

**EFFECT OF CONDITIONING EXERCISE ON SELECTED SKILL
RELATED PHYSICAL FITNESS COMPONENTS: THE CASE OF
FONKO PREPARATORY SCHOOL STUDENTS; HADIYA ZONE,
SNNPR, ETHIOPIA**

MSc THESIS

DAWIT ABATE GALLE

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**Effect of Conditioning Exercise on Selected Skill Related Physical Fitness
Components: The Case of Fonko Preparatory School Students; Hadiya
Zone, SNNPR, Ethiopia**

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MASTER OF SPORT SCIENCE IN SPORT MEDICINE**

DAWIT ABATE GALLE

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Haramaya University, Haramaya**

HARAMAYA UNIVERSITY

POSTGRADUATE PROGRAM DIRECTORATE

As thesis research advisors, I hereby certify that I have read and evaluated this thesis prepared by Mr. **Dawit Abate Galle** titled “**Effect of Conditioning Exercise on Selected Skill Related Physical Fitness Components: The Case of Fonko Preparatory School Students; Hadiya Zone, SNNPR, Ethiopia.**” I recommend that it can be submitted as fulfilling the thesis requirement.

Shemelis Mekonnen (PhD)

Major Advisor

Signature

Date

Desta Enyew (PhD)

Co-Advisor

Signature

Date

As a member of the board of examiner of the MSc Thesis open defense examination, I certify that I have read and evaluated the thesis prepared by Mr. **Dawit Abate Galle** and examined the candidate. I recommend that the thesis is accepted as fulfilling the thesis requirement for the degree of Master of Science in sport medicine.

Chairperson

Signature

Date

External examiner

Signature

Date

Internal examiner

Signature

Date

DEDICATION

I dedicate this thesis manuscript to my beloved friend Andargacho G/M and families. As well as the research extended his dedication to peoples who contribute even a piece of advice throughout in my life to research in this stage.

STATEMENT OF THE AUTHOR

First, I declare and affirm that this Thesis is my work. I have followed all ethical and technical principles of scholarship in the preparation data collection data analysis and compilation of this Thesis. Any matter that is included in the Thesis has been given recognition through citation.

This thesis is submitted in partial fulfillment of the requirements for MSc. Degree at the Haramaya University in “sport medicine”. The Thesis is deposited in the Haramaya university library and is made available to borrower under the rule of the library. I seriously declare that this thesis has not been submitted to another institution anywhere for the award of any academic degree.

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Name Dawit Abate

Department: sport science

Date: _____

Signature: _____

BIOGRAPHICAL SKETCH

The author, Dawit Abate was born on January 1, 1992 G.C in Fonko town, Ani Lemo woreda of Hadiyya zone southern Ethiopia. He started fonko primary and secondary school (grade 1-10) and grade 11 and 12 wachamo preparatory school. He received his Bachelor degree from wolayita Sodo University 2013 G.C. The author began his career in teaching physical education and sport at ani gero darisha secondary school and hacamo secondary school for three years. And eventually, he joined Haramaya University for MSc degree regular program in sport science (sport medicine) in 2021G.C

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LIST OF ACRONYMS AND ABBREVIATIONS

ALW	Ani Lemo Worada
CG	Comparison Group
EG	Experimental Group
FPS	Fonko Preparatory School
HIIT	High Intensity Interval Training
HZ	Hadiya Zone
IRERC	Institutional Research Ethics Review Commented
M	Mean
NASPE	National Association For Sport And Physical Education
PeT	pre test
PoT	post test
SD	Standard deviation
SNNPRS	South Nations Nationalities Peoples Region State
SPSS	Statistical package for social sciences

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Effect of Conditioning Exercise on Selected Skill Related Physical Fitness Components: The Case of Fonko Preparatory School Students; Hadiya Zone, SNNPR, Ethiopia.

ABSTRACT

This study attempted to investigate the effect of conditioning exercise on selected skill related physical fitness components at Fonko preparatory school. Quasi experimental research design was used. The population of the study was 100 Fonko preparatory school grade 12 students with the age range 19-21. Out of 100 students the researches selected 50 grade 12 students by using random sampling technique the subjects were divided in to experimental and control group by lottery methods. Experimental group engaged in conditioning exercises programs for eight weeks (2 months) from June 01 to July 30/ 2021, with the frequency of 3 days per week with duration of 60 minutes per session. The skill related physical fitness variables selected for the study were: 30m run, agility, reaction time, Coordination, balance and power. Data were analyzed by using paired samples t- test with pair wise comparison of means at 95% confidence interval for both pre and posttests, and across control and experimental groups. The results indicated that there were significant improvements on skill related physical fitness variables due to the effects of conditioning exercise training with active rest ($p \leq 0.05$). This study confirmed that conditioning exercise training with active rest was significant to improve the speed, coordination, agility, balance, power and reaction time variables. The study showed that students who were exposed to conditioning exercise training have revealed positive out comes to wards the speed, coordination, agility, balance, power and reaction time.

Key words: *conditioning exercise, fitness, physical activity, physical fitness*

INTRODUCTION

1.1 Background of the Study

Conditioning exercises are body movements that increase athletic skill and physical fitness while decreasing the likelihood of sports injuries. Programs may include weight training, aerobic exercise, plyometrics, calisthenics, and exercises based on real-life motions. Types of conditioning exercises may vary greatly depending on fitness goals and are adaptable to any level of fitness, from beginners to experienced athletes. Ella M. Trussell, (2013).

One of the goals of sports conditioning exercises is increasing the amount of stress the body can endure before experiencing injury. Conditioning exercises have an important role in preventing injury because they get the body to become more tolerant of sustained effort. Phillip D. Tomporowski, Norman R. (1984).

Conditioning exercises are body movements that increase athletic or student's performance skill related fitness components. Types of conditioning exercises may vary greatly depending on fitness goals and are adaptable to any level of fitness, from beginners to advanced athletes. The basic conditioning exercise is that the body must be challenged in such a way that it adapts to the stress of exercise.

The skill related physical fitness components refer to ability to learn sports and other kinds of physical activities. This ability includes agility, balance, coordination, power, speed and reaction time. (Hoeger, 2009).

Conditioning exercise on skill related physical fitness component should be a primary objective in all school education programs and in health promotion programs (McGraw-Hill companies, 2003).

Effect of conditioning exercise on selected skill related fitness components is a term given to grouping of aspects related to conditioning and attributes variables that students can perform on sports. Skill related physical fitness is essential and important for success of sports and also it helps ensure that the students or players have good endurance to enhance their technical skills related physical fitness components. Skill related fitness areas focus on the performance of technical and tactical activities involved in sports specific movements.

Based on the stated background the underlying effect that conditioning exercise can lay on Skill Related Physical Fitness Components of students is important, and hence this study tries to investigate the effect of conditioning exercise on selected Skill Related Physical Fitness Components of students from Fonko Preparatory School Hadiya Zone SNNPR Ethiopia.

1.2 Statement of the Problem

The purposes of this study were to investigate the effect of conditioning exercise on selected skill related fitness components fonko preparatory school.(Education is the process by which a person acquires knowledge, skills and habits or behaviors that help the students to become useful member of society (Richards, 2001)). Coaches and athletes, or teachers and students are highly dependent on one another, and this relationship is a crucial component of sport and development of skills. As all-round fitness is a key to quality of life, to be able to carry out daily tasks without undue fatigue or to enjoy leisure-time pursuits requires a certain degree of conditioning exercise on skill related physical fitness components so that a person looks better, feels better and thinks better and so lives better. Skill related physical fitness is a group of basic abilities that helps students to perform well in sports and motor skill requiring certain physical skills.

The development of such skill related fitness component is dependent on how they are treated However, many of our students' fonko preparatory school either are not physically fit or do not attempt to develop it. Given such a problem it got out to be of interest to look for an instructional intervention and seek how such conditioning – intervention impacts the physical fitness components is of a paramount importance.

For this reasons that the researcher got initiated to investigate the effect of conditioning exercise on skill related physical fitness component.

Furthermore, previous studies conducted on Effect of Conditioning Exercise on Selected Skill Related Physical Fitness did not study on selected skill related physical fitness component. Therefore this study tries to fill this gap. Therefore this study was paid great attention to major issue, which have relevance with topic investigation and the following research hypothesis were tested.

Hypothesis: (HA= Alternative Hypothesis, Ho=Null Hypothesis)

Ho: Conditioning exercise have no significant effect on agility of the of fonko town preparatory school student.

HA: Conditioning exercise have significant effect on agility of the of fonko town preparatory school student..

Ho: Conditioning exercise have no significant effect on power of the of fonko town preparatory school student..

HA: Conditioning exercise have significant effect on power of the of fonko town preparatory school student.

Ho: Conditioning exercise have no significant effect on reaction time of the of fonko town preparatory school student..

HA: Conditioning exercise have significant effect on reaction time of the of fonko town preparatory school student.

Ho: Conditioning exercise have no significant effect on coordination of the of fonko town preparatory school student..

HA: Conditioning exercise have significant effect on coordination of the of fonko town preparatory school student.

Ho: Conditioning exercise have no significant effect on balance of the of fonko town preparatory school student..

HA: Conditioning exercise have significant effect on balance of the of fonko town preparatory school student.

Ho: Conditioning exercise have no significant effect on speed of the of fonko town preparatory school student..

HA: Conditioning exercise have significant effect on speed of the of fonko town preparatory school student.

1.3. Scope of the Study

This study was conducted at Fonko town, Fonko preparatory School students. The Effect of Conditioning Exercise on Selected Skill Related Physical Fitness component was highly important. The experimental research was complex and considers usually as a private domain as a result of data collection materials man power and like reasons, it was very difficult to carry out and use as many subjects as possible. Due to this, the numbers of the subjects would be limited in sample size. It was conducted with 50 students of age 19-21 years. To overcome these problems the researcher was used effectively and efficiently the given human power, sample size, and the given area systematical and economically.

1.4 Significance of the Study

The Effect of Conditioning Exercise on Selected Skill Related Physical Fitness component was highly important. But it was not well-known the conditioning exercise was better in bringing improvements of Physical Fitness component. So this research was conducted to fill full the miss understanding gap on Effect of Conditioning Exercise on Selected Skill Related Physical Fitness component. In fact there were many studies that analyze about conditioning exercise and physical fitness component but there were no enough research that studied about the effect of conditioning exercise on selected skill related physical fitness components: the case of fonko preparatory school students

1.5 Objectives of the Study

1.5.1 General Objective

The main objective of the study was to investigate the effect of conditioning exercise on selected skill related physical fitness components of selected grade 12th students at Fonko Preparatory School.

1.5.2 Specific Objectives

The specific objectives of this study are:

1. Examine is a significant difference between the mean scores of pre test and post test of experimental groups on agility skill related physical fitness components
2. To identify whether there is significant difference between the mean scores of control and experimental group on power skill related physical fitness
3. Show the effects of conditioning exercise on balance skill related physical fitness
4. To compare the effects of conditioning exercise of control and experimental group on coordination skill related physical fitness
5. Examine is a significant difference between the mean scores of pre test and post test of experimental groups on reaction time skill related physical fitness.
6. To identify whether there is significant difference between the mean scores of control and experimental group on speed skill related physical fitness.

1.6 Definition of Terms

Physical activity: is defined as any voluntary body movement produced by skeletal a muscle that requires energy expenditure.

Physical fitness: is a state of health and well-being and more specifically, the ability to perform aspects of sport, occupations and daily activities.

Fitness is having a healthy mind, body, and spirit to allow you to maximize your potential and help others maximize their potential

Skill: is the ability to use one's knowledge effectively and readily in execution or performance.

Conditioning exercise: are body movements that increase athletic skill and physical fitness while decreasing the likelihood of sports injuries.

2. REVIEW OF RELATED LITERATURE

2.1 Exercise

Exercise is physical activity that is planned, structured and repetitive for conditioning any part of the body .Exercise is used to improved health and maintain physical fitness component and is important as means of physical rehabilitation. Exercise is useful preventing coronary heart disease, obesity depression and improving motor skill or physical fitness components (Keys A, Fidanza F, Karvonen MJ, Kimura N, Taylor HL1972). Range of motion exercise is one of aspect of exercise important for increasing or maintains joint function strengthening. Exercise provides appropriate resistance to the muscle to increase endurance and strengthening. A well balanced exercise program can improve general health, builds, and endurance and physical fitness components.

Physical Activity is defined as bodily movement produced by the contraction of striated muscle that substantially increases energy expenditure. This definition includes exercise, which is planned, structured, and repetitive physical activity aimed at improving maintaining physical fitness, organized sports or striated muscle that substantially increases energy expenditure(USDHHS, ACSM 1996; 2000).This definition includes exercise, which is planned, structured, and repetitive physical activity aimed at improving maintaining physical fitness, organized sports or games (football, basketball), transport (walking, cycling), occupational physical activity(manual labor, household chores) and non-organized, recreational physical activities(Okely, Patterson &Bother, 2001).

2.2 Conditioning Exercise

Conditioning exercises are body movements that increase athletic skill and physical fitness while decreasing the likelihood of sports injuries. Programs may include weight training, aerobic exercise, plyometrics, calisthenics, and exercises based on real-life motions. Types of conditioning exercises may vary greatly depending on fitness goals and are adaptable to any level of fitness, from beginners to experienced athletes. The basis for sports conditioning is that the body must be challenged in such a way that it adapts to the stress of exercise.

To improve athletic performance, athletes use targeted, specific movements that mimic the moves used on the field or court. For example, a basketball player can practice shooting

baskets repeatedly because these movements help body parts work with each other and increase body awareness until the athlete no longer has to concentrate on the action.

- **Aerobic conditioning** is an important part of most conditioning programs, whether athletic or for general physical fitness, because it increases cardiovascular endurance and lung capacity. An exercise is considered aerobic when the body uses oxygen to produce energy. This happens with low-intensity, longer-duration exercises such as walking, long-distance running, or bicycling. It also includes any other activity that raises the heart rate and sustains it for a time period at a level that challenges the heart and lungs to become stronger. National Institutes of Health, National Heart, Lung, and Blood Institute (2006).
- **Anaerobic conditioning** is appropriate for sports that require intense, sudden bursts of strength or speed and are difficult to sustain for an extended period. An exercise is considered anaerobic when it does not use oxygen when producing energy. Weight training and sprinting are considered anaerobic exercises. De Vos N.; Singh N.; Ross D.; Stavrinou T. (2005).

2.3 Designing Conditioning Exercise

Physical training works best when we have good designed conditioning exercise .A design helps the learners make gradual but steady progress toward the goals. Once you have determine that exercise is safe for students ,designing for physical fitness consists of assessing how fit are now, determining where the students want to be and choosing the right activities to help the learners get there (Albert, 2000).

2.3.1 Assessing Conditioning Exercise

The first step in creating skill related physical fitness conditioning design is to assess the students current level of physical activity and skill related physical fitness components for each of the six skill related physical fitness components. The results of the assessments tests will help the learners set specific physical fitness goals and design the physical fitness program. Assessment test will help to evaluate for each of six skills related physical fitness components. J Long Term Eff Med Implants. 2006

2.3.2 Setting Goals

The long-term success of any plan is determined by setting and adjusting realistic short-term goals that can be achieved in 2-4 weeks and long-term goals that can be achieved in 2 months or more. As a person ages, maintaining fitness and health, performance and appearance becomes a primary focus. Therefore, creating a fitness and health plan and setting goals is essential for a person to maintain or improve overall health, improve performance in activities and enhance appearance. To maintain or improve health, it is important to create a fitness and health plan that includes health habits such as nutrition, hydration, sleep and activity. As a person ages, his or her nutrition, hydration, sleep, activity and fitness needs change. As a result, it is critical to set and adjust realistic goals in these areas to maintain or improve health. Life is more fun and more enjoyable for people who participate in activities in which they feel confident about their performance. Feeling confident about performance is also when motivates people to continue to participate in activities. (Locke & Latham, 1990, 2002)

Setting realistic goals for performance gives a person a sense of accomplishment when those goals are reached, enhances the enjoyment of participation in activities, increases the likelihood of continued participation and therefore improves performance. Because fitness, nutrition, hydration, and sleep also play a role in performance it is important to set goals in these areas as well. Setting realistic goals in activity, as well as other health habits such as nutrition, hydration and sleep, play an important role in maintaining or improving appearance. Activity and nutrition make up a person's body composition and sleep and hydration can affect a person's skin.

The ultimate goals of every skill related physical fitness components design is the same wellness that lasts a life time. What every students specific goals the must be important enough to keep motivated .Most sport psychologists states that setting and achieving goal is the most effective (William and Wilma, 2009).

2.3.3 Choosing Activities for Balanced Program

A conditioning design is only as successful individual's ability to commit to it .For most, activities time is limited so the key is to prioritize. An ideal fitness program combines a physical active life style with systematic exercise program to develop and maintain physical fitness. If the learner currently level sedentary the goal should be to focus on activities at the

short duration and low intensity and gradual increase the amount of moderate intensity physical activity in their daily life (Lusty,et al., 2011)

2.4 Components of Physical Fitness

Physical fitness is a set of attributes that people have or achieve. Being physically fit has been defined as the ability to carry out daily tasks with vigor and alertness, without undue fatigue and with ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies. Fitness is defined as a condition in which an individual has enough energy to avoid fatigue and enjoy life. Physical fitness is divided into five health related (muscular strength, muscular endurance, flexibility, cardiovascular endurance and body composition) and six skill related (agility, balance, coordination, speed, and power and reaction time) components. Skill related fitness components are fitness types which enhances one's performance in athletic or sports settings. Health-related fitness is the ability to become and stay physically healthy. This component focus on factors that promote optimum health and prevent the onset of disease and problems associated with inactivity (NASPE, 2009).

2.4.1. Skill-Related Fitness Component

If you're already meeting the ACSM guidelines and you want to do more to train for a specific fitness-related goal, you also need to consider the six skill-related fitness components: Zemková E, Hamar D. 2018

- Agility
- Balance
- Coordination
- Power
- Reaction time
- Speed

The skill-related fitness components are more relevant to certain athletes. For example, while everyone can benefit from daily walks, someone who hits the path just to get their heart pumping doesn't need to worry about developing the speed necessary to run a five-minute mile.

Likewise, baseball players need to target all skill-related areas in order to perform at the highest levels. But weightlifters can get away with focusing most of their effort on power, balance, and strength.

2.4.1.1 Power

Power combines speed and strength. In essence, it's how fast you can generate a maximal force. In sports, "power athletes" are those who exert brute strength in short, all-out efforts, such as Olympic weightlifters, football players, and gymnasts. But athletes in other sports, like basketball, volleyball, and tennis, can also benefit from developing greater power. Jumping to get a rebound requires leg power, while forcefully spiking volleyball requires a combination of upper- and lower-body power.

Enhance your power by combining resistance and speed with fast-paced strength-training moves, such as:

- Pushing a weighted sled while sprinting
- Clean and jerk lifts

2.4.1.2 Speed

When you think of speed, you might think of an event like the 100-meter sprint. But speed, by nature, is relative. An elite 100-meter sprinter needs to be very, very fast, but only for about 10 seconds.

On the other hand, if a marathon runner wants to improve their speed to set a new personal best, they might aim to reduce their per-mile race pace from 10 minutes per mile to 9.5 minutes per mile—a speed they would have to maintain for a little over four hours. These two fictional athletes train differently, but with a similar goal: become faster for their sports. So speed training will differ based on the sport you're training for. Regardless of sport, high-intensity interval training (HIIT) is one of the best ways to improve speed.

This training involves working at an all-out or near all-out effort for set periods of time, followed by set periods of rest. Alansare A, Alford K, Lee S, Church T, Jung HC (2018).It repeatedly challenges your aerobic and anaerobic systems, teaching your muscles, heart, and lungs to grow accustomed to working at higher levels of intensity. The length and intensity of the intervals you use will be longer or shorter, less challenging or more, depending on your sport.

- **For sprint training:** Focus on shorter intervals. A sprinter would be better off performing shorter, more intense intervals ranging from 40- to 400-meters in length, running all-out, and then resting before repeating.

2.4.1.3 Agility

Agility is the ability to move quickly and to easily change direction. Basketball players, for instance, are incredibly agile. They have to move in every direction, jumping, sliding,

twisting, and backpedaling in quick response to the movement of the ball and other players. Their bodies have to be trained to respond and change course at the drop of a hat.

Agility drills commonly involve exercises that develop foot speed and direction change, such as:

- **Ladder drills:** Use an agility ladder to practice quick and specific foot placement.
- **Cone drills:** Set up cones in a "T" or star shape, then sprint, slide, backpedal, or change direction depending on which cone you're approaching.

2.4.1.4 Coordination

So many sports and activities require well-honed hand-eye (or foot-eye) coordination, including badminton, golf, soccer, basketball, football, racquetball, archery, softball, ultimate Frisbee, and more. All require you to be able to see an external object and respond precisely with your hands and/or feet to meet a pre-determined objective.

Think of hitting a golf ball off a tee, catching a fly ball, or blocking a shot on net in hockey or soccer. To improve your coordination, try exercises such as:

- Playing catch
- Jumping rope
- Juggling
- Dribbling a ball
- Throwing objects at specific targets

2.4.1.5 Balance

Gymnasts, yogis, skaters, and surfers all need highly refined balance skills to be able to participate in their sports. But these aren't the only athletes who benefit from balance training. Balance itself refers to your ability to adjust your body position to remain upright. It deals with proprioception or knowing where your body is in space, and being able to make adjustments to your position as your center of gravity changes during movement. Aman JE, Elangovan N, Yeh IL, Konczak J. (2014)

There are few sports where balance doesn't play an important role, and there are lots of activities where balance is required for enhanced performance and safety. Trail runners, for instance, benefit from balance training because it can help prevent them from rolling an ankle or taking a nasty fall after tripping over a root or slipping on a muddy path. To train your balance, try:

- Standing on one foot

2.4.1.6 Reaction Time

Reaction time refers to how quickly you can respond to an external stimulus. Think about a tennis match for a moment: The best competitors react almost instantaneously when the ball comes off their opponent's racquet, sprinting toward the location where they expect the ball to bounce.

Reaction time hinges heavily on your mind-body connection. Your eyes see a stimulus, your mind interprets the stimulus, and your body reacts in accordance with that interpretation.

Much of this mind-body reaction relates to knowledge of the sport or activity in question. A professional tennis player can almost instantly interpret and predict the movement of a ball. This knowledge enables them to react more quickly (and accurately) to the stimulus.

On the other hand, a novice tennis player may see the ball coming off the opponent's racquet, but won't be able to interpret what they're seeing as quickly, causing their reaction time to slow. Reaction-time training tends to be sport-specific, but these activities can help:

- Fielding a ball (softball, baseball)
- Protecting the goal as other players try to score (soccer, hockey, lacrosse)
- Tools such as lopsided reaction balls
- Playing table tennis or hacky sack (Marieb,etal 2003),

2.4.2 Phases of Fitness Conditioning

The physical fitness training program is divided into three phases: preparatory, conditioning, and maintenance. The starting phases for different individuals vary depending on their age, fitness levels, and previous physical activity.

Young, healthy persons may be able to start with the conditioning phase, while those who have been exercising regularly may already be in the maintenance phase. Many factors such as illness or lack of consistency in one's exercise program can cause individuals to drop from maintenance to a conditioning phase. Persons who have not been active, especially if they are age 40 or older, should start with the preparatory phase.

https://www.survivaliq.com/physical_fitness/introduction_16.htm#:~:text=The%20physical%20fitness%20training%20program,levels%2C%20and%20previous%20physical%20activity.

2.4.2.1 Preparatory Phase

The preparatory phase helps both the cardio respiratory and muscular systems get used to exercise, preparing the body to handle the conditioning phase. The work load in the beginning must be moderate. Progression from a lower to a higher level of fitness should be achieved by gradual, planned increases in frequency, intensity, and time.

Initially, poorly conditioned individuals should run, or walk if need be, three times a week at a comfortable pace that elevates their heart rate to about 60 percent HRR for 10 to 15 minutes. Recovery days should be evenly distributed throughout the week, and training should progress slowly. People should continue at this or an appropriate level until they have no undue fatigue or muscle soreness the day following the exercise. They should then lengthen their exercise session to 16 to 20 minutes and/or elevate their heart rate to about 70 percent HRR by increasing their pace. To be sure their pace is faster; they should run a known distance and try to cover it in less time. When they can handle an intensity of 70 percent HRR for 20 to 25 minutes, they should be ready for the next phase.

<http://www.fao.org/3/i0535e/i0535e06.pdf>

2.4.2.2 Conditioning Phase

To reach the desired level of fitness, people must increase the amount of exercise and/or the workout intensity as their strength and/or endurance increases.

To improve cardio respiratory endurance, for example, they must increase the length of time they run. They should start with the preparatory phase and gradually increase the running time by one or two minutes each week until they can run continuously for 20 to 30 minutes. At this point, they can increase the intensity until they reach the desired level of fitness. They should train at least three times a week and take no more than two days between workouts.

For weight trainers, the conditioning phase normally begins during the third week. They should do one set of 8 to 12 repetitions for each of the selected resistance exercises. When they can do more than 12 repetitions of any exercise, they should increase the weight used on that exercise by about five percent so they can again do only 8 to 12 repetitions.

https://www.survivaliq.com/physical_fitness/introduction_1-6.htm

2.4.2.3 Maintenance Phase

The maintenance phase sustains the high level of fitness achieved in the conditioning phase. The emphasis here is no longer on progression. A well-designed, 45- to 60-minute workout (including warm-up and cool-down) at the right intensity three times a week is enough to maintain almost any appropriate level of physical fitness.

https://www.survivaliq.com/physical_fitness/introduction_1-6.htm

2.5 Conditioning Exercise Intensity

Conditioning exercise intensity refers to how hard your body is working during physical activity. Your health and fitness goals, as well as your current level of fitness, will determine your ideal exercise intensity. The goal is work hard, but not too hard. Typically, exercise intensity is described as low, moderate, or vigorous. For maximum health benefits, the goal is to work hard, but not too hard, described as moderate-intensity by the (National Physical Activity Guidelines for Australians). These guidelines recommend that for good health, you should aim for at least 30 minutes of moderate-intensity physical activity on most days. This is the same for women and men (Matsumoto, 2014). The process of determining and controlling appropriate exercise intensity presents a challenge, which has implications related to both physiological changes and to individual compliance within an exercise program (K and EPLM, 2001). Depending on the time available for each session and the way training sessions are conducted, all components of fitness can be developed using a three-day-per-week schedule (Blackmon, 2015). A pioneer uncontrolled study showed that a 8 week training intensity program is crucial foundation for moderate intensity training principle system (Brand, Gustafson, et.al, 2009)

2.6 Effects of Conditioning Exercises

Burning up energy by participating in physical activity may pay off with increased energy in the long run. Regular exercise can increase energy levels Physical activity every day can provide the energy built on the idea that physical movement leads to mental organization. One of the most basic benefits of physical activity is the development of motor skills. Every child's earliest learning is based on motor development. Fundamental movement skills, including locomotors and object control skills, usually evolve between the ages of one year of age to seven years old (Providing students with these opportunities to learn conditioning exercises in skill related fitness exercises is important (Richardson, 2006). It is believed that there is a relationship between motor skills, fitness, and physical activity. Children with low motor competence are likely to have poor physical fitness when compared to children with high motor competence. Physical activity helps children learn and develop their complex, fine, and gross motor skills in order to be successful in being physically active. Physical activity and active play are vital to the development of children and young people (Hessler, 2009).

2.7 Principles of Exercise Training

1. Principle of Individuality

Every individual is unique and will respond differently to the same training stimulus. Some of these differences can be influenced by many characteristics; biological age, training age, gender, body size and shape, past injuries and many more. For example, a college athlete makes a copy of his exact training program and gives it to his little brother who is a freshman in high school. The younger brother does not miss a workout, and at the end of the program, he is disappointed in the results. Though many variables could play a role in the results, the primary factor is most likely the large range in biological and training age. Burgess D(2017)

2. Principle of Specificity

Training adaptations for an individual will occur specifically to the muscle groups trained, the intensity of the exercise, the metabolic demands of the exercise, and/or specific movements and activities. In an attempt to perfect a specific skill or activity, you must perform that skill or activity with proper body mechanics to have correct technique. For example, a 100-m sprinter is not going to train for an event by running three miles at a low intensity for an extended period. The sprinter will train by sprinting short distances at very high intensities. KR, Vincent HK, Seto CK. 2013

3. Principle of Overload

In order for an individual to achieve a certain training adaptation, the body must be stressed by working against a stimulus or load that is greater than that to which it is accustomed. Overload, ensures improvement by challenging changes in resistance, terrain, movement complexity, and many others. For example, if an athlete is trying to increase force production to jump higher, the athlete must train to increase overall strength and power. When training with the hang clean at three sets of five repetitions, the athlete should load the bar with a weight that will allow them to use great technique at a desired velocity. If the bar is loaded with a weight that prevents them from reaching their desired velocity, then the specific training adaptation will not be obtained. SK, Howley ET. 2007.

4. Principle of Progression

In order to achieve the desired training adaptations for a certain activity or skill consistently, the training stimulus must gradually and constantly increase. This implies that there is an optimal level and time frame for the overload to occur. If overload increases too quickly, poor technique, improper muscle firing patterns, and injury may result. If overload progresses too slowly, improvements will be minimal or non-existent. Rest and recovery must also be included in the progression, as training hard all the time could result in chronic fatigue, a decrease in performance and eventually injury. For example, at the beginning of the training program, an athlete may be able to perform three sets of ten repetitions at 135 lb. At first, this may be a tough task for the athlete to accomplish, but as the athlete consistently trains, the task will become easier and the load must be increased. The next week the load increases to 145 lb until all ten reps can be completed with correct technique. The athlete must progressively overload the muscles to increase performance. Hill JC. 2010

5. Principle of Diminishing

Returns Performance gains are related to the level of training (training age) of each individual. Athletes that have never participated in a training program before can see huge initial performance gains in their program. On the other hand, athletes that have been lifting for several years will see smaller gains over longer periods. As an athlete nears their genetic potential, the gains in performance will be much harder to obtain. The key is to continue to show progress in the areas in which they have weaknesses. For example, when an athlete first starts a training program as a freshman in college the athlete's vertical jump may improve from 22 in. to 30 in. in the first year. As the athlete continues to train through the next three years, their vertical jump performance may increase from 30 in. to 38. Achieving the eight-inch improvement in the final three years is much more significant and difficult than the eight inches in the first year. Paul S, Rand S, Stovak M, Hilgers MP. 2012.

6. Principle of Reversibility

When a training stimulus is taken away from an athlete for an extended period, they will not be able to maintain a certain level of performance. Over time, the gains that were achieved will return to the original level. For example, when an athlete takes the summer off from training they can expect to become detrained. The decrease in performance is directly related to the inactivity of the muscles that have been atrophied from nonuse. SK, Howley ET. 2007.

3. MATERIALS AND METHODS

3.1 Description of Study Area

The study was conducted at Fanko Preparatory School in Ani-lemo Woreda of the Hadiya Zone. The geographical location of the study area is $7^{\circ} 30'$ to $7^{\circ} 45'$ North latitude and $37^{\circ} 54' 30''$ to $38^{\circ} 3' 30''$ East longitude. As far as its boundaries in relation to its neighboring zones and/or woreda, it bounds with Silte Zone in the north and north-west, Shashogo Woreda in the east, Lemo Woreda in the south-east and south west (ibid). In addition, Ani-lemo Woreda is 18 km far from Hosanna, town of Hadiya Zone in Southern Nation, Nationalities and Peoples Regional State (SNNPRS) and it is about 214 km far from Addis Ababa.

https://en.wikipedia.org/wiki/Ana_Lemo

3.2. Research Design

The study was focus on experimental study within 8 weeks of conditioning exercise in order to examine the selected skill related physical fitness component performance of the study subjects. Since the age of the preparatory school students were belongs to aged 19-21 years, the experiment was involved two groups which consisted of 50 students in total who were found within this age intervals. The training would be given for two months 3 days per week to improve skill related physical fitness components of the selected subjects, duration of exercise per a session would be 60 minutes. Training days Monday Wednesday and Friday and the time of training would be at 7:00 am-8:00am for each day before the regular schooling was started. In this study exercise would be done with orientations, instructions and supervisions by the researcher and assistants. The training sessions would be started with warming up, main exercise and cooling down.

3.3. Experimental Materials

The researcher used Fonko Preparatory School football ground for field tests other than conducting the training program of the study subjects. The following materials were used throughout the study. The materials were stopwatch, maters, marking cones, rope, pen, and score recording sheet.

3.4. Source of Data

The primary source of data were collected by collecting data through the experimental process (recording pre, and, post test result) on selected skill related physical fitness components from fonko preparatory school students.

3.5. Population of the Study

The source of Population would be grade 12th A and 12th B students of Fonko preparatory school aged 19-21 years. There are 100 students of grade 12 from both sections at school. Among these 50 students whose age 19-21 would be selected for this investigation.

3.6 Sample and Sampling Techniques

The purposive and random sampling technique was used to select Grade12 students effects of conditioning exercise and selected skill related physical fitness components from fonko preparatory school as study of subjects. The sample was 50 students subjects between the age of 19 to 21years from Fonko preparatory school students grade 12 A and B. The subjects were divided into two groups; experimental and control. Accordingly, sections 12thA were selected as experimental group and sections 12thB were selected as control groups for this study.

Table.1. Sample of sections and students by group

	M	F	Total
Experimental	14	11	25
Control	9	16	25

3.7. Measurement tools and performance test analysis

3.7.1 30m run Test

The aim of this test were to measure the speed of students 30m run test pretest, at the middle and post test.30m sprint run test was suitable for this test because it does not require wide area, it demands lower price materials and it consolidates the tactical knowledge during a sport activities of players to move quickly.

3.7.2. Agility Test

Agility is an important component of many team sports, though it is not always tested, and is often difficult to interpret results. The Illinois Agility Test is a commonly used test of agility in sports, and as such there are many norms available.

3.7.3. Reaction Time Ruler Catch Test

Here is a simple reaction time test using only a ruler, and a little bit of calculating. This is a good science class project. This test uses the known properties of gravity to determine how long it takes a person to respond to the dropping of an object by measuring how far the object can fall before being caught.

3.7.4. Coordination

Coordination is the ability to move two or more body parts under control, smoothly and efficiently. Coordination is typically measured using tests of hand-eye or foot-eye coordination such as throwing, catching or bouncing ball, or hitting an object.

3.7.5. Balance Test

The Purpose of testing balance was to measure the ability of athletes on an activity to keep their balance equilibrium.

Equipment used for testing balance; stop watch and stick like stairs

Procedure

- Look straight ahead and keep his or her hand on hips
- Lift leg off the ground behind without resting and standing on one leg as long as possible

3.7.7. Power test

The purpose of vertical jump test is to measure the strength and power of legs of participant.

Equipment used for power test wall, chalk mark to the wall and meter

The Procedures was:-

- Measure the point as the standing and has the participants stand away from the wall and jump vertical as high as s/he can.
- They do three times and record the best and measure distance of the reach height and the jump height.

3.8 Research Variables

Variables of this study include the skill related physical fitness components (dependent) and the respective conditioning exercises as independent variable. These variables were included in the field test

Table .2 Variables of the research

skill related physical fitness	Independent variable		Dependent variables
	Conditioning exercise	Measured by	
Speed	Conditioning exercise	Time (seconds)	Sprinting(30m)
Balance	Conditioning exercise	Minute	One foot-stand test
Agility	Conditioning exercise	Time (second)	Cone stone (3m)
Reaction time	Conditioning exercise	Meter	Ruler
Power	Conditioning exercise	Meter	Vertical jump
Coordination	Conditioning exercise	Time	Eye hand test

3.9. Procedures of Data Collection

Quantitative data were collected through the appropriate performance test such as 30m Sprint Run test, Illinois' Agility Run test, Reaction time ruler catch, Vertical Jump test, Coordination eye, Balance one-leg test after giving for physical fitness training. The data was collected by the investigator of the study with the help of one assistant data recorder.

3.10 Method of Data Analysis

The researcher used data analysis process by using simple statistics such as mean, standard deviation, and correlation. In addition, Paired sample t-test and independent samples t-test was used to show the significance of the differences within and between the experimental group (EG) and the control groups (CG) of the samples using SPSS software.

The control groups of the study were used as a reference of analysis to see the change of the variables in the experimental group so that the observed effect and mean gain due to the intervention could be explicated. The analysis involves reading and re-reading all the data

and the analysis which was systematically used for repeated themes. The field test was analyzed based on the recorded data of the actual performance of the students.

3.11 Protocol and Ethical Considerations

The study was deal with the ethical issue related to the investigation. It protected the privacy of research participants and made guarantee for any risk harm due to participant, and gave confidentiality of the information that had given to the study. Subjects of this study were participated purely in voluntarily based activities. Therefore the study was conducted based on the university rule code of conduct and policies concerning research ethics. Ethical approval been obtained from institutional research ethics review commented (IRERC) of Haramaya university

4. RESULTS AND DISCUSSION

This chapter deals with the results of this study and how they relate to previous investigations. The purpose of this study was to investigate the Effect of Conditioning Exercise on Selected Skill Related Physical Fitness Components of Students in the case of Fonko Preparatory School of grade 12 students”. In this study field experiments as well as field test had been taken two times (pre and post intervention). Under this six dependent variable (Agility, speed, power, balance, reaction time and Coordination) had been measured. The results of those variables are discussed as follows.

4.1 Results and Discussion of the Data Analysis

Table .1 Data presentation of measures pre and post test intervention

Variables physical fitness	Measure	Experimental group		Control group	
		Mean	Standard Deviation	Mean	Standard Deviation
Vertical jump test	Pre	15.4326	2.12475	15.4326	2.12475
	Post	21.3360	4.70238	15.6184	2.07255
Illinois agility test	Pre	18.1760	.49940	18.1760	.49940
	Post	16.8360	.24304	18.0304	.49360
30 m Run Test	Pre	5.1104	.35788	5.1104	.35788
	Post	4.5480	.20437	5.1048	.35790
Stick Drop Test	Pre	5.1104	.49940	18.1760	.49940
	Post	16.8360	.24304	18.304	.49360
Balance Test	Pre	6.000	.0000	6.000	.0000
	Post	4.6840	.50223	5.9828	.02965
Coordination Test	Pre	11.1733	1.1195	10.4267	1.39665
	Post	23.6000	2.06640	13.0800	1.89423

Table .1 presents mean of 15.4326 (experimental) and 15.4326 (control) which stands to be below average for males and an average for females. Though there seems to have increased mean score for the experimental group ($M = 21.3360$), this stands to be average for the males. From numerical presentation one can see that the experimental group improved in their vertical jump test results.

For the agility test, the standard for the measure of more than 18.3 seconds is poor for male which is more than 23 sec for females. The standard becomes excellent for those who can perform less than 15.2 sec for males and 17.0sec for females stands to be excellent. In this

regard the mean score of 18.5 (experimental) and 19.3 (control) are both at the poor level of the standard. Even after intervention the means are 17.3 (experimental) and 19.08 (control) stands to be at the level of average.

The 30m run test also falls to be between fair for males and average for females as compared against the following standard.

The balance test results for both the experimental and control groups lies to be poor before intervention. After intervention the experimental group improved from poor into fair.

Despite the observed improvements discussed above, comparison analysis was conducted to check whether these improvements are real or by chance. The results of the comparisons are presented below.

Table .2 Mean, standard deviation and t-test value of vertical jump

		Mean	N	Std. Deviation	t value	Sig
Pair 1	pre experimental power test	15.4326	25	2.12475	36.316	1.000
	post experimental group power test	21.3360	25	4.70238	21.491	.000
Pair2	pre control power test	15.4320	25	2.12475	.0000	1.000
	Post control group power test	15.6184	25	2.07255	5.563	.000

As Table .2 shows, the mean difference between the pretest (15.4326) and posttest (21.3360) of the experimental group of the sample in vertical jump test is (5.9123) greater than the difference in the control groups which is (0.6). The difference between the means of the experimental group during pre and post was found to be statistically significant ($p=.000$). In addition, the mean differences in the experimental groups have positive value from pre intervention to post intervention, while the controlled one has negative. This implies that the test has positive result for the hypothesis since the test value in the posttest was bigger than in the pretest. They have positive effect of conditioning exercise on selected skill related physical fitness.

The t value and p-value also supports the mean result suggests that the conditional exercise have positive effect on skill related physical fitness. In the case of this research, the mean

value of the experimental group of the vertical jump test was greater than the control group. This suggests that there is satisfactory change and positive effect of conditioning exercise on selected skill related physical fitness on the experimental group of test whereas no or little change happened in the control groups of the research.

Table .3 Mean, standard deviation and t-test value of Illinois agility test

		Mean	N	Std. Deviation	Correlation	Sig
Pair 1	pre experimental group agility test	18.1760	25	.49940	.276	1.000
	post experimental group agility test	16.8360	25	.24304		
Pair2	pre control group agility test	18.1760	25	.49940		
	Post control group agility test	18.0304	25	.49360		.000

Agility is the ability of moving quickly and change directions while maintaining control and balance. Good agility requires a combination of speed, balance, power and co-ordination. Below is a collection of agility fitness tests.

The Illinois Agility Test is commonly used test of agility in sports, and as such there are many norms available. The Illinois agility test is a fitness test designed to test one's sport agility. It is a simple test which is easy to administer and requires little equipment. It tests the ability to turn in different directions and at different angles

The mean difference of the pre and posttest of experimental group, and the controlled group in the Illinois agility test have similar fashion as in the vertical jump test. The mean difference in experimental group is 1.3400 while the controlled group is 0.1456. Even if the difference is very small, Illinois agility test also have positive effect of conditional exercise on selected skill related physical fitness.

Likewise, the t-value and p-value also support that the mean result that the conditional exercise of Illinois agility test has positive effect on skill related physical fitness. In the output above, we can see that the predictor variable of Illinois agility test in the experimental group is significant because its p-value is 0.000.

Systematic observation, however, depicts that the intervention does not seem to be of greater impact in changing the ability of the students since the average in the experimental group declined from pre to post intervention. This demands further scrutiny. Yet, maximum average of 19.33 shows poor results for male and average for females. This result as presented here is way off from the theoretical consideration.

Table .4 Mean, standard deviation and t- value of 30m run test

		Mean	N	Std. Deviation	t value	Sig
Pair 1	pre experimental speed test	5.1104	25	.35788	.000	1.000
	post experimental group speed test	4.5480	25	.20437	-6.755	
Pair2	pre control speed test	5.1104	25	.35788	.000	.000
	Post control group speed test	5.1048	25	.35790	-6.755	

Table .4 above, the mean difference did not support the true hypothesis of the research, where the mean value of the experimental group has smaller difference between the pretest and posttest. So this gives negative implication for the hypothesis of this research. In this regard, one would conclude that conditioning exercise has no effect on this skill related physical fitness. Identification of possible causes for the decline in the results of the 30m run test from pre-test to post-test seeks attention and further research. This finding is ones again contending prior researches stated above Riches (p. 207-216, 2017) as stated in the types of conditioning exercises may vary greatly depending on fitness goals and are adaptable to any level of fitness, from beginners to advanced athletes. Equally, conditioning exercise is a gradual process and should take six to eight weeks to see specific effects (Cochrane, 2016). Hence, if the problem is associated with the type and duration of the conditioning exercise, it would be useful to conduct further detailed study.

Table .5 Mean, standard deviation and t-value of ruler catch test

		Mean	N	Std. Deviation	Correlation	Sig
Pair 1	pre experimental reaction time test	5.1104	25	.49940	.276	.000
	post experimental group speed test	16.8360	25	.24304		
Pair2	pre control reaction time test	18.1760	25	.49940		1.000
	Post control group reaction time test	18.0304	25	.49360		

Table .5 shows that the mean difference of the pre (5.1104) and posttest (16.8360) of the experimental group of the sample in stick drop tests has bigger difference (11.7256) than the mean difference of pre (18.1760) and post (18.0304) test of the controlled group (0.1456). In addition, the experimental group mean difference have positive value. This implies that the test has positive result for the hypothesis since the test value in the posttest was bigger than in the pretest. This shows that conditioning exercises have positive effect on this skill related physical fitness.

The paired t-test and p-value also support that the mean result due to conditional exercise of stick drop test has positive effect on skill related physical fitness. In the output of Table.5 above, we can see that the predictor variable of ruler catch test is significant for the experimental group because the p-value is 0.000. This is in agreement with the findings of Richs, (2015) who concluded that conditioning exercise can give tremendous improvements in skill performance, and that of Blackmon, (2015) who stated that depending on the time available for each session and the way training sessions are conducted, all components of fitness can be developed using a three-day-per-week schedule

Table .6 Mean, standard deviation and t-value of balance test

		Mean	N	Std. Deviation	Correlation	Sig
Pair 1	pre experimental balance test	6.0000	25	.00000 ^a	.276	.176
	post experimental group balance test	4.6840	25	.50223		
Pair2	pre control balance test	6.0000	25	.00000 ^a		
	Post control group balance test	5.9828	25	.02965		.000

Table .6 shows that the mean difference of the pre (6.0000) and post (4.6840) test of the experimental group of the sample in balance tests has bigger difference (1.3160) while the mean difference of pre (6.0000) and post-test (5.9828) of the control group is (0.0172). This implies that the test has positive result for the hypothesis since the test value in the post test was bigger than in the pretest of the experimental group. This shows that conditioning exercise has positive effect on this skill related physical fitness.

Table .7 Mean, standard deviation and t-value of coordination test

		Mean	N	Std. Deviation	Correlation	Sig
Pair 1	pre experimental coordination test	11.1733	25	1.1195	-0.040	0.735
	post experimental group coordination test	23.6000	25	2.06640		
Pair2	pre control coordination test	10.4267	25	1.39665	0.447	0.000
	Post control group coordination test	13.0800	25	1.89423		

Table .7 above shows, the mean difference of the pre (11.17) and post-test (23.60) of the experimental group of the sample in coordination tests have bigger difference (12.43) than the mean difference of pre (10.43) and post-test (13.08) of the control groups (2.65). This implies that the test has positive result for the hypothesis since the test value in the posttest was bigger than in the pretest. Thus, conditioning exercises have positive effect on skill related physical fitness.

The findings of the current study agree with the findings of (Haga, 2009), this study that the experimental group showed much higher gain in coordination. But, versus the findings of the other fitness components stated earlier, it is worth mentioning that the findings might generate a question as to whether coordination improves as a function of time, which needs further research.

From the questions stated for this research it was found that there a significant difference between the mean scores of experimental group between pre and post-test in the fitness components. There was also statistically significant difference between the mean scores of control group and experimental groups.

While the moderate intensity of conditioning exercise was found to be improving, the measured values of the moderate intensity of conditioning exercise in terms of time and energy expenditure were not up to the expected level of excellence depicted as measurement scales. This seeks further investigation of possible instructional interventions that maximize the skill related physical fitness with improved intensity as a function of time and energy.

Finally, the effect of conditioning exercise on selected skill related fitness was found to be positive except for agility and 30m run test that stand to be way far from literature. In these two components the result of the post experiment was found to be lesser than the result during pre-test. This seeks further scrutiny and examination to unpack the causes for such a declining gap while it was expected to be improving. As conditioning exercise can give tremendous improvements in skill performance (Richs, 2015) and conditioning exercise on selected skill related physical fitness component should be a primary objective in all school education programs and in health promotion programs (McGraw-Hill companies, 2003) It will be important to conduct further research on the contending findings and adjust the physical education program to meet achievement of intended improvements of fitness and general health conditions

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The main objective of this study was to investigate the effect of conditioning exercise on selected skill related physical fitness components at Fonko preparatory school.

- In order to investigate the effect of conditioning exercise on selected skill related physical fitness components, research method was employed. The relevant data to the study were gathered through actual performance field test with the reference to the six components of physical fitness through the measures of vertical jump test, Illinois' agility run test, 30m sprint run test, Eye-Hand Coordination test, balance test and ruler drop test. In general, 50 participants grouped into two – experimental and control groups were involved in the study. The data were analyzed using both descriptive analyses by using frequency, mean, and standard deviation and inferential analyses by using paired and independent samples t-test based on the actual performance field test results. Based on the data gathered, the following major findings were obtained from the study.
- In the paired sample t-Test analysis, all the variables of physical fitness test were found to have positive mean gain from pre-test to post-test.
- In some of the components such as balance test and coordination test, the control group also shown to have positive difference, whilst the other variables were not.
- From the six components considered in this research the other four variables were not found to be statistically significant.
- Conditioning exercise positively impacts the development of skill related to physical fitness components.
- There is significant difference between the mean scores of experimental group between pre and post-test in the skill related fitness components.
- There was also statistically significant difference between the mean scores of control group and experimental groups, experimental group gaining better results in majority of the components.
- Finally, the effect of conditioning exercise on selected skill related fitness was found to be positive for balance, coordination, recreation time, speed, agility and 30m run test that stand to be way far from literature.

5.2 Conclusions

Based on the data that the researcher obtained and analyzed, the following basic points were presented as a conclusion.

- ❖ The study discovered that, there was a significant difference in the scores for experimental group on majority of the fitness components justifying that the intervention of conditioning exercise was found to be of positive effect in developing the skill related physical fitness components.
- ❖ The effect of conditioning exercise on skill related fitness was found to be positive for the six skills related physical fitness components agility coordination, speed recreation time balance and 30m run test. In these two components the result of the post experiment was found to be lesser than the result during pre-test.
- ❖ Planned conditioning exercises were found to be useful to develop the skill related physical fitness components at Fonko preparatory school.

5.3 Recommendations

On the bases of the conclusions mad the following points are recommended.

- ❖ As conditioning exercise was found to have positive impact of developing skill related physical fitness components, it is wise to work further on improving the intensity of such gains on the physical fitness.
- ❖ The results of the experimental group did not show improvement for the variables of agility balance, recreation time, speed, coordination and 30 m run test. This does not go in line with the literature. Hence, it is recommended to have further research with increased sample size and intervention alternatives and intensity.
- ❖ Since conditioning exercise was found to have positive gain on the development of skill of physical fitness components, balance, coordination, recreation time, speed, agility and 30 m run test, it would be wise to give emphasis on such conditioned exercise in the school teaching learning.
- ❖ Lastly the researcher recommends those interested individuals to conduct a detail and further investigation on the issue under the study to develop better understanding of the situation and mark-up the variation observed with the agility and 30m run

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7. APPENDIXES

APPENDIX - A

Participant's Information Sheet and a Consent Form

Researcher's name: **Dawit Abate**

Supervisor's name: -----

Thesis Title: **Effect of Conditioning Exercise on Selected Skill Related Physical Fitness Components: The Case of Fonko Preparatory School Students; Hadiya Zone, SNNPR, Ethiopia.**

You are being asked to participate in this research study as described below. All research studies carried out like this one are governed by the regulations for research on human beings. These regulations require that the researcher should obtain a signed agreement (consent) from you to participate in this research project.

The researcher will explain to you in detail the purpose of the project, the procedures to be used, the potential benefits and the possible risks of participation in this study. You can ask the researcher any questions that you may have about the study, and expect to receive satisfactory answers regarding the same. A basic explanation of the project is summarized below.

After discussion, if you agree to participate in the study, please sign this form in the presence of the researcher. You may discontinue at any time from the study if you choose to do so.

1. Purpose and Procedures:

The purpose of this research project is to Effect of Conditioning Exercise on Selected Skill Related Physical Fitness Components of Students on the selected skill related fitness. The subjects to be involved in this study will be grade12th students. This study requires your participation to perform a certain tests in measuring the skill related physical fitness variables.

2. Risks and the Safeguards:

The risks of this research study are small. While administering the tests and during training sessions you may experience localized muscle fatigue in your thighs i.e., cardiac muscle. You might feel some muscle soreness and fatigue during and after the cessations of the training exercises and tests. But we do not expect any unusual risks as a direct result of this study. If any unexpected physical injury occurs, appropriate first aid will be provided, but no financial compensations will be given.

3. Confidentiality:

The information obtained about you will be kept in confidence, although you are free to release it to your own physician. The information will be used only for scientific purposes without identifying you as an individual.

4. Contact address

❖ **Dawit Abate Galle** → +251-926456306

❖ **E-mail Address** → dawitabate49@gmail.com

I certify that I have read and fully understood the above project; therefore, I consent to participate in this study.

Name of subject: _____

Signature: _____

Address: _____

Date: _____

I certify that I clearly explained the nature of the study, Purpose of potential benefits and that may be possible risks involved in this research Study.

Signature of Investigator: _____

Date: _____

Shemelis Mekonnen(PhD) Major –Advisor

E-mail:

+251913893850

shemelismm@gmail.com

Desta Enyew(PhD) –Co-Advisor

E-mail:

+251938310940

destaenyew@yahoo.com

APPENDIX - B

Health History

Health History and Physical Activity Readiness Questionnaire of the Participants this questionnaire is designed to obtain information on the health status and physical readiness of the subjects participating for the research study. The information was kept strictly confidential. For students: please read the following question carefully and indicate your correct response to each question by encircling it on the choice letter given.

1. Do you have a recent physical injury such as bone, muscle and joint which will be aggravated by physical exercise? A. Yes B. No

If yes indicate the type of injury that you had _____

2. Do you have suffered with heart condition? A. Yes B. No

3. Identify any medical problems that you had A. Cardiovascular B. Neuromuscular
C. Respiratory D. Metabolic E. None

4. Have you ever felt pain in your chest when you do physical exercise?

A. Yes B. No

5. Are you taking any prescription medicines recently?

A. Yes B. No

If yes, name them below:-Name of drug dosage

6. Have you ever suffered from shortness of breath at rest or with mild exercise?

A. Yes B. No

7. Is there any history of Coronary Heart Disease within your family?

A. Yes B. No

8. Do you ever feel faint, have spells of dizziness or have you ever lost consciousness?

A. Yes B. No

9. Do you currently drink more than the average amount of alcohol per week (21units for men and 14 units for women (1 unit = ½ pint of beer/cidr/larger or 1small glass of wine)

A. yes B. No

10. Do you currently smoke? A. Yes B. No

11 Do you know of any other reason why you should not participate in a program of physical activity? A. Yes B. No

If yes explain your reason here -----

I hereby state that I have read, understood and answered honestly the questions above. I also state that I wish to participate in activities, which may include aerobic exercise and anaerobic exercises.

Client's full Name: _____ Trainer's Name: _____

Client's Signature: _____ Trainer's Signature: _____

Date: _____ Date: _____

Appendix - C

Field test standards

Table 1 Evaluating 30m run Test

Male	Grade	Female	Grade
<3.8 sec.	Excellent	4sec	Excellent
4sec	Good	4.2sec	Good
4.2sec	Average	4.4sec	Average
4.4sec	Fair	4.8sec	Fair
. >4.5 sec.	Poor	>5.0 sec.	Poor

Source: adopted from journal exercise science and physiotherapy 3(2), p 156-160 (2003).

Table 2 Illinois agility test standard

Male	Grade	Female	Grade
<15.2 sec.	Excellent	17sec	Excellent
16.1sec	Good	17.9sec	Good
18.1sec	Average	21.7sec	Average
18.3sec	Fair	23sec	Fair
>18.3sec	Poor	>23.0sec	Poor

Source: adopted from journal exercise science and physiotherapy 3(2), p 156-160 (2003).

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Table 3 Ruler Catch test

Male	Grade	Female	Grade
43.5 sec	Excellent	42 .5 sec	Excellent
38 sec	Good	36sec	Good
30sec	Average	28sec	Average
23sec	Fair	22sec	Fair
<22.00sec	Poor	<21.0sec	Poor

Source: adopted from journal exercise science and physiotherapy 3(2), p 156-160 (2003).

Table 4. Catching ball hand-eye coordination

Male	Grade	Female	Grade
43sec	Excellent	30 sec	Excellent
38 sec	Good	25sec	Good
30sec	Average	18sec	Average
23sec	Fair	15sec	Fair
12.9sec	Poor	13.6sec	Poor

Table 5 Balance test standard

Male	Grade	Female	Grade
59.8 sec	Excellent	46.9sec	Excellent
46.9sec	Good	41.1 sec	Good
41.1 sec	Average	24.9sec	Average
24.9sec	Fair	15.4se	Fair
15.4sec	Poor	12.0sec	Poor

Source AAHPERD Youth FITNESS TEST 1991

Table 6 Vertical jump test standard

Male	Grade	Female	Grade
70cm	Excellent	>50.0cm	Excellent
61cm	Good	39cm	Good
50cm	Average	32cm	Average
30cm	Fair	25cm	Fair
<29.0cm	Poor	<26.0cm	Poor

Source: adopted from journal exercise science and physiotherapy 3(2), p 156-160 (2003).

APPENDIX - D

Description of the study subjects and training for the two months

Gender and age groups of the subjects: on selection of grade 12 students the investigator based on their social expectation and cultural influences because in our environment the society expected sport activities for male only, for this reason the society does not permit females to participate in sport activities. The researcher based on the above reason he was select male students only. The selection of ages are based on the average age groups of the school; the average age in Fonko Preparatory School students are between 19-21 years old, the investigator for his study purposively

Two months of training schedule (June and July): In the periodization of the exercise schedule, 2 months or 8 weeks was selected. In the selection the investigator depending on exercise program that includes annual plan, monthly plan, weekly plan and training lesson/unit plan. According to 8 weeks of training program is essential to improve individuals' abilities. Based on this idea the investigator purposively was taking 8 weeks training program.

Training days per week: Three days per week was selected because internationally 3 days a week for physical activities are recommended. The investigator was take the minimum 3 days and after 5 weeks of training the investigator was evaluate the performance of the subjects (treatment test or during training test).

In the selection of training days the investigator fixed the days based on the rule and regulation of the school. The school days are from Monday to Friday. Therefore, the selected first day exercise were on Monday afternoon at 5:00 to 6:00pm, second day of exercise on Wednesday afternoon 5:00 to 6:00pm and third day exercise on Friday morning 7:00 to 8:00am.

Duration of time for each session: The duration of exercise time for each session of this study is 60 minutes.

APPENDIX - E

Training Schedule

The main objective of this training schedule was to examine the effects of Conditioning Exercise on Selected Skill Related Physical Fitness Components of Fonko preparatory school Students. The actual training time for each session is 60 minutes (one hour).

First Month Training Schedule (June 2021)

Days per week		Duration (50min)	Rest	Station	Set	Intensity of exercises
Monday (5:00pm to 6:00pm)	Warming up; walking, jogging and stretching	8min				Low intensity(50-54.5)
	Main part ; running jumping one leg standing	30	30sec	5	2	
	Cooling down: different types of stretching exercises	5min				
Wednesday (5:00pm to 6:00pm)	Warming up; walking, jogging and stretching	6min				Low intensity(50-54.5)
	Main part vertical jump, power run, fist run	32	30sec	5	2	
	Cooling down: different types of stretching exercises	5min				
Friday (7:00am to 8:00am)	Warming up; walking, jogging and stretching	7min				Moderate intensity(55-69)
	Main part vertical jump, power run, fist run	30	30sec	5	2	
	Cooling down: different types of stretching exercises	6min				

Second Month Training Schedule (July2021)

Days per week		Duration (60min)	Rest	Station	set	Intensity of exercises
Monday (5:00pm to 6:00pm)	Warming up; walking, jogging and stretching	10min				Low intensity(50-54.5)
	Main part ; running jumping one leg standing	35	30sec	5	2	
	Cooling down: different types of stretching exercises	8min				
Wednesday (5:00pm to 6:00pm)	Warming up; walking, jogging and stretching	10min				Low intensity(50-54.5)
	Main part vertical jump, power run, fist run	35	30sec	5	2	
	Cooling down: different types of stretching exercises	8min				
Friday (7:00am to 8:00am)	Warming up; walking, jogging and stretching	10min				Moderate intensity(55-69)
	Main part vertical jump, power run, fist run	35	30sec	5	2	
	Cooling down: different types of stretching exercises	8min				

APPENDIX - F

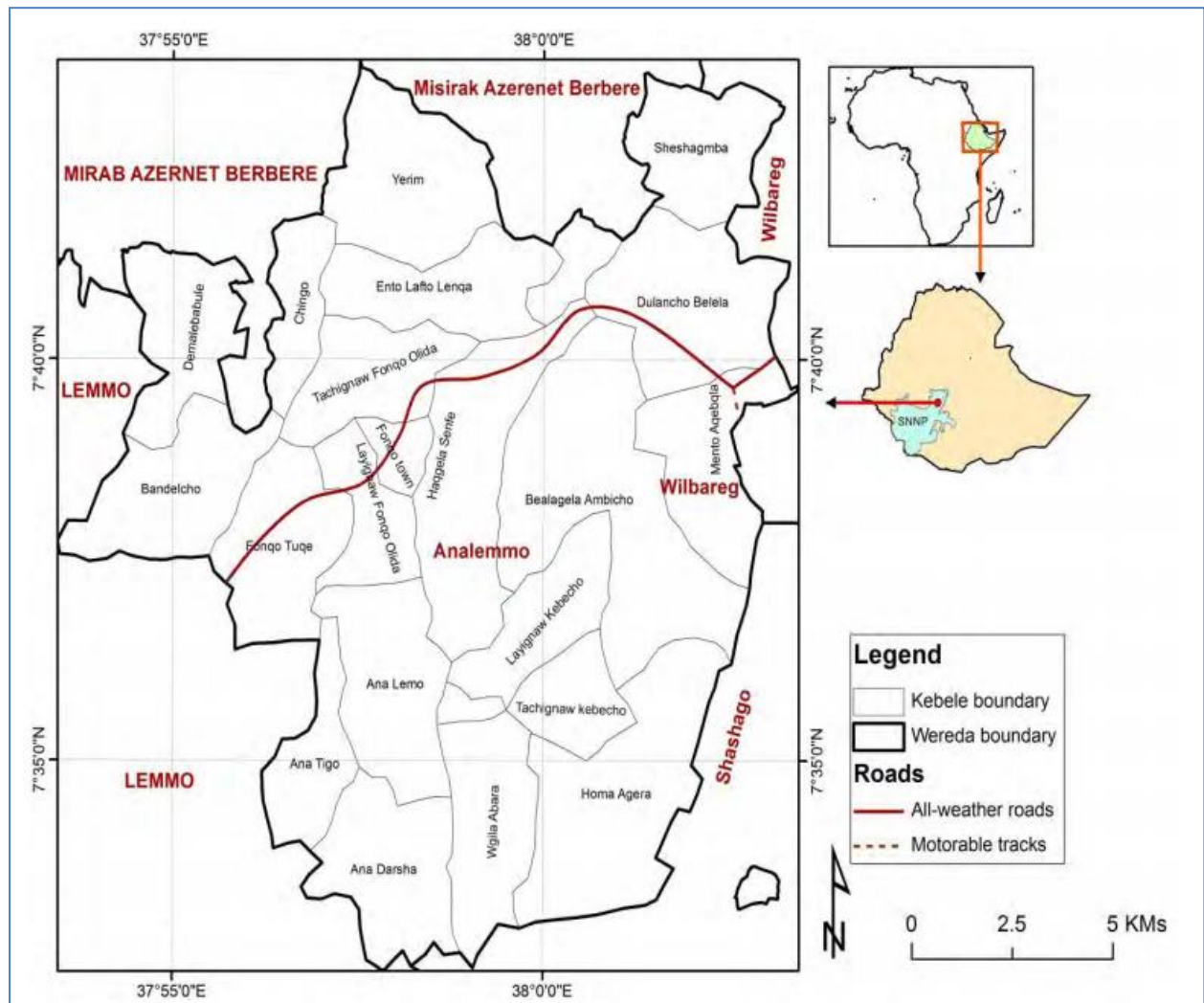
Table7. List of the Subjects Participated in study

Code of the subjects	Date of birth	age	Class	Name of the school
Subject-1	1993 E.C	20	12	Fonko preparatory School
Subject-2	1992 E.C	21	12	Fonko preparatory School
Subject-3	1994 E.C	19	12	Fonko preparatory School
Subject-4	1993 E.C	20	12	Fonko preparatory School
Subject-5	1992 E.C	21	12	Fonko preparatory School
Subject-6	1994 E.C	19	12	Fonko preparatory School
Subject-7	1993 E.C	20	12	Fonko preparatory School
Subject-8	1994 E.C	19	12	Fonko preparatory School
Subject-9	1994 E.C	19	12	Fonko preparatory School
Subject-10	1992 E.C	21	12	Fonko preparatory School
Subject-11	1993 E.C	20	12	Fonko preparatory School
Subject-12	1992 E.C	21	12	Fonko preparatory School
Subject-13	1993 E.C	20	12	Fonko preparatory School
Subject-14	1992 E.C	21	12	Fonko preparatory School
Subject-15	1994 E.C	19	12	Fonko preparatory School
Subject-16	1993 E.C	20	12	Fonko preparatory School
Subject-17	1992 E.C	21	12	Fonko preparatory School
Subject-18	1994 E.C	19	12	Fonko preparatory School
Subject-19	1992 E.C	21	12	Fonko preparatory School
Subject-20	1994 E.C	19	12	Fonko preparatory School
Subject-21	1992 E.C	21	12	Fonko preparatory School
Subject-22	1993 E.C	20	12	Fonko preparatory School
Subject-23	1992 E.C	21	12	Fonko preparatory School
Subject-24	1994 E.C	19	12	Fonko preparatory School
Subject-25	1993 E.C	20	12	Fonko preparatory School
Subject-26	1994 E.C	19	12	Fonko preparatory School
Subject-27	1992 E.C	21	12	Fonko preparatory School
Subject-28	1994 E.C	19	12	Fonko preparatory School

Subject-29	1993 E.C	20	12	Fonko preparatory School
Subject-30	1994 E.C	19	12	Fonko preparatory School
Subject-31	1992 E.C	21	12	Fonko preparatory School
Subject-32	1993 E.C	20	12	Fonko preparatory School
Subject-33	1994 E.C	19	12	Fonko preparatory School
Subject-34	1994 E.C	19	12	Fonko preparatory School
Subject-35	1992 E.C	21	12	Fonko preparatory School
Subject-36	1994 E.C	19	12	Fonko preparatory School
Subject-37	1994 E.C	19	12	Fonko preparatory School
Subject-38	1993 E.C	20	12	Fonko preparatory School
Subject-39	1993 E.C	20	12	Fonko preparatory School
Subject-40	1994 E.C	19	12	Fonko preparatory School
Subject-41	1994 E.C	19	12	Fonko preparatory School
Subject-42	1992 E.C	21	12	Fonko preparatory School
Subject-43	1993 E.C	20	12	Fonko preparatory School
Subject-44	1993 E.C	20	12	Fonko preparatory School
Subject-45	1992 E.C	21	12	Fonko preparatory School
Subject-46	1994 E.C	19	12	Fonko preparatory School
Subject-47	1993 E.C	20	12	Fonko preparatory School
Subject-48	1994 E.C	19	12	Fonko preparatory School
Subject-49	1992 E.C	21	12	Fonko preparatory School
Subject-50	1993 E.C	20	12	Fonko preparatory School

APPENDIX - G

Fig 1. Map of Experimental site



Source; SNNPRHZ mapping agency