength	
	1. Crunches					15sec	3min		
	2. Reverse crunches	15	3	-		20sec	3min		
	3. Hip raiser	15	3	15sec		20sec	2.5min		
	4. the L sit	15	2	-		15sec	1.5min		
	5. pushup to side plank	-	3	20sec		10sec	2min		
	6. flutter kick	15	3	-		10sec	1.5min		
	7. russian twist	-	2	-		20sec	2.5min		
	8. single climbers	20	3	-		20sec	2min		
	9. cooling down and stretching exercises	25	3	-			6min		
Friday 7:00-7:40 AM	1. General and specific warming up exercises walking, jogging, running on spot with relaxation, rotating activities and stationed general and specific stretching activities.	20					10min	70-90% of maximum strength	
	2. Oblique	20	3	-		10sec	3min		
	3. Alternative crunch	15	2	-		15sec	3min		
	4. shuffle	15	2	-		15sec	2.5min		
	5. Superman	20	3	-		10sec	1.5min		
	6. bird dog	-	3	-		15sec	2min		
	7. single plank	-	2	20sec		10sec	1.5min		
	8. single leg stabilizers	20	2	25sec		10sec	2.5min		
	9. outsiders		3	-		20sec	3min		
	10. Cooling down and stretching activities						6min		

Table.10. Third Month Training Schedule (May, 2022)

Days per week	a	Types of Exercises	Time					Total time (35-40min)	Intensity	of
			No. rep	No. set	time in sets	each	Recovery time			
Monday	5:00-5:40 PM	1.General and specific warming up exercises walking, jogging, running on spot with relaxation, rotating activities and stationed general and specific stretching activities..						10m	60-70% maximum strength	
		1.side bend	10	2	35sec		30sec			
		2. reverse plank with leg raise	15	2	-		30sec	2min		
		3.squat	-	2	-		30sec			
		4.situps	15	3	15sec		30sec	2min		
		5.six inch	15	3	-		20sec	3min		
		6. Russian twist		3	-		30sec			
		7.leg and hip raiser						3min		
		8. Cool down breathing, stretching exercises.						3min		
								2min		
						3min				
						5min				
Wednsd ay	5:00-5:40 PM	1. Warming up by 3 Vs 3 ball game and specific warming up running on spot with relaxation, rotating activities and stationed general and specific stretching activities.						10min	60-70% maximum strength	of
		1. Crunches					15sec	3min		
		2. Reverse crunches	15	3	-		20sec	3min		
		3. Hip raiser	15	3	15sec		20sec	2.5min		
		4.the L sit	15	2	-		15sec	1.5min		
		5.pushup to side plank	-	3	20sec		10sec	2min		
		6.flutter kick	15	3	-		10sec	1.5min		
		7.russian twist	-	2	-		20sec	2.5min		
		8.single climbers	20	3	-		20sec	2min		
		9.cooling down and stretching exercises	25	3				6min		
Friday at	7:00-7:40 AM	1. General and specific warming up exercises walking, jogging, running on spot with relaxation, rotating activities and stationed general and specific stretching activities.						10min	70-90% maximum strength	of
		2. Oblique	20	3	-		10sec	3min		
		3. Alternative crunch	15	2	-		15sec	3min		
		4.shuffle	15	2	-		15sec	2.5min		
		5. Superman	20	3	-		10sec	1.5min		
		6.bird dog	-	3	-		15sec	2min		
		7.single plank	-	2	20sec		10sec	1.5min		
		8.single leg stabilizers	20	2	25sec		10sec	2.5min		
		9.outsiders		3	-		20sec	3min		
		10. Cooling down and stretching activities						6min		

## Appendix-H

**Table: 13. List of Subjects Participated in the Study**

No	N Serial code of subjects	Height (m)	Weight (kg)
1	EG-1	1.66	54
2	EG-2	1.64	57
3	EG-3	1.55	65
4	EG-4	1.77	62
5	EG-5	1.67	54
6	EG-6	1.62	63
7	EG-7	1.75	59
8	EG-8	1.73	56
9	EG-9	1.80	61
10	EG-10	1.66	58
11	EG-1S1	1.64	57
12	EG-12	1.81	63
13	EG-13	1.71	54
14	EG-14	1.66	65
15	CG-1	1.64	61
16	CG-2	1.74	59
17	CG-3	1.61	56
18	CG-4	1.73	57
19	CG-5	1.72	66
20	CG-6	1.77	64
21	CG-7	1.64	62
22	CG-8	1.63	67
23	CG-9	1.76	57
24	CG-10	1.71	66
25	CG-11	1.59	54
26	CG-12	1.68	59
27	CG-13	1.61	64
28	CG-14	1.72	63

**APPENDIX:I**

**Table: 14. Pre, during and post raw data of agility tests (T test)**

NO.	Code/Name	Pre T-Test	During T-Test	Post T-Test
1	EG 1	10.9	10.73	10.22
2	EG 2	10.56	10.49	10.3
3	EG 3	11.24	11.10	10.32
4	EG 4	12.22	11.98	10.56
5	EG 5	11.54	11.37	10.58
6	EG 6	10.67	10.60	10.22
7	EG 7	11.6	11.51	11.14
8	EG 8	11.03	10.65	10.43
9	EG 9	11.7	11.62	10.77
10	EG 10	11.64	11.47	11
11	EG 11	11.82	11.73	10.98
12	EG 12	11.5	11.23	10.77
13	EG 13	11.46	11.32	10.63
14	EG 14	11.2	11.00	10.64
15	CG 1	10.83	10.80	10.71
16	CG 2	11.75	11.77	11.72
17	CG 3	11.39	11.16	10.78
18	CG 4	12.2	12.09	11.83
19	CG 5	11.32	11.21	10.98
20	CG 6	12.1	11.67	11.1
21	CG 7	11.35	11.32	11.41
22	CG 8	10.69	10.57	10.15
23	CG 9	11.88	11.53	11.14
24	CG 10	11.63	11.24	11.3
25	CG 11	11.4	11.34	11
26	CG 12	11.59	11.47	10.93
27	CG 13	11.78	11.76	11.68
28	CG 14	12.1	11.60	11.04

**APPENDIX: J**

**Table: 15. Pre, during and post raw data of power tests (VJT)**

NO.	Code/Name	Pre T-Test	During T-Test	Post T-Test
1	EG 1	0.8	0.82	0.9
2	EG 2	0.78	0.80	0.82
3	EG 3	0.87	0.89	0.91
4	EG 4	0.83	0.86	0.93
5	EG 5	0.79	0.79	0.81
6	EG 6	0.82	0.83	0.88
7	EG 7	0.86	0.87	0.89
8	EG 8	0.82	0.81	0.88
9	EG 9	0.78	0.80	0.9
10	EG 10	0.85	0.86	0.92
11	EG 11	0.78	0.81	0.89
12	EG 12	0.83	0.85	0.87
13	EG 13	0.84	0.84	0.82
14	EG 14	0.85	0.85	0.89
15	CG 1	0.83	0.85	0.87
16	CG 2	0.77	0.77	0.75
17	CG 3	0.81	0.80	0.83
18	CG 4	0.9	0.89	0.93
19	CG 5	0.81	0.81	0.82
20	CG 6	0.78	0.80	0.79
21	CG 7	0.77	0.77	0.79
22	CG 8	0.83	0.84	0.84
23	CG 9	0.8	0.81	0.83
24	CG 10	0.86	0.83	0.84
25	CG 11	0.78	0.79	0.80
26	CG 12	0.75	0.80	0.89
27	CG 13	0.91	0.92	0.95
28	CG 14	0.81	0.81	0.82

**APPENDIX: K**

**Table: 16.Pre, during and post raw data of speed tests (ST1&ST2)**

NO.	Code/Name	pre-ST1	During ST1	post-ST1	pre-ST2	During ST2	post-ST2
1	EG 1	2.02	1.99	1.92	7.84	7.80	7.74
2	EG 2	1.98	1.93	1.8	7.48	7.41	7.31
3	EG 3	1.86	1.86	1.83	7.87	7.83	7.69
4	EG 4	1.86	1.81	1.57	7.5	7.22	6.93
5	EG 5	1.78	1.77	1.74	7.41	7.38	7.33
6	EG 6	1.65	1.67	1.7	7.47	7.40	7.54
7	EG 7	1.65	1.62	1.5	7.05	7.00	6.87
8	EG 8	1.85	1.84	1.81	7.71	7.68	7.62
9	EG 9	1.9	1.87	1.64	7.61	7.43	7.11
10	EG 10	1.73	1.72	1.75	7.26	7.43	7.37
11	EG 11	1.99	1.95	1.7	7.73	7.71	7.43
12	EG 12	1.93	1.91	1.89	7.93	7.91	7.82
13	EG 13	2.11	2.00	1.65	7.94	7.46	7.36
14	EG 14	1.83	1.78	1.68	7.53	7.43	7.37
15	CG 1	1.95	1.93	1.88	7.5	7.44	7.41
16	CG 2	2.2	2.18	2.13	8.11	8.03	7.91
17	CG 3	2.03	1.89	1.55	7.23	7.08	6.71
18	CG 4	2.1	2.08	2.03	7.95	7.92	7.88
19	CG 5	2	1.95	1.72	7.28	7.23	7.11
20	CG 6	2.23	2.23	2.15	8.23	8.18	8.17
21	CG 7	2.11	2.00	2.06	7.49	7.45	7.35
22	CG 8	1.96	1.92	1.83	7.67	7.61	7.43
23	CG 9	1.95	1.99	1.93	7.6	7.58	7.47
24	CG 10	1.8	1.77	1.76	7.4	7.37	7.32
25	CG 11	2.24	2.11	1.7	7.59	7.55	7.44
26	CG 12	1.96	1.92	1.83	7.67	7.61	7.43
27	CG 13	1.77	1.81	1.82	7.5	7.55	7.63
28	CG 14	1.97	1.86	1.80	7.82	7.69	7.77

APPENDIX: L

Consent form in local languages

“Skill related fitness test Consent form.”

የመረጃ መዝገብ ቅጽ

መጠይቁ የተዘጋጀው “በደቡብ ጎንደር ዞን በአማራ ክልል የጥንካሬ ስልጠና በእግር ኳስ ክህሎት ነክ የአካል ብቃት አካላት ላይ በደብረታቦር ከተማ ከ17 እግር ኳስ ተጫዋቾች ላይ ያለው ተጽእኖ” በሚል ርዕስ ለምርምር ተዘጋጅቷል። ስለዚህ አሁን ያለዎትን የጤና ሁኔታ በተመለከተ ለሚከተለው ጥያቄ ተገቢውን መረጃ እንዲሰጡ በአክብሮት ተጠይቀዋል።

አመሰግናለሁ.

I. የተጫዋች መረጃ ስም \_\_\_\_\_ ስልክ ቁጥር \_\_\_\_\_

ጾታ \_\_\_\_\_ እድሜ \_\_\_\_\_

ክፍል \_\_\_\_\_ የሚጫወትበት ቦታ \_\_\_\_\_ የአደጋ ጊዜ ተጠሪ መረጃ \_\_\_\_\_

ሙሉ ስም \_\_\_\_\_ አድራሻ \_\_\_\_\_.

II. የግል የጤና ታሪክ (አዎ ወይም አይደለም ብለው ይመልሱ እና አስፈላጊ ከሆነ መግለጫ ይስጡ)

- 1. ከዚህ በፊት ከመደበኛ የእግር ኳስ ስልጠናዎ በላይ የአካል ብቃት ፈተና ወስደዋል? \_\_\_\_\_
- 2. ከዚህ በፊት ከእግር ኳስ ጋር የተያያዙ የችሎታ ፈተናዎችን ወስደዋል?
- 3. አሁን ያለዎትን የአካል ብቃት ደረጃ ያውቃሉ? \_\_\_\_\_
- 4. በአሁኑ ጊዜ ምን ዓይነት ሕክምና እየተከታተልክ ነው ወይስ በክትትል ላይ ነህ?
- 5. ባለፉት 3 ወራት ውስጥ ታምመዋል? \_\_\_\_\_ አዎ ከሆነ፣ እባክዎን ችግርዎን ይጻፉ
- 6. ባለፉት ሶስት ወራት/በጋ/ እግር ኳስ ስትጫወት ከባድ ጉዳት አጋጥሞሃል? \_\_\_\_ አዎ ከሆነ ምን ዓይነት የአካል ጉዳት ደረሰብዎት እና በየትኞቹ የአካል ክፍሎች ውስጥ ነው?
- 7. ባለፉት 3 ወራት ውስጥ ከባድ ቀዶ ጥገና ነበረህ-----

ቅጹን አንብቤ ተረድቻለሁ እናም አሁን ስላለኝ የጤና ሁኔታ ትክክለኛ መረጃ ሰጥቻለሁ።

የተሳታፊ ተጫዋችፊርማ \_\_\_\_\_ ቀን \_\_\_\_\_

የመዘኛ ፊርማ \_\_\_\_\_ ቀን-----

**Pictures while players take a test**

