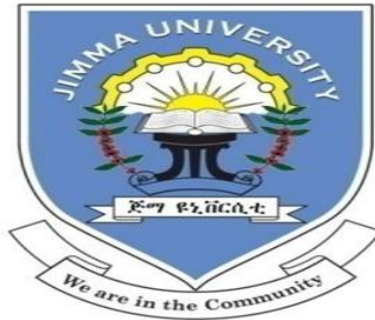


**JIMMA UNIVERSITY**  
**SCHOOL OF POST GRADUATE STUDIES**  
**COLLEGE OF NATURAL SCIENCE**  
**DEPARTMENT OF SPORT SCIENCE**



**THE CAUSE, IMPACT AND PREVALENCE OF SPORT INJURY IN MIDDLE AND  
LONG DISTANCE ATHLETICS EVENT IN THE CASE OF ATHLETE TIRUNESH  
DIBABA SPORT TRAINING CENTER.**

**A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF JIMMA  
UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE  
DEGREE OF MASTERS OF SCIENCE IN SPORT SCIENCE.**

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**SEPTEMBER, 2019**  
**JIMMA, ETHIOPIA.**

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## **ABSTRACT**

*The main purpose of this study to investigate the cause, impact and prevalence of sport injury in the case of athlete Tirunesh Dibaba sport training center. It is now understood that sports injury interventions will not have significant public health impact if they are not widely accepted and adopted by target sports participants. Thus, it is important to investigate the injury related to that any sport especially Athletes for best and full achievement of objectives settled by athletes training organization. The objective of the study was investigation of the cause, impact and prevalence of injury in the case of Athletes Tirunesh Dibaba sport training center. The research design used was descriptive research design in combination with non-probabilistic purposive sampling technique. The data collected through instrument like questioner, interview and observation for both primary and secondary data and populations of the study were account around 80 in number that composed of Athlete trainee who attained at least one year of services in the Tirunesh Dibaba, academic (coaches') and supportive staff (medical). Data collected were entered in to SPSS version 20 software and analyzed and presented using statistical data presentation techniques like percentage, standard deviation and mean others. The result of the analysis shows the causes of sport injury related to training field, intensity of training, environmental weather, sport safety, balanced diet for Athletes, improper recovery, training rehabilitation strength and flexibility and the impact of sport injury are takes long time of recovery, reduce the efficiency, adds extra cost to the center. Finally the mitigation result obtained includes: Warming up is must be done before training , take care during training, well arranged health center with qualified physiotherapy required, excellent coaching approach, awareness creation on sensitive body part, Coach psychological motivation.*

**Key words:- Athletes, Injury, cause, impact, Prevalence, ATDSTC.**

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## TABLE OF CONTENT

<b>Contents</b>	<b>pages</b>
Abstract.....	i
Acknowledgments.....	ii
Table of content .....	iii
List of figure .....	v
List of table .....	vi
Acronyms.....	vii
<b>CHAPTER ONE</b> .....	<b>1</b>
<b>INTRODUCTION</b> .....	<b>1</b>
1.1.Back ground of the study .....	1
1.2. Statement of problem .....	3
1.3. Objective of the study.....	4
1.3.1 General Objective .....	4
1.3.2 Specific Objective .....	4
1.4. Research Question .....	5
1.5. Significance of the study .....	5
1.6. Scope of the study .....	6
1.7. Limitation of the study .....	6
<b>CHAPTER TWO</b>	
<b>REVIEW OF RELATED LITERATURE</b> .....	<b>7</b>
2.1. Over view of Sports Injuries .....	7
2.1.1. Acute and overuse injuries in sport.....	8
2.1.2. Causes and Management of Overuse Injuries .....	9
2.2. Injury Incidence.....	11
2.3.Principles of Injury Prevention .....	12
2.4. Role of medical follow-up for injury prevention .....	14
2.5. Role of Coaches and Problems for the Implementation of Injury Prevention .....	16
2.6. Returning an Injured Athlete to Competition.....	17
<b>CHAPTER THREE</b>	
<b>RESEARCH METHODOLOGY</b> .....	<b>20</b>
3.1 Description of the Study Area .....	20
3.2 Research Design .....	21
3.3 Source of Data.....	21

3.4 Methods of data collection .....	22
3.5 Instrument or tools of data collection .....	22
3.6 Target population .....	22
3.7 Sampling Techniques and Sample Size.....	22
3.8 Methods of data analysis and presentation.....	23
<b>CHAPTER FOUR.....</b>	<b>24</b>
<b>DATA ANALYSIS AND DISCUSSION .....</b>	<b>24</b>
4.1. Demographic Characteristics of Respondents.....	24
4.2. Causes of injury in the Athlete Tirunesh Dibaba Training canter.....	26
4.3. Impact of injury in the Athlete Tirunesh Dibaba Training canter .....	31
4.4. Prevalence of Injury in Athlete Tirunesh Dibaba Training canter .....	35
4.5. Analysis of qualitative part of data .....	37
<b>CHAPTER FIVE .....</b>	<b>39</b>
<b>CONCLUSION AND RECOMMENDATION .....</b>	<b>39</b>
5.1. summary .....	39
5.2. Conclusion .....	39
5.3. Recommendation.....	40
REFERENCE.....	42
APPENDICES .....	47

## LIST OF FIGURE

Figures	Page
Figure 2.1 Injury risk management model (Fuller, 2007).....	11
Figure 3.1 Locational map of Assela Town.....	20



## LIST OF TABLE

Tables	Page
Table 4.1 Statistical demographic descriptive result of respondents .....	24
Table 4.2 statistical descriptive result of cause of injury.....	26
Table 4.3 Causes of injury in the Athlete Tirunesh Dibaba Training canter .....	27
Table 4.4 Statistic of impact of sport injury at Tirunesh Dibaba Training center.....	31
Table 4.5 Impact of injury in the Athlete Tirunesh Dibaba Training canter .....	32
Table 4.7 Descriptive Statistics prevalence of the injury at Tirunesh training center.....	35
Table 4.8 Prevalence of Injury in Athlete Tirunesh Dibaba Training canter .....	35

## ACRONYMS AND ABERIVATIONS

ATDSTC.....	Athlete Tirunesh Dibaba Sport Training Center
E.C.....	Ethiopian Calendar
F-MARC.....	FIFA Medical Assessment and Research Centre
HRQL.....	Health-related quality of life
IAAF .....	International Association of Athletics Federation
OA.....	Osteoarthritis
PHQ.....	Pre participation health questionnaire
SA.....	Strongly agree
SD.....	strongly disagree

## CHAPTER ONE

### INTRODUCTION

#### 1.1. Back ground of the study

Sports injuries are injuries that happen when playing, exercising or running. Some are from accidents others can result from improper warm up. Some athletes get injured when they are not in proper condition. Not warming up or stretching enough before playing, running or exercising can also lead to injuries (Andre Panagos, 2009).

The term “sports injury,” in the broadest sense, refers to the kinds of injuries that most commonly occur during sports or exercise. Although virtually any part of your body can be injured during sports or exercise, the term is typically reserved for injuries that involve the musculoskeletal system. This includes the muscles, bones, and associated tissues like cartilage. Athletic injuries may stem from a single traumatic episode or from repeated over-use of a body part. The status of the athlete at the end of practice or competition to determine whether a reportable injury has occurred (Krinshanaswamy, 2017).

As Andre Panagos, (2009) stated acute injuries are usually the result of a single, traumatic event. Common examples include wrist fractures, ankle sprains, shoulder dislocations, and hamstring muscle strain. While overuse injuries are more common in sports than acute injuries, they are subtle and usually occur over time, making them challenging to diagnose and treat. They are the result of repetitive micro-trauma to the tendons, bones, and joints. Common examples include tennis elbow, swimmer’s shoulder, Youth Pitching elbow, runner’s knee, jumper’s knee, Achilles tendinitis, and shin splints

While athletics is promoted by health professionals has a wide variety of medically and socially related benefits since it needs to be recognized that with any sport injuries can occur. Injury is an unfortunate risk that according to most coaches, athletes, and medical practitioners is an unavoidable part of athletics. Most athletes that participate in high level sports experience some type of injuries during their athletic careers. The multi-event nature of track and field possesses a particular challenge to a coach trying to prevent and treat athletic injuries because each event presents its own unique problem (Peter, J, L., and Thompson 2009).

Excellence is not often met without adversity. For many Athletes, adversity can mostly in the form of injury. Sports injuries occur with alarming frequency and large number of sports performers are treated each year by medical personnel. Although contact sports produce more injuries per participant than non-contact sports, sudden and traumatic incapacitation may occur in either type of activity (Dunn & Syrotuik, 2003).

It is no longer a secret that athletes who are not treated properly and who participate in sports again before their injury is fully healed put themselves at tremendous risk for recurrent injury and often career-ending injuries (Taunton et.al, 2002).

The level of treatment following an injury is usually related to the severity of the injury. However; the availability of treatment on site might be the crucial factor to determine the type and level of treatment received. A review of the literature focusing on lower extremity injuries in runners also indicated that a reduction in running distance to below 32km/week would decrease the risk of a recurring injury (Macrea, 1992). Indeed, athletes use a variety of methods and medicines to treat injuries, cure illnesses, and obtain a competitive edge.

Athlete Tirunesh Dibaba Sport Training Center is found in Oromia regional state, Arsi zone, and Asella town and established by former Ministry of Youth and Sports on September 2010 by recruiting athletes from all regions and city administration. The main mission of the training center is to produce new talented athletes by providing scientific training to support Ethiopian Athletics. The Training Center train athletes for only four years and select the athletes representative region for federal athletics competition. Different type of injuries happened in the club and the training center that need an attention by the Coaches, athletes and the concerned bodies of the clubs and training center. Injuries are also common for beginner athletes due to a number of factors mainly over training and Traumatic or accident. Due to the fact that athletes' performance is highly affected by repeated occurrence of injury, athletes' development at this special age specifically affected worse with this injury related fact. Since the researcher is a part of the training center and has observed the existence of the problem, and motivated to investigate the Causes Sport Injuries and its impact on Athlete's performance at Tirunesh Dibaba Sport Training Center.

## **1.2. Statement of problem**

Coaches must be aware that each athletics event and training or competition situation contains an element of danger. It is important that they should have a good understanding of these inherent safety risks and wherever possible to remove or reduce these risks. Obviously, certain events place athletes at greater risk than others. Coaches have a duty to develop a safe environment for each athlete and to prevent injuries. But injuries and illness are an almost inevitable consequence of training and competition at some time, no matter how safe the environment and the coach must be able to manage them promptly and correctly.

In order to promote prevention of sports-related injuries, the magnitude and type of the problem must first be identified and described. In relation to this, systematic surveillance of sports injuries and knowledge of the risk factors and the specific patterns of injury treatment are inadequate in Ethiopia.

With this end, Systemic study of the training science and Athletics injuries should be expanded in order to develop appropriate preventive measures. Preventive measures are very much common sense but specific precautions are still important. (Peter, *et al.* 2009).

There is still a controversy among coaches regarding to the cause and management of injuries in the training centers. This is relevant to come to possible solutions to have a maximum performance without jeopardizing the athletes' injury. Such problems definitely require scientific observations and evaluations. In most cases in the training centers athletes are facing common injuries especially at the time of the beginning of the training year and when we are preparing them for the national competition that is organized by the Ethiopian Athletics Federation. As a result of this the researcher was interested in investigating the Causes and Management of Sport Injuries that was happening in the Training Centers and its impact on Athlete's performance.

Thus enhanced coaches' experience, quality observations and this research is necessary to overcome and explain the existing controversies in the causes and prevention strategies of injuries. There is no sport injury identification as common sport injuries and their possible causes at the training center for what measures should be taken to manage the existing problems.

The condition available relative to the physiotherapy follow-up, nutrition, totally health related service given for trainee at the training center was not well researched for the

understanding of the cause, impact and prevention technique settlement with the professional expert advice, follow-up and recovery period identification from the injury and no engagement of health expert to handle and fully treat injury at best standard for the settled mission of training center.

Since, the researcher was a part of the training center these initiate him to deal with this topic in addition significance to the study for Athlete Turunesh Dibaba training center and other Athletics Clubs and as well as Sport Academy on how to identifying and managing sport injuries that the athletes' are facing during engaging themselves on regular training. In addition, there are very few research investigating injury prevention strategies in Ethiopia and scientific training injury prevention is not translated to coaching practices.

### **1.3. Objective of the study**

#### **1.3.1 General Objective**

The general objective of this study was to investigate the cause, impact and prevalence of sport injury in middle and long distance Athletics event in the case of Athlete Tirunesh Dibaba sport Training center.

#### **1.3.2 Specific Objective**

The specific objectives of this study are:-

- To identify common cause of sport injuries in middle and long distance Athletics in Tirunesh Dibaba sport Training center.
- To investigate the impact of sport injuries that occurs in middle and long distance Athletics in Athlete Tirunesh Dibaba sport Training center.
- To assess the prevalence of sport injuries in the Training center.

#### **1.4. Research Question**

The study would going to answers the following questions.

- What were the common causes' of sport injuries in middle and long distance athlete in the sport Training Center?
- What are the impacts of sport injuries that occurred in case of middle and long distance athletics events in the training center?
- To what extent sport injury are prevalent?

#### **1.5. Significance of the study**

This study has a valuable importance for our country since, the source of Athlete in athletics history was from Assela and the research was at this specific location and training center of Tirunesh Dibaba sport Training center. These studies also benefit the Turunesh training center to achieve the objective of achieving organizational objectives would be the crux of the whole matter at which every citizen's eye is focusing up on producing many new world class athletes representing the country with various fields' of athletics including that of the country has never been well known with competent and highly efficient athlete to the national club. This research was enable the other athletes training center in our country and other relative sport center to arrange the preventive strategies to possible injury that may encounter at center. This research also helps coach the possible cause and impact of sport injuries in the training center and plan for measures to manage the existing problems. Finally, the paper can be used as reference for the sport institute and training center trainee to refer how they can respond to the injury prevention that they may face for the proverb "prevention is better than cure".

Furthermore, the result of the study will be contributed as a ground for other researchers to conduct further study on similar topics.

## **1.6. Scope of the study**

The study was exploring the cause, impact and prevalence of Athletics injuries that occur among middle and long distance event at Athlete Tirunesh Dibaba sport training center. Since the injury that occurs in sport will hinder the result intended to be gained from the Athletics the study was to depict the cause, severity of the sport injury and conclude respective mitigation to the unavoidable injury.

## **1.7.Limitation of the study**

The limitation of the study regarding the topic of the research is the research is limited to Tirunesh Dibaba sport center for the investigation of cause, impact and prevalence of injury. Thus the result obtained from this study depicts the injuries those renders the participation and enrollment of middle and long distance athletics at Tirunesh Dibaba sport center and nearby location. Thus the research will most or less limited or bounded to this sport center as much as possible the researcher tried to refer and collect the related material and interview respective officials those have direct contact with the research title.

## **1.8. Operational definition of terms**

**Athletics-** are sport such as running, jumping, and throwing

**Athlete-** An athlete or sportspeople is a person who competes in one or more sports that involve physical strength, speed or endurance. The application of the term to those who participate in other activities, such as golf or driving, is somewhat controversial. Athletes may be professionals or amateurs (definition of sport and exercise science 2006)

**Long distance running or endurance running-** is a form of continuous running over distance of at least 3km (1.8miles). Physiologically it is largely aerobic in nature and requires stamina as well as mental strength in the training center. ( definition of sport and exercise science 2006)

**Middle distance running-** Middle-distance running events are track races longer than sprints, up to 3000 meters. The standard middle distances are the 800 meters, 1500 meters and mile run, although the 3000 meters may also be classified as a middle-distance event.

( definition of sport and exercise science 2006)

**Sport injury-** Sports injuries refer to the kinds of injury that occur during sports or exercise. While it is possible to injure any part of the body when playing sports, the term sports injuries is commonly used to refer to injuries of the musculoskeletal system.

( definition of sport and exercise science 2006)



## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1. Over view of Sports Injuries**

Sport organizations adapt, renew and develop through creative and novel ideas. The various strategies for innovation applied by sport organizations hold the potential to radically change how we play, view and organize sport. In other words, through strategy, strategic management and innovation modern sport is shaped and improved. To date, limited scholarly attention has been given to strategy, strategic management and innovation in sport. However as the present review will demonstrate, sport innovation and strategic management of sports innovations are crucial for improvement of athletic performance (Anne Tjønnndal, 2016).

Injuries are variously defined. The most common definitions are based on time lost from training or competitions, or on medical treatment, defined as injuries requiring treatment by a physician. However, this may or not result in time lost from training or competitions (Brooks et al. 2006).

Injury risk should be assessed on an individual basis. Therefore it seems appropriate to individualize preventive training programs, as is recommended for other training content. Evaluating the existing rules of soccer and their appropriate application may also help to decrease injury risk, particularly in contact situations (Faude, et al 2006).

The low number of athletes who reported using mental skills during rehabilitation is discouraging, but not surprising given research findings that mental skills are underutilized by injured athletes in the 3 countries examined. More effort should be focused on educating and training athletes, coaches, and sports medicine professionals on the effectiveness of mental training in the injury rehabilitation context (Monna, et al, 2015).

Physical injury is an inherent risk in sports participation and, to a certain extent, must be considered an inevitable cost of athletic training and competition. Injury may lead to incomplete recovery and residual symptoms, drop out from sports, and can cause joint degeneration in the long term. Few well-conducted studies are available on the long term follow-up of former athletes, and, in general, we lack studies reporting on the HRQL to be compared with the general population. Advances in arthroscopic techniques allow operative management of most intra-articular post-traumatic pathologies in the lower and upper limb joints, but long-term outcomes are not available yet. It is important to balance the negative

effects of sports injuries with the many social, psychological and health benefits that a serious commitment to sport brings (Nicola et al. 2011).

Studies on the a etiology of sports injuries need to account for the multifactorial nature of sports injuries by including as many relevant risk factors as possible and using a multivariate statistical approach. The sample size of the study needs to be considered carefully and this depends mainly on the expected effect of the risk factor on injury risk. To detect moderate to strong associations 20–50 injury cases are needed, whereas small to moderate associations would need about 200 injured subjects (Bahr et al. 2003).

A considerable amount of literature has been published on sports injuries in general. These studies state numerous different ways that one may choose to define the term sports injury. According to Cromwell et al., (cited in Newell 2011) sports injury is sustained during training or competition and restricts an individual's involvement or time lost from play.

An injury is one that prevents a player from taking part in a training or match and the injury has been there for a period greater than 24 hours (Brooks & Fuller 2006).

Injury is an unfortunate risk that, according to most coaches, athletes, and medical practitioners, is an unavoidable part of athletics. Most athletes that participate in high level sports experience some type of injuries during their athletic careers. The multi-event nature of track and field possesses a particular challenge to a coach trying to prevent and treat athletic injuries because each event presents its own unique problems (Seward, 2003).

### **2.1.1. Acute and overuse injuries in sport**

An acute injury as an injury caused by a macro trauma or as an injury which caused a trauma, the reason being, e.g., tackling, kicking or running (Dvorak *et al.* 2000). An acute injury has also been defined as any injury or condition which did not exist prior to the date of injury occurrence (Giza *et al.*, 2005). In many studies, an acute sports injury is defined as injury with a clear onset as a result of trauma, and which has occurred in training or competition and has caused at least one day away from training and/or competitions Alonso *et al.* (2009). An acute injury has also been described as any physical injury that keeps an athlete away from at least one training session or competition, or needs a physician's care (Söderman *et al.* 2001, Orchard *et al.* 2002).

An overuse injury is defined as an injury which is caused by the consequences of repetitive micro traumas (Dvorak *et al.* 2000). Overuse injury as a pain syndrome of the musculoskeletal system appearing during physical exercise without any known trauma, disease, deformity or anomalies that have given previous symptoms (Lüthje *et al.* 1996). An overuse injury has also been described as an injury with an insidious onset with a gradually increasing intensity of discomfort without an obvious trauma (Arnason *et al.* 2004).

To be truly relevant to elite rugby, research must involve appropriate cohorts who possess the extreme phenotypes and behaviors only found at the elite level. Elite athletes undergo heavy training loads and are likely to exhibit characteristics near the limits of human physiological capability; indeed, elite rugby has one of the highest incidences of injury in sport, with tendon and ligament injuries some of the most frequent and severe. Regular participation at the elite level in rugby would mean players have been exposed to one of the highest levels of risk for tendon and ligament injury in any professional sporting environment, and at least to some extent, have been able to succeed in that sport despite that high environmental risk. This ability to recover from or withstand musculoskeletal soft tissue injury that is potentially performance-limiting or career-ending, but nevertheless achieve elite status, may be reflected in distinct genetic characteristics. Large sample sizes are required for genetic research to gain sufficient statistical power and reduce the likelihood of statistical errors (John *et al.* 2019).

The injury causes worsening pain during or after exercise and continuation of loading causes even worse pain and may stop exercise completely (Beck 1998). A chronic injury has also been classified as any injury with insidious progression that existed prior to the date of the injury's occurrence or an exacerbation of a previously existing condition (Giza *et al.* 2005).

### **2.1.2. Causes and Management of Overuse Injuries**

Overuse injuries are the most common type of injury to runners. The result from repeated stress to the tissues involved due to repetitive episodes of trauma overwhelming the body's ability to repair itself. Overuse injuries in runners usually begin with pain and stiffness. Depending on the severity, the runner will suffer pain and stiffness at the beginning, during or after the run, or a combination of these. Continuous pain and stiffness will eventually lead to the cessation of running. The majority of the overuse injury risk factor studies have been based on competitive athletes (Trends, 1997).

Sports injuries place a substantial burden on the current health delivery system of Victoria, in terms of their direct costs and accumulated length of stay in hospital. The increasing trends in the numbers of all sports injuries, all lower limb injuries and knee injuries more specifically, indicates that in real terms, more people are now at risk of developing future ill-health, such as OA, as a result of such injuries. With more people being encouraged to take up an active lifestyle for health reasons, there is potential for the rate of sports injuries to increase further. Already, the rate of occurrence of all sports injuries, and those to the lower limb overall, appears to be over and above changes in participation rates. This information is essential for prioritizing sports injury prevention by government health agencies and other bodies (Fitch, et al, 2006).

Epidemiological studies that have used field- or team-based injury surveillance methods consistently report injuries to the lower-limb as the most common body region injured, particularly in team ball sports (Anderson, 2012).

"Sports injuries" are injuries that happen when playing, exercising or running. Some are from accidents. Others can result from poor training practices or improper warm up. Some athletes get injured when they are not in proper condition. Not warming up or stretching enough before playing, running or exercising can also lead to injuries (Panagos, 2009)

There is general consensus that the incidence of injury is greater in competition than training session (Faude *et al.* 2005, hagglund *et al.* 2009) and previous injury when coupled with inadequate rehabilitation is a risk factor for subsequent injury (tanton *et al.* 20003) various method of preventing sport injuries such as use of insoles, external joint support and multi-intervention training program, have been proposed (parkkaris *et al.* 20001, Aaltonen *et al.* 2007, pasanen *et al.* 2008) injury prevention remains an important goal for clinical and researchers.

Risk management provides a formal framework within which organizations can identify, classify and investigate risks using a logical and transparent protocol. It is essential to appreciate that the objective of the risk management process is not to reduce risks to zero, but to control them within acceptable levels and then to ensure that stakeholders are made aware of the residual risks. The framework by should be referred to for a detailed discussion of the individual elements of the framework. However, for the benefit of the framework (figure 1) and the core definitions are presented here (Fuller, 2007).

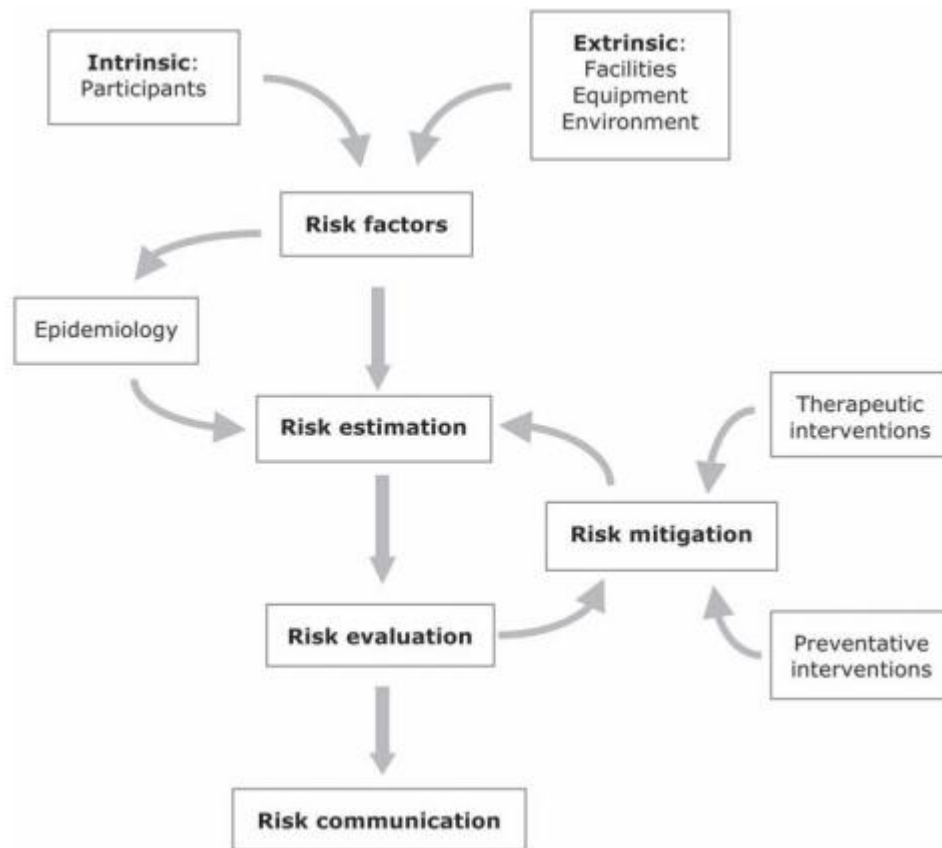


Figure 2.1 Injury risk management model (Fuller, 2007).

## 2.2. Injury Incidence

Incidence of injury pertains to the number of new injuries that occur in a population at risk over a period of time or the number of new injuries during a period divided by the total number of sportspeople at that period (Phillips, 2000). The incidence of injury can also be referred to as the injury rate (Mechelen & Hlobil 1992). It determines the number of new injuries in a specific period divided by the total number of players exposed to injury (the population at risk). Therefore the risk per player per year is equal to the number of new injuries during one year among the total population at risk (Mechelen, 1992, Dvorak *et al.* 2000).

There is an expectancy that a greater number of injuries occur in training as teams are likely to have six times more training sessions than games with more participants likely to be involved in training sessions than in games. The research from the study shows that out of the 471 injuries recorded 276 happened during a game with the remaining 195 in training (Newell 2011).

However, according to Murphy et al., (2012) in which they tracked the injuries of 851 GAA players over four years they found that of the 1014 injuries recorded, 397 occurred in training, 553 in games and 64 other. Evidence was also provided by Newell (2011) to show which injury occurred the most in each month during the season.

It is also stressed by Newell (2011) that allowing adequate time to recover from injury can help reduce the incidence of non-contact injuries. In addition, Quinn (2012) says that returning early from an injury increases the chances of a re-occurrence or developing a chronic problem that will lead to a longer recovery.

### **2.3. Principles of Injury Prevention**

In recent years, there has been an abundance of literature on the principles of injury prevention. The IAAF (2012) suggests principles to adhere to prevent injury, which are as follows

After the first step of the 'sequence of prevention', armed with a broad view of the injury problem and a deeper understanding of the context, the next steps will evolve further into context-sensitive research evidence, giving better grounds for injury prevention research. To explore sports injury questions, researchers need to understand and explore the context in which injuries occur. By applying qualitative methods in sport injury prevention research, we will be able to gain an in-depth understanding of the context in which injuries occur. Instead of translating science to practice, we need to take context into account in order to speak a common language. Once this has been done, tailored interventions can be designed, implemented and tested in the real world, rather than trying to transfer customized programs based on proven efficacious interventions into the real world with limited effectiveness (Caroline, et al. 2018).

Physical conditioning strength, balance, flexibility, endurance, appropriate training methods exercises that are include strength, relaxation, and flexibility specifically geared to the demands made on the body of that sport, i.e. relaxation, strength, flexibility, progression, Rest and recovery, adequate sleep in order to avoid overexertion and fatigue. Appropriate equipment- properly fitted shoes, equipment must meet biomechanical requirements of the sport.

The following principles of injury prevention were also identified (Kents, 2012):

- Warm up/cool down- a warm up should allow muscles and tendons to become more elastic, which enables muscles to be stretched further without the fear of injury.
- While a cool down helps to stabilize blood pressure and lower heart rate to help the body returns to its resting state.
- Flexibility- poor flexibility can result in awkward or uncoordinated movements which may lead to injury.
- Recovery- following the advice of a medical practitioner will aid recovery and a return to performing in the recommended time frame, will help to minimize the chance of the original injury re-occurring.
- It is also advised to include adequate rest periods in between trainings and games to aid recovery.
- Muscle balance- among stabilizers and mobilisers i.e. muscle groups that work alongside each other, e.g. hamstrings and quadriceps.
- Withdraw from participation if injured- it is stated by Jackman (2011) that players play through the pain of injury in the fear of losing their place in the team for the future.

As Finch 2011, it is clear that limited research attention has focused to date on understanding intervention implementation contexts and processes, including barriers and facilitators to sustainable program that need to be delivered and adopted within the complex ecological setting of real-world sports delivery. To address this challenge, future injury prevention research aimed at demonstrating real-world uptake of interventions will need to

1. Draw on available evidence for the efficacy/effectiveness of interventions in terms of desired injury and injury risk reductions as well as intermediary behavioral measures (sometimes referred to as impact measures).
2. Engage relevant stakeholders and end-user groups in implementation and injury prevention research from the outset.
3. Continue to partner with these stakeholder groups in further intervention and intervention delivery developments, and even to modify research approaches to accommodate them.
4. Develop multifaceted and multi action strategic approaches towards injury prevention in relevant real-world culturally relevant settings.

5. Develop and evaluate strategic implementation plans designed to address key barriers and facilitators towards intervention uptake across all ecological sports delivery levels.
6. Adopt a multidisciplinary approach that embraces both qualitative and quantitative research methodologies, both hard science and social science.

For those of us who work in sports injury prevention, it may be disheartening to realize that there is still a fair way to go but hopefully also useful to have some broad guidance about what could be done. While good science about prevention is a necessary precursor to widespread safety and population-level injury prevention, this evidence alone is not sufficient. Researchers need to accept that it takes considerable time for evidence to be put into place but that there is also a major opportunity for them to become involved in documenting and evaluation this process from a research inquiry point of view. Collation of this new type of sports injury implementation evidence, when coupled with new research partnerships within the target sector, will ensure that injury prevention goals are successful. The next decade promises to be a time of research excitement, with implementation research confirming its status as both an art and a science. There has never been a better time to be a sports injury researcher (Finch, 2011).

#### **2.4. Role of medical follow-up for injury prevention**

Consumption of nitrate-rich, whole beetroot improves running performance in healthy adults. Because whole vegetables have been shown to have health benefits, whereas nitrates from other sources may have detrimental health effects, it would be prudent for individuals seeking performance benefits to obtain nitrates from whole vegetables, such as beetroot (Murphy et al 2011).

About one-third of the athletes participating in the study reported an injury complaint during the month before the championships, which represented a risk factor for sustaining an injury during the championship. This study emphasizes the importance of the PHQ as a screening tool to identify athletes at risk of injuries before international championships (Alonso *et al.* 2015).

It is clear that OA already places a large burden on health care systems. Any increase in the incidence of joint-related sports injuries is likely to further increase this burden. In order to implement preventive strategies and related health policy to reduce the risk and consequent



burden of sports injuries, it is vital to understand the magnitude and impact of the problem now (Finch *et al.* 2014).

To have long lasting public health effects, any intervention that is adopted needs to be sustained and the desired behavior change and structural systems to support this maintained. With regards to sustained adoption of any prevention program with ongoing desired injury prevention benefits, intervention studies should monitor the level to which the innovation is taken up by members of the target group, including their knowledge about it and how they use it; how the intervention is used in practice and ongoing implementation and continued use of the innovation in practice ((Kents, 2012):

Beetroot consumption have relevance in clinical dietetics if the ergogenic effects of nitrate-rich vegetables also benefit individuals with compromised functional capacity such as patients with heart failure and frail elderly persons. From a practical perspective, evidence from our study suggests that for ergogenic effects, 200 g baked beetroot, or an equivalent nitrate dose from other vegetables, should be consumed 60 minutes before exercise (Margaret *et al.* 2012).

The significant increase in sports injuries in the state of Victoria, Australia over a 7-year period. As previous sports injury is a risk factor for the development of OA, the future incidence of OA will escalate, placing an even greater burden on health care systems. Population-wide preventative strategies that reduce the risk of sports injury are urgently required in order to reduce the future burden of OA (Finch, *et al.* 2015).

While direct health care costs are often reported, indirect health care costs may be eight times greater than direct costs, indicating that the true burden of OA is underestimated (Roos, 2005).

The team therapist's role in injury prevention includes the provision of education to the athletes and coaches about the risks, precautions, prevention, treatment and rehabilitation. Education should be provided to all club stakeholders on the strategies required to prevent injury, achieve peak performance, healthy playing careers and lifestyles. In addition, education on the safety and emergency policies and procedures, health care insurance coverage, review of medical forms, policies and procedures to ensure compliance are the duties of the 6 team medical personnel. The role of medical practitioners in injury prevention is paramount and should perform a range of activities such as the examination and review of

preseason physical examinations and conditioning program, the provision of first aid, diagnosis, treatment, rehabilitation and return to training. The team therapist should be present at training and competition. Moreover the club leader's responsibility encompasses the development; implementation and monitoring of comprehensive sport safety (Tippett, 1990).

## **2.5. Role of Coaches and Problems for the Implementation of Injury Prevention**

Anderson et al. (2000) stated that coaches do not typically have the background in human anatomy and physiology, health and nutrition, injury prevention, assessment, management and rehabilitation or first aid and emergency care. Therefore, coaches should be updated in this area mainly on cardiopulmonary resuscitation and emergency first aid. Coaches should recognize their contribution to the health, safety and success of the athlete (Sharkey & Gaskill, 2006).

General preferences were also expressed for program content to be determined by the coach or consultant, and for regular, small doses of mental skills training to be delivered in a face-to-face context throughout the year. At a sub-group level, team sport athletes had stronger preferences than individual sport athletes for program delivery on a group/team basis, while individual sport athletes had stronger preferences than team sport athletes for having a role in determining program content (Vellapandian *et al.* 2014).

The coaches must improve individual efficacy of athletes by training and exercising their mental skills in exercise sessions, so that the athletes would be able to control violator factors in competition day. One of the methods that coaches can apply to increase the efficacy and performance of athletes is experiencing important competitions so that the athletes would be able to increase their skills. In present research, there is significant relationship between athletes' experience with emotional intelligence ( $r = 0.26$ ) and mental skills ( $r = 0.41$ ). It seems that providing the opportunity to participate in sensitive events for inexperienced athletes is a suitable way to increase their self-confidence, concentration, goal making and finally displaying a good performance. Eric (1996) in his investigation of self-confidence impact on the performance of team and individual athletes reported that there is no significant relationship in competitive anxiety levels and self-confidence between male and female

athletes. But when the athletes were studied based on the nature of sport field (individual and team based), it was observed that female athletes have more negative thinking and lower relaxation than male ones that is consistent to present research (Hamid et al. 2011).

The coach occupies a critical position in the organizational structure of preventive effort. As a supervisor of the athlete in practice and competition, the coach must recognize potentially risky situations and either avoid them or develop strategies to minimize their danger (Weaver et al., 1996).

This would be achieved by properly supervising the conditioning program and planning the activities so as not to predispose the athlete to excessive fatigue or injury. In addition, coaches should inform athletes the risk of injuries as well as the modalities for prevention and first aid. Furthermore, the coach must ensure that sports equipment, especially protective equipment's are of the highest quality, properly fitted and maintained (Arnheim & Prentice, 1993).

Female athletes terminated their sport career more frequently than male athletes. Swimmers were terminated their career because of a shoulder injury. All the soccer players who ended their career were female and had a severe knee injury, such as anterior cruciate ligament injury. Most of the athletes who terminated their sport career reported that the injury caused them mild or moderate permanent disability. We found that sports injuries play a significant role in terminating a career in sport, and in some sports events injuries may commonly be the main reason for sport career termination. Injury prevention and adequate treatment and rehabilitation of injuries are thus essential to avoid the long-term consequences of severe sport injuries (Leena et al. 2011).

## **2.6. Returning an Injured Athlete to Competition**

Athletes should be free of injury symptoms before you allow them to return to competition. There is a natural temptation on the part of the athlete, coach, and sometimes, parents to get the athlete back into competition and training too soon. When dealing with young athletes who in many cases have never experienced an athletic injury before, it is your responsibility as coach to be the voice of reason when there is not an athletic trainer on staff to help make those decisions. The athlete should be asked daily, "How does your pain rate on a scale of 1 to 10, with 10 being the worst?" When the response is 0, a gradual re-entry to training can begin. Until that time, injured athletes should be involved in a rehabilitation program and

other fitness activities to maintain their conditioning. Those fitness activities can include cycling (or stationary bike), swimming, or running in deep water with a life jacket if those activities do not stress the injury. When an athlete attests to 0-pain and can pass tests that assess the function of the injured body part, he or she is ready to return to competition (Brukner & Kahn, 2012).

Although the risks of injury and ill health are generally higher in contact sports than in non-contact sports, many athletes choose to take part in contact rather than in non-contact sports. The risks in contact sports could be reduced significantly simply by making major changes to the laws of the sport; this, however, would undoubtedly change the fundamental nature of the sport and that would make the sport unacceptable to many of the athletes taking part. These athletes would almost certainly leave the sport and seek out other sports that more closely match their needs and aspirations. Each of the international sports governing bodies therefore has a responsibility to eliminate, wherever possible, unacceptable risks of serious injury and even death and to reduce the level of other risks so far as is reasonably practicable, while not fundamentally changing the nature of their sport.

F-MARC has followed this philosophy within football since 1994 using the risk management approach and the examples of risk assessment, risk mitigation and risk communication presented here demonstrate how this process can be implemented effectively; for example, the implementation of an injury prevention program in football reduced the incidence of injury and reduced national healthcare costs.<sup>18</sup> By adopting this approach, F-MARC working alone, in conjunction with other researchers or with other governing bodies, has been at the forefront of many sports medicine initiatives over the past 17 years. Of particular note are activities associated with injury epidemiology, injury prevention, pre-competition medical assessment, and sudden cardiac death, playing at altitude and in heat, management of concussion, artificial turf surfaces, and drug testing and age determination. In addition, F-MARC has developed new ways in which governing bodies communicate risks and risk mitigation information to stakeholders, including the use of journal supplements, guidance documents, videos and dedicated web pages.

Finally, new initiatives aimed at providing better medical services within football have been established in the form of FIFA Medical Centers of Excellence and the freely available web-based FIFA medical network for sports physicians and physiotherapists (Fuller *et al.* 2012).

The factors that influence sport safety policies and practice, lack of qualified personnel (referees, trainers and medical support) was observed to have led to insufficiencies that resulted in the rules of the game not always being enforced and some athletes not receiving adequate treatment. In addition, participants in the study suggested that financial constraints led to their inability to employ qualified trainers or provide adequate club facilities. They also complained of shortage of volunteers, which led to a situation whereby the available staff were unable to adequately render services necessary for the prevention of injury. Therefore, this study had complemented the existing knowledge regarding the implementation of injury prevention strategies in Ethiopian context (Casey et al., 2004).

In addition, the results of a study conducted among different sports indicates that coaches were the most important source of information followed by teammates, magazines, books, television, internet and finally the doctor (Sefton, 2003).

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Description of the Study Area

The study area located at in Oromia region in the Arsi Zone at Asella town and separate woreda in central Ethiopia. Asella is Located in the Arsi Zone of the Oromia Region about 175 kilometers from Addis Ababa, this city has a latitude and longitude of 7°57'N 39°7'E, with an elevation of 2,430 meters. Asella hosts an airport (IATA code ALK). Asella was the capital of Arsi Province until that province was demoted to a Zone of Oromia with the adoption of the 1995 E.C Constitution. The main topographic feature of the study area includes the mountain peaks of Chilalo with the height of 4040m above the sea level and covering the highest altitude areas of the Zone.

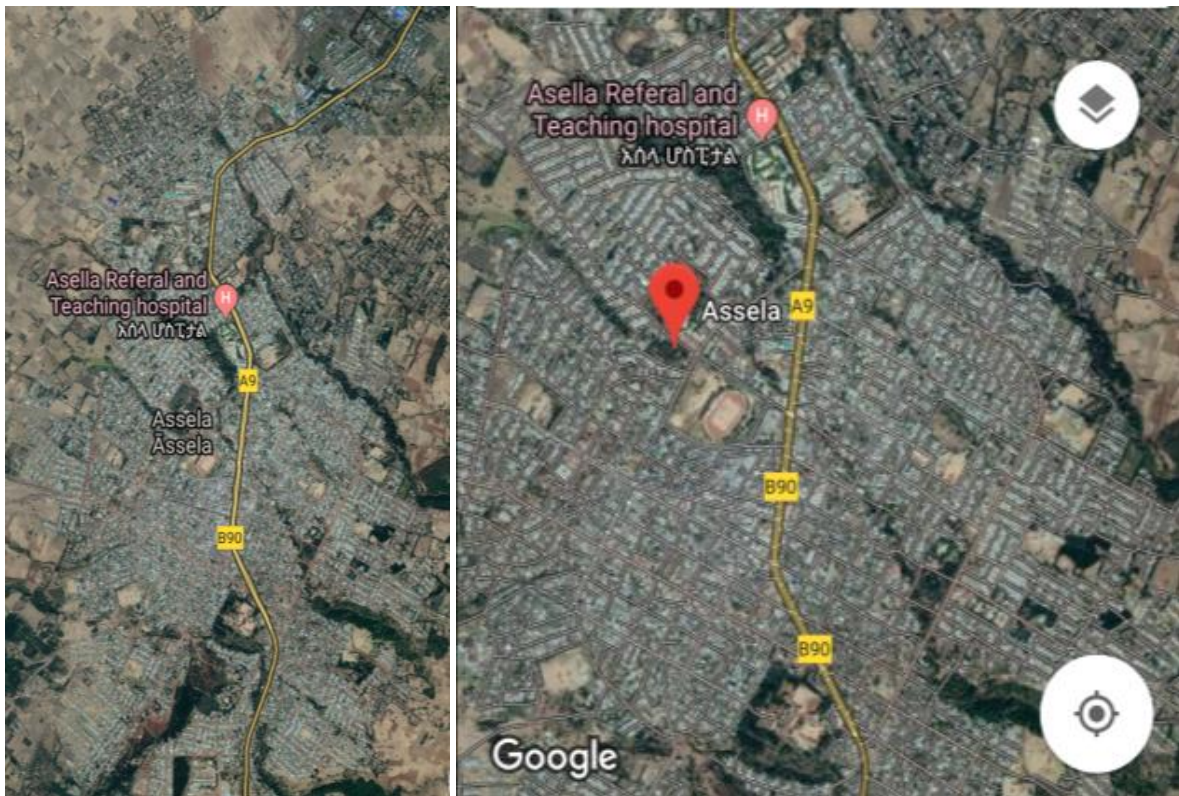


Figure 3.1 Locational map of Assela Town (Google map 2019)

### **3.2 Research Design**

In order to have a clear concept of the nature of the problems that cause the sport injuries the study was employed a descriptive research design. The attributes of a descriptive research made harmony with the purpose of the study since it was assess and describe the existing status of athlete injuries cause and remedies in the case of those clubs and Athlete Tirunesh Dibaba Sport Training center.

The description was employed both quantitative and qualitative in nature. This research design is important because it intends to gain immediate knowledge and information on sport injury in middle and long distance athletics event in the case of Athlete Tirunesh Dibaba Sport Training center. Therefore, the research design is appropriate for this study, as it explore all the necessary information in regard to the research objectives.

### **3.3 Source of Data**

The main sources of the data were from both primary and secondary data. Descriptive research is typically extensive, drawing on multiple sources of information such as direct observation, interviews and record documents in medical center.

The primary source of data was gathered through questionnaire and interview from Tirunesh Dibaba training center from trainer, academic coaches, and medical support staff. The reason for the selection of questionnaire is that it helps in procuring extensive data at reasonable cost. It can be used economically to collect data form a large number of participant trainers. Also, it is best to get response in a relatively short time and it is widely used method of securing information. It also used to gather objective facts or subjective data that used as a means of checking the reliability of data collected by other means such as questionnaire. Generally the reason for the selection of interview is flexible method of gathering information, the nature of questions to be asked and the techniques of questioning can be easily adjusted to suit the circumstances of each case; it gives a firsthand mental perception of facts and opinions which often throw much light on the reliability of answers given to questions. Interview also helps to pick out qualitative data concerning the cause, impact and prevalence of sport injury in the training center.

Secondary sources was collected from relevant books, working papers, previous research, medical injury record reports in the center websites, unpublished and other related documents.

### **3.4 Methods of data collection**

The method of data collection used in this research was questioner and interview and observation of the center directly by the researcher. The questioner prepared and the format attached to the appendices of this document was printed and distributed to the participant and the response of participant was collected and the analysis was done by researcher. The method used for data collection in this research was interview this method was use for more information on the cause, impact, and prevalence of the sport injury addressed on the center from experts around or directly involved in the center. The last method used for data collection direct observation by researcher by itself

### **3.5 Instrument or tools of data collection**

The scientific researches require the data by means of some standardized research tools or self-designed instrument. Many of the tools of research have been designed to yield quantitative measures. Others yield description that may be refined by counts of frequency of appearance. Instrument those was used in this research was those used to collect primary data collection and secondary data among those questionnaires are one of the most frequently used self-designed research questioner and interview, observation was used for collection of primary data and secondary data was obtained through reading, referring related document.

### **3.6 Target population**

The source of data was primary source trainer at Athlete Tirunesh Dibaba Athletics Training Center those train at camp in middle and long distance training program. The primary data through questioner was distributed to 80 trainer out of 85 trainer at center and 74 of the questioner was collected which respondents about 92.5% out of distributed questioner. Direct interview was contacted with 3 Coach and 3 medical staff in addition to questioner. The subjects were from different family background and trained together at the same camp.

### **3.7 Sampling Techniques and Sample Size**

The study was non probabilistic sampling method among those sampling method the researcher used purposive sampling techniques. The purposive sampling is selected because it is known to be representative of the total population, or it is known that it will produce well matched groups. The idea is to pick out the sample in relation to some criterion, which is considered important for this particular study. The population of the study is Athlete trainee



who attained at least one year of services in the Tirunesh Dibaba, academic (coaches') and supportive staff (medical). Purposive sampling is the most widely used techniques which enable to get more representative sample.

Sampling size was composed of 80 athletes who train in middle and long distance. Furthermore, three coaches who coach at Tirunesh Dibaba training center recently and three physiotherapy sport medical staff are selected as population of the study by using purposive/judgment sampling method. Because, the researcher believe that the selected population was give adequate information than the remaining one.

### **3.8 Methods of data analysis and presentation**

The data collected was analyzed using both methods, qualitative and quantitative, measurement of central tendencies by using frequency, mean, median, percentages and standard deviation statistical instrument for data analysis SPSS software was used. The data was analyzed by use of SPSS version 20 statics software. This result was also described in qualitative way by simple statistical data presentation method like percentage, table, and others. However: the interview response was put briefly.

## CHAPTER FOUR

### DATA ANALYSIS AND DISCUSSION

In this chapter, the researcher assesses the cause, impacts and prevalence of sport injuries in middle and long distance runners in Athlete Tirunesh Dibaba sport training center. The training center has 85 total middle and long distance athletes and 4 official coaches and 8 medical experts in the center for the well achievement of the organization objective. The researcher distributed 80 *Likert Scale* questionnaires to middle and long distance athletes respondents', from those *Likert Scale* questionnaires 74 are collected this means 92.5% of *Likert Scale* questionnaires are collected and four *Likert Scale* questionnaires and interview with three coaches and three medical staff was taken. This study assesses and evaluates sport injuries in middle and long distance runners in Athlete Tirunesh Dibaba training center based on the primary data through instrument stated in chapter three from athletes and supportive staff and direct visit by researcher because researcher was one of the training center coach.

#### 4.1. Demographic Characteristics of Respondents

Statistical result regarding the demographic characteristics of the participant of this research respondent was analyzed as per spss version 20 and statistical result was as follows.

Table 4.1 Statistical demographic descriptive result of respondents

S N	Statically measurem ent	Gender		Ages			Experience			Education status		
		M	F	≤20	20-30	≥31	1-2	3-5	≥6	10+ 2	Bsc	Msc
1	N	80		80			80			80		
2	Mean	1.41		1.15			1.56			1.16		
3	Std. Deviation	.495		.506			.548			.583		
4	Frequency	47	33	73	2	5	37	41	2	74	5	1
5	Percentag e	58.8	41.2	91.3	2.5	6.3	46. 3	51. 3	2.5	92.5	6.3	1.3

From table 4.1 result of SPSS the descriptive statistics output for the central tendency (mean) and dispersion (Std. Deviation) shown based on the input data in the software that under value categories of variable researcher assigned for gender categorical variable (1 for male

and 2 for female), for age variable (1 stands for below 20, 2 for age 21-30, 3 for age above 31) and finally.

Therefore the total number of participant was 80 and no missing data and the mean of the data was as shown its lower due to the data was categorical. The standard deviations of those categorical data were in the range of 0 to 1 again the range, minimum, and maximum of data are as indicated in the table 4.1.

As shown in table 4.1 above from respondent of 80 Athletes Tirunesh Dibaba training center, 58.75% are male and 41.25% are female which means the males take the majority number of Athletes training center. This implies that the majority of the respondents are male and female participation was less relative to male Athletes.

Regarding the age of the participant as indicated in table 4.1 about 91.25% of Athletes trainee are below 20 years, 2.5% of the respondents are between 20 –30 and 6.25% supporting staff respondents are above 30 are available. From this result most of respondent's are young with age below 20 years.

Experience of the respondents in table 4.1 shows about 46.25% are with experience of 1 to 2 years and about 51.25% with experience of 3 to 5 years' and about 2.5% of respondents have above 5 years' experience. This implies most of the respondents are young and energetic trainee at the center

As indicated on the above table 4.1 most of the respondents athletes are 10+2 and below in education level. From this result, the researcher concluded that most of the training center athletes are 10+2 this implies the center may provide education for the trainer.

#### 4.2. Causes of injury in the Athlete Tirunesh Dibaba Training center

Descriptive Statistics on the variable of the study stated under questioner of the study to statically indicate the descriptive statistical.

Table4.2 Statistical descriptive result of cause of injury

SN	Questionnaires	Mean	Std. Deviation
1	Most of the injuries at Center associated with inappropriate training field	2.55	1.395
2	Injury caused by intensive training	2.64	1.235
3	Injury caused by environmental weather	2.91	1.371
4	Most of middle and long distance injury associated repeated competition	3.23	1.253
5	Most of injuries at center are due to inappropriate shoe and clothing	2.11	1.125
6	Does your injury associated with lack of balance diet.	2.12	1.277
7	Most of your injury associated with training schedule.	3.47	1.321
8	Most Athletes subjected to injury due to improper recovery form injured	2.82	1.456
9	Trainees' injury is associated with lack of training rehabilitation	2.30	1.174
10	Most injury associated with lack of physical strength and flexibility in exercise.	2.95	1.359
11	Training always in the afternoon at the training center	3.04	1.227
12	Most of injured athletes are athletes those teenagers	3.56	1.439

From the table 4.2 result of SPSS descriptive statistics output for the central tendency (mean, median, and mode) and dispersion (Std. Deviation, Variance, Range, Minimum, and Maximum) shown based on the input data in the software that under value categories of variable researcher assigned for continuous variable (1 for strongly agree and 2 for agree, 3for normal response, 4 for disagree, and 5 for strongly disagree), Therefore the total number of participant was 80 and no missing data and the mean , median ,and standard deviations of those continuous data are shown and the range, minimum, and maximum of data are as indicated in the table 4.2.

Table 4.3 Causes of injury in the Athlete Tirunesh Dibaba Training center

SN	Questionnaires	Responses	Frequen cy	Percent
1	Most of the injuries at Center associated with inappropriate training field	Strongly agree	23	28.8
		Agree	23	28.8
		Normal	12	15.0
		Disagree	11	13.8
		strongly disagree	11	13.8
2	Injury caused by intensive training	Strongly agree	13	16.3
		Agree	33	41.3
		Normal	12	15.0
		Disagree	14	17.5
		strongly disagree	8	10.0
3	Injury caused by environmental weather	Strongly agree	13	16.3
		Agree	24	30.0
		Normal	15	18.8
		Disagree	13	16.3
		strongly disagree	15	18.8
4	Most of middle and long distance injury associated repeated competition	Strongly agree	9	11.3
		Agree	15	18.8
		Normal	18	22.5
		Disagree	25	31.3
		strongly disagree	13	16.3
5	Most of injuries at center are due to inappropriate shoe and clothing	Strongly agree	28	35.0
		Agree	29	36.3
		Normal	13	16.3
		Disagree	6	7.5
		strongly disagree	4	5.0
6	Does your injury associated with lack of balance diet.	Strongly agree	33	41.3
		Agree	24	30.0
		Normal	10	12.5
		Disagree	6	7.5
		strongly disagree	7	8.8
	Most of your injury associated with training schedule.	Strongly agree	11	13.8
		Agree	4	5.0
		Normal	23	28.8
		Disagree	20	25.0
		strongly disagree	22	27.5
7	Most Athletes	Strongly agree	20	25.0

	subjected to injury due to improper recovery form injured	Agree	18	22.5
		Normal	12	15.0
		Disagree	16	20.0
		strongly disagree	14	17.5
8	Trainees' injury is associated with lack of training rehabilitation	Strongly agree	22	27.5
		Agree	33	41.3
		Normal	7	8.8
		Disagree	15	18.8
		strongly disagree	3	3.8
9	Most injury associated with lack of physical strength and flexibility in exercise.	Strongly agree	14	17.5
		Agree	21	26.3
		Normal	12	15.0
		Disagree	21	26.3
		strongly disagree	12	15.0
10	Training always in the afternoon at the training center	Strongly agree	13	16.3
		Agree	8	10.0
		Normal	33	41.3
		Disagree	15	18.8
		strongly disagree	11	13.8
11	Most of injured athletes are athletes those teenagers	Strongly agree	12	15.0
		Agree	9	11.3
		Normal	8	10.0
		Disagree	24	30.0
		strongly disagree	27	33.8

The result from respondents of the training center shows in the table 4.3 about 28.75% strongly agrees and 28.75% agree with the cause of injury related to in appropriate training field but, 13.75% strongly disagree and 13.75% disagrees that injury at the center was related to training field. The other respondents accept the effect of training field was in normal status on the injury of Athletes. This result shows almost more than half of the participant of the center react that one of the cause of injury at the center was training field.

The result of the participant regarding the intensive training as cause of injury table 4.3 shows about 16.25% strongly agrees and 41.25% agree with the cause of injury related to intensive training. In contrast about 12.5% strongly disagree and 17.5% disagrees with the cause of injury at the center was related to intensive training. The other 15% of respondents accept the effect of intensive training was in normal status on the injury of Athletes. The participant reflects the one and cause injury to trainer was intensive training done by trainer themselves.

From table 4.3 one can understand about 16.25% respondents strongly agree and 30% agree with the cause of injury at ATDSTC was caused by environmental weather. In other result 18.75% strongly disagree and 13.25% disagrees toward injury at the center was related to environmental weather. The other 18.75% of respondents accept the effect of environmental weather was in normal status on the injury of Athletes at ATDSTC. This shows the injury at the center was mostly not related to environmental weather.

On repeated competition table 4.3 shows the participants react about 11.25% are strongly agree and 18.75% agree with the cause of injury at ATDSTC was caused due to repeated competition. In other result 16.25% strongly disagree and 31.25% disagrees with injury at the center was related to environmental weather. The other 22.5% of respondents accept the effect of repeated competition was in normal status on the injury of Athletes at ATDSTC. Thus, the result indicates that repeated competition has little contribution to cause of injury.

From table 4.3 about 35% respondents strongly agree and 36.25% agree with the cause of injury at ATDSTC was caused due to inappropriate shoe and clothing. In other result about 5% strongly disagree and 7.5% disagrees with injury at the center was related to inappropriate shoe and clothing. The other 16.25% of respondents accept the effect of inappropriate shoe and clothing was in normal status on the injury of Athletes at ATDSTC. The safety material like shoe and cloth usage and availability result in the injury to trainer.

As indicated in table 4.3 about 41.25% respondents strongly agree and 30% agree with the cause of injury at ATDSTC was caused due to lack of balanced diet. In other result about 8.75% strongly disagree and 7.5% disagrees with injury at the center was related to lack of balanced diet. The other 12.5% of respondents accept the effect of lack of balanced diet was in normal status on the injury of Athletes at ATDSTC. The balanced diet was one among the major causes of the injury as almost all the participant response percentage shows high that at center this problem was common.

From table 4.3 about 13% respondents strongly agree and 5% agree with the cause of injury at ATDSTC was caused due to training schedule. In other result about 27.5% strongly disagree and 25% disagrees with injury at the center was related to training schedule. The other 28.75% of respondents accept the effect of training schedule was in normal status on the injury of Athletes at ATDSTC. The participant reflects training schedule related injury at the center was not visible as per the participants' response analysis.

From the table 4.3 about 25% respondents strongly agrees and 22.5% agree with the cause of injury at ATDSTC was caused due to improper recovery form injured. In other result about 17.5% strongly disagree and 20% disagrees with injury at the center was related to improper recovery form injured. The other 15% of respondents accept the effect of improper recovery form injured was normal on the injury of Athletes at ATDSTC. As the result analyzed from respondents the injury related to recovery problem was not yet reflected so this cause was

From the table 4.3 about 27.5% respondents strongly agrees and 41.25% agree with the cause of injury was due to lack of training rehabilitation. In other result about 3.75% strongly disagree and 18.75% disagrees with injury at the center was related to lack of training rehabilitation. The other 8.75% of respondents accept the effect of lack of training rehabilitation was normal on the injury of Athletes at ATDSTC. Training rehabilitation was one among the causes of athletes' injury as the participant responses those reflect this accounts about 69 % of the total respondents.

As shown in table 4.3 about 17.5% respondents strongly agree and 26.25% agree with the cause of injury at ATDSTC was caused due to lack of appropriate strength and flexibility in exercise. In other result about 15% strongly disagree and 26.25% disagrees with injury at the center was related to lack of appropriate strength and flexibility in exercise. The other 15% of respondents accept the effect of lack of appropriate strength and flexibility in exercise was in normal on the injury of Athletes at ATDSTC. Lack of strength and flexibility has direct relationship with the cause of injury as the respondent shows high attention by reflecting more percentage of response result.

From the table 4.3 about 16.25% respondents strongly agrees and 10% agree with the cause of injury at ATDSTC was caused due to due to afternoon training. In other result about 13.75% strongly disagree and 18.75% disagrees with injury at the center was related to due to afternoon training. The other 40% of respondents accept the effect due to afternoon training was in normal status on the injury of Athletes at ATDSTC. This implies schedule was not more influential as the cause injury at the center as indicated by the result of participant.

In table 4.3 about 15% respondents strongly agrees and 11.25% agree with the cause of injury at ATDSTC was caused due most of trainee at center are teenagers. In other result about 33.75% strongly disagree and 30% disagrees with injury at the center was related to trainee at center are teenagers. The other 10% of respondents accept the effect trainees at center are



teenagers was in normal status on the injury of Athletes at ATDSTC. As indicated by the result analyzed the injury of the center was not common due to the trainer age sensitiveness.

According to Kefyalew (2019), said the sport injury related to safety material like shoe, clothing, training field and environment. Moreover the club leader's coach, center have responsibility encompasses the development, implementation and monitoring of comprehensive sport safety like clothing, safety shoes and fields (Tippett, 1990).

### 4.3. Impact of injury in the Athlete Tirunesh Dibaba Training center

Table 4.4 Statistic of impact of sport injury at Tirunesh Dibaba Training center.

SN	Questionnaires	Mean	Std. Deviation
1	Some injury completely stops athletes from training.	2.08	1.300
2	Injury occurs dramatically affect psychology of Athletes	3.28	1.567
3	Some Injury take long period for rehabilitation	2.68	1.290
4	Once injured Athletes frequently injured after recovery	2.72	1.350
5	Injuries occurs lower performance and result of Athletes and training center.	2.06	1.184
6	Trainer injured frequently result in additional cost to center and over stress medical center	3.58	1.230

From result of SPSS descriptive statistics output in the table 4.4 for the central tendency (mean) and dispersion (Std. Deviation) shown based on the input data in the software that under value categories of variable researcher assigned for continuous variable (1 for strongly agree and 2 for agree, 3for normal response, 4 for disagree, and 5 for strongly disagree), Therefore, the total number of participant was 80 and no missing data and the range, minimum, and maximum mean , median ,and standard deviations of those continuous data are shown in the table 4.4.

Table 4.5 Impact of injury in the Athlete Tirunesh Dibaba Training center

SN	Questionnaires	Responses	Frequency	Percent
1	Some injury completely stops athletes from training.	Strongly agree	38	47.5
		Agree	18	22.5
		Normal	10	12.5
		Disagree	8	10.0
		strongly disagree	6	7.5
2	Injury occurs dramatically affect psychology of Athletes	Strongly agree	18	22.5
		Agree	10	12.5
		Normal	9	11.3
		Disagree	18	22.5
		Strongly disagree	25	31.3
3	Some Injury take long period for rehabilitation	Strongly agree	18	22.5
		Agree	19	23.8
		Normal	24	30.0
		Disagree	9	11.3
		Strongly disagree	10	12.5
4	Once injured Athletes frequently injured after recovery	Strongly agree	18	22.5
		Agree	23	28.8
		Normal	11	13.8
		Disagree	19	23.8
		strongly disagree	9	11.3
5	Injuries occurs lower performance and result of Athletes and training center.	Strongly agree	33	41.3
		Agree	25	31.3
		Normal	10	12.5
		Disagree	8	10.0
		strongly disagree	4	5.0
6	Trainer injured frequently result in additional cost to center and over stress medical center	Strongly agree	9	11.3
		Agree	5	6.3
		Normal	15	18.8
		Disagree	33	41.3
		Strongly disagree	18	22.5

On the impact that injury stops training the result in the table 4.5 shows about 47.5% respondents strongly agrees and 22.5% agree with the result that some injury completely stops athletes from training at ATDSTC. In other result about 7.5% strongly disagree and

10% disagrees with injury completely stops athletes from training. The other 12.5% of respondents remain neutral on idea some injury completely stops athletes from training at ATDSTC.

From the analysis of data in table 4.5 about 22.5% respondents strongly agrees and 12.5% agree with the result that Injury occurs dramatically affect psychology of Athletes. In other result about 31.25% strongly disagree and 22.5% disagrees with injury occurs affect psychology of Athletes. The other 11.25% of respondents remain neutral on injury occurs dramatically affect psychology of Athletes at ATDSTC. As the result obtained from the analysis of participant idea the injury has little impact on the psychology of the trainer at Athlete Tirunesh training center.

From the above table 4.5 about 22.5% respondents strongly agree and 23.75% agree with Some Injury take long period for rehabilitation. In other result about 12.5% strongly disagree and 11.25% disagrees with Some Injury take long period for rehabilitation. The other 30% of respondents remain neutral on Some Injury take long period for rehabilitation at ATDSTC. The result analyzed shows injury was not take time for rehabilitation.

From the table 4.5 about 22.5% respondents strongly agree and 28.75% agree with once injured Athletes are frequently injured after recovery. In other result about 11.25% strongly disagree and 23.75% disagrees with once injured Athletes are frequently injured after recovery. The other 13.75% of respondents remain neutral on once injured Athletes are frequently injured after recovery at ATDSTC. As the result shows once injured athlete was not frequently injured.

From the above table 4.5 about 41.25% respondents strongly agrees and 31.25% agree with injuries occurs lower performance and result of Athletes and training center. In other result about 5% strongly disagree and 10% disagrees with injuries occurs lower performance and result of Athletes and training center. The other 12.5% of respondents remain neutral on injuries occurs lower performance and result of Athletes and training center. As respondent result reflects the injury occurs result in the reduction of the performance of the Athlete and the results too.

In the table 4.5 about 11.25% respondents strongly agrees and 6.25% agree with injuries Athletes result in additional cost and over stress medical center. In other result about 22.5% strongly disagree and 41.25% disagrees with injuries Athletes result in additional cost and

over stress medical center. The other 18.75% of respondents remain neutral on injuries Injured Athletes result in additional cost and over stress medical center of ATDSTC.

As researcher (2019), of injury stops the trainer from training supporting idea of injury causes worsening pain during or after exercise and continuation of loading causes even worse pain and may stop exercise completely (Beck 1998). A chronic injury has also been classified as any injury with insidious progression that existed prior to the date of the injury's occurrence or an exacerbation of a previously existing condition (Giza *et al.* 2005).

Again found that sports injuries play a significant role in terminating a career in sport, and in some sports events injuries may commonly be the main reason for sport career termination (Leena *et al.* 2011).

According to researcher (2019) center have no well-organized health center this information is essential for prioritizing sports injury prevention by government health agencies and other bodies (Fitch, *et al.* 2006).

According to researcher (2019) said returning early or inappropriate recovery from an injury increases the chances of a re-occurrence that will lead to a longer recovery. Support supporting this idea, returning early or inappropriate recovery from an injury increases the chances of a re-occurrence or developing a chronic problem that will lead to a longer recovery support supporting this idea Quinn (2012).

According to researcher (2019) the injury result in indirect and direct health care costs are often reported, indirect health care costs may be greater than direct costs (Roos, 2005).

#### 4.4. Prevalence of Injury in Athlete Tirunesh Dibaba Training center

Table 4.6 Prevalence of Injury in Athlete Tirunesh Dibaba Training center

SN	Questionnaires	Responses	Frequency	Percent
1	Warming up is mostly done before training	Strongly agree	65	81.3
		Agree	10	12.5
		Disagree	5	6.3
2	Most of Athletes care the lower, upper limb and critical part of leg	Strongly agree	45	56.3
		Agree	25	31.3
		Normal	4	5.0
		Disagree	3	3.8
		strongly disagree	3	3.8
3	Center has well-organized health center and qualified physiotherapist at center for injury prevention.	Strongly agree	15	18.8
		Agree	15	18.8
		Normal	21	26.3
		Disagree	13	16.3
		strongly disagree	16	20.0
4	Coach's coaching and leading style is above standard.	Strongly agree	35	43.8
		Agree	21	26.3
		Normal	16	20.0
		Disagree	3	3.8
		strongly disagree	5	6.3
5	Medical expert Mostly visit your injury for quick recovery	Strongly agree	22	27.5
		Agree	33	41.3
		Normal	11	13.8
		Disagree	7	8.8
		strongly disagree	7	8.8
6	The medical expert create awareness about sensitive body part for injury	Strongly agree	20	25.0
		Agree	38	47.5
		Normal	14	17.5
		Disagree	2	2.5
		strongly disagree	6	7.5
7	Coach motivate injured athletes for recovery through psychology	Strongly agree	23	28.8
		Agree	37	46.3
		Normal	12	15.0
		Disagree	4	5.0
		strongly disagree	4	5.0

As shown in table 4.7 about 81.25% respondents strongly agree and 12.5% agree with Warming up is mostly done before training. In other result about 6.25% disagree with Warming up is mostly done before training. This result shows all trainers must do warming before starting the regular training.

From table 4.7 respondents results 56.25% strongly agrees and 31.25% agree with most of trainee care the lower, upper limb and critical part of leg. In other result about 3.75% strongly disagree and 3.75% disagrees with most of trainee care the lower, upper limb and critical part of leg. The other 5% of respondents remain neutral on most of Athletes care the lower, upper limb and critical part of leg. This result of the trainer response result shows that the trainers give attention to the safety of the critical body part sensitive to injury.

From table 4.7 about 18.75% respondents strongly agrees and 18.75% agree with Center has well-organized/ equipped health center and qualified physiotherapy for your injury prevention. In other result about 20% strongly disagree and 16.25% disagrees with Center has well-organized/ equipped health center and qualified physiotherapy for your injury prevention. The other 26.25% of respondents remain neutral on Center has well-organized/ equipped health center and qualified physiotherapy for your injury prevention. This result indicated the center do not has the well-organized health center and medical expert for the treatment of the injury.

From the result in table 4.7 about 43.75% respondents strongly agrees and 26.25% agree with Coach's coaching and leading style is above standard. In other result about 6.25% strongly disagree and 3.75% disagrees with Coach's coaching and leading style is above standard. The other 20% of respondents remain neutral on Coach's coaching and leading style is above standard. The coach leading, motivation and orientation method and way to avoid injury was above standard as it was seen from the result of the participant analysis.

From table 4.7 about 27.5% respondents strongly agrees and 41.25% agree with Medical expert mostly visit your injury for quick recovery. In other result about 8.75% strongly disagree and 8.75% disagrees with Medical expert mostly visit your injury for quick recovery. The other 13.75% of respondents remain neutral on Medical expert mostly visit your injury for quick recovery. The medical physiotherapy follow up for quick recovery from injury was high at training center.

From the above table 4.7 about 40% respondents strongly agrees and 47.5% agree with medical expert create awareness about sensitive body part for injury. In other result about 7.5% strongly disagree and 4% disagrees with medical expert create awareness about sensitive body part for injury. The other 17.5% of respondents remain neutral on medical expert create awareness about sensitive body part for injury. The analysis result shows medical expert strength on the awareness creation of sensitive body part for the trainer was high.

From the above table 4.7 about 28.75% respondents strongly agrees and 46.25% agree with coach motivate injured athletes psychology for recovery. In other result about 5% strongly disagree and 5% disagrees with coach motivate injured athletes psychology for recovery. The other 15% of respondents remain neutral. The responsibility of the coach regarding the psychology related motivation of trainer was in the highly acceptable levels as it was observed from the analysis result of the participant.

According to the researcher (2019) it is important to balance the negative effects of sports injuries with the many social, psychological and health benefits that a serious commitment to sport brings (Nicola et al. 2011).

According to the researcher (2019) said allowing adequate time to recover from injury can help reduce the incidence of non-contact injuries supported by Newell (2011)

According to researcher (2019) said the prevention of injury like continuous follow up of physiotherapy, giving care to the sensitive body part, warming up before any training exercise and cool down, adequate rest period. The principles of sport injury prevention are Warm up/cool down- a warm up, cool down helps to stabilize blood pressure and lower heart rate, flexibility, recovery, include adequate rest periods in between trainings and games, muscle balance- among stabilizers and mobilisers (Kents, 2012).

According to the researcher (2019), consumption of balanced diet will reduce the extent of injury to athletes at the center. Consumption of nitrate-rich, whole beetroot improves running performance in healthy adults. Because whole vegetables have been shown to have health benefits, whereas nitrates from other sources may have detrimental health effects, it would be prudent for individuals seeking performance benefits to obtain nitrates from whole vegetables, such as beetroot (Murphy et al 2011).

#### **4.5. Analysis of qualitative part of data**

Qualitative data was analyzed based on the response of the participant

## **1. Questionnaire to be filled by middle distance coaches**

*List some cause of sport injury in your athlete training center?*

From this perspective the response of the participant as well as the researcher also coach at the center thus, the cause of the injury mostly commonly reflected and we considered sensitive issue are like carelessness of the trainer, safety material usage, correct and wise use or consumption of balanced diet for the trainer, and other cause of the injury at the center was listed by the participant.

*What measures do you take to prevent sport injury?*

We tried different method professionally and we select the safety material we researched on different injury related those we emphasized on that they may cause the injury and the result was seen for better improvement.

## **2. Questionnaire to be filled by Medical Physiotherapy**

*Do you mention the cause of common sport injury in middle and long distance?*

The cause of sport injury as the Physiotherapy expert participant responded the common cause are lack of awareness on the impact of injury, miss awareness on value of full recovery, lack of full follow up and lack continuous consumption of balanced diet, carelessness on their sensitive body and other response was extracted from the respondent. This implies the trainer can avoid the injury to some extent if they are carefully work on the causes listed by Physiotherapist.



## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATION

#### 5.1. SUMMARY

This research was aimed due to the fact that Tirunesh Dibaba sport training center trainers are in the problem of injury. This title and objective was selected and researcher refer the literature related to this title and prepare the methodology of the research on the cause, impact and prevalence of sport injury in middle and long distance athletics event in the case of Athlete Tirunesh Dibaba sport training center. Finally, the data collected by researcher through data collection instrument and collected data investigated and analyzed in chapter four based on the participant response and researcher was arrived at the clear cause and impact as well as the prevalence for sport injury for Athlete Tirunesh Dibaba training center.

#### 5.2. CONCLUSION

This portion tries to conclude on the finding of this research based on the investigation of the participant response analysis and presentation in the discussion part of chapter four. Therefore this chapter concludes the result or the finding on the cause, impact, and prevalence idea that help on the injury at Tirunesh Dibaba sport training center.

#### CAUSES:

- ❖ The data analysis result shows about 57.5% more than fifty percent of data analysis indicates lack of standard and well-arranged training field was one of the causes of injury to athletes.
- ❖ From data analysis in chapter four about 57.5% results indicates the cause of injury related to intensive training. So, it's important to do training at limited intensity to avoid the injury result.
- ❖ Environmental weather injury cause accounts around 46.25% which was less than indicates and little influence. So even if the weather of Arsi zone conducive this factor should be well identified and managed by coaches.
- ❖ More than 71.25% results also show inappropriate shoe and clothing cause injury to Athletes. So the center should provide safe and adequate sport wearing.
- ❖ More than 72% of the respondents' data analysis result shows the injury at center relate to balanced diet. Balanced diet was one of the powers of Athletes.
- ❖ Improper recovery form injured was one of the most causes of highly energetic and motivated Athletes.
- ❖ About 68.75% response shows lack of training rehabilitation caused an injury to the trainee at ATDSTC.

- ❖ Lack of appropriate strength and flexibility in exercise and training style result as cause of injury.

**IMPACT:**

- ❖ Some injury takes long period for rehabilitation even if it was not followed up by medical staff.
- ❖ About 72.5% of the respondents' data analysis shows the injury lower performance and result of Athletes and training center.
- ❖ If the training center not establishes Medical physiotherapy for injury treatment at center injured Athletes result in additional cost and over stress public medical center.

**PREVALENCE:**

- ❖ Warming up is must be done before training to avoid any injury related.
- ❖ All trainees of center must take care to the lower, upper limb and critical part of leg as much as possible to react in the prevention of injury.
- ❖ The center should arrange and provide well-organized/ equipped health center and qualified physiotherapy for your injury recovery and prevention.
- ❖ Coach's coaching and leading style should be above standard toward the injury reduction and prevention.
- ❖ Medical physiotherapy visit/ follow up rate must be high for quick recovery.
- ❖ Awareness must be created by medical expert about sensitive body part simply exposed to injury for injury prevention.
- ❖ Coach motivation of injured athletes' psychology for recovery was very important.

**5.3. RECOMMENDATION**

- ❖ Further investigation is needed to on all athletes training center in Ethiopia for further extraction of Athletes from every corner of our country.
- ❖ Further investigation also needed in the sport training center and other training center in Ethiopia for further identification of cause, impact and mitigation for that injury for well achievement of objective of sport center.
- ❖ Further investigation is needed to study the effect on the experienced Athletes and experts to have the long term feedback on the injury rather than bounding the population to trainee only at training center.

- ❖ Training center should seek prompt attention to athlete's injuries from a person with first aid qualifications. A structured pre planned schedule with regard to treatment of injuries should be discussed and agreed upon at the season outlet.
  
- ❖ Middle and long distance Runners should seek prompt attention to their running injuries which were occurred in specific events so, the coach, athletes and other sport practitioners had aware of it.

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**APPENDICES**  
**QUESTIONNAIRES**  
**JIMMA UNIVERSITY**  
**SCHOOL OF POST GRADUATE**  
**COLLEGE OF NATURAL SCIENCE**  
**DEPARTMENT OF SPORT SCIENCE**

Questionnaires on cause, impact and prevalence of sport injury

Questioner to be filled by middle and long distance athletes

Dear athlete! The purpose of this questioner is to gather information about the most common forms of injury in case of middle and long distance runners. Read the questions carefully and select the alternatives that best apply to your own situation and write the answer in the space provided. No need of writing your name, on the paper.

Thanks for your voluntarily cooperation.

**PART ONE**

**Preliminary question:** - use 'X' for your answer

1. Sex: Female  Male
2. Age: A.  $\leq 20$  B. b/n 20 and 30 C.  $\geq 30$
3. What is your level of educational qualification?  
A. Grade 10 & below B. 10+2  
C. Diploma D. B.A/Bsc and above
4. Experience of respondent  
A. 1-2year B. 3-5 year c. 6-8 year D. 9 year and above
5. How many training sessions did you cover in a week?  
A. 2-3 sessions B. 4-6 sessions  
C. 7- 9 sessions D. above 10 sessions

## PART TWO

No	Dominant characters	SA= strongly agree A=Agree N=Neutral D= Disagree SD= strongly Disagree <b>Make 'X' to your option</b>				
<b>A. Injury cause</b>		SA	A	N	D	SD
1	Most of the injuries at Center associated with inappropriate training field					
2	Injury caused by intensive training					
3	Injury caused by environmental weather					
4	Most of middle and long distance injury associated repeated competition					
5	Most of injuries at center are due to inappropriate shoe and clothing					
6	Does your injury associated with lack of balance diet.					
7	Most of your injury associated with training schedule.					
8	Most Athletes subjected to injury due to improper recovery form injured.					
8	Trainees' injury is associated with lack of training rehabilitation					
10	Trainee injury associated with lack of appropriate flexibility in exercise.					
11	Most injury associated with lack of physical strength					
12	Training always in the afternoon at the training center					
13	Most of injured athletes are athletes those teenagers					
14	Starting of training due high interest before full recovery of injury result other injury.					

No	Dominant characters	SA= strongly agree A=Agree N=Neutral D= Disagree SD= strongly Disagree <b>Make 'X' to your option</b>				
<b>B. Injury impact</b>		SA	A	N	D	SD
1	Some injury completely stops athletes from training.					
2	Injury occurs dramatically affect psychology of Athletes					
3	Some Injury take long period for rehabilitation					
4	Once injured Athletes frequently injured after recovery					
5	Injuries occurs lower performance and result of Athletes and training center.					
6	Trainer injured frequently result in additional cost to center and over stress medical center					

No	Dominant characters	SA= strongly agree A=Agree N=Neutral D= Disagree SD= strongly Disagree <b>Make 'X' to your option</b>				
<b>C. Injury prevalence</b>		SA	A	N	D	SD
1	Warming up is mostly done before training					
2	Most of Athletes care the lower, upper limb and critical part of leg					
3	Center has no well-organized/ equipped health center and qualified physiotherapy for your injury prevention.					
4	Coach's coaching and leading style is above standard.					
5	Most of trainees take care to prevent sport injury					
7	Medical expert Mostly visit your injury for quick recovery					
8	The medical expert create awareness about sensitive body part for injury					
9	Coach motivate injured athletes for recovery through psychology					

### PART THREE

#### Questionnaire to be filled by middle distance coaches

**Dear coaches!** The purpose of this questionnaire is to gather information about common sport injury of middle and long distance runners. Read the questions carefully and give answer for best apply to your own situation and write the answer in the space provided. If necessary, you can exceed the space allocated. Do not write your name, since the questionnaire is confidential.

Thanks for your kind cooperation

1. Sex Female  Male

2. Age A.  $\leq 20$  B. b/n 20 and 30 C.  $\geq 30$

3. Level of educational

A.  $\leq 12$  grade

B. Diploma

C. B.A /Bsc

C. MSc and above

4. How many years have you been in coaching?

A. 1-2 year

B. 3- 5 year

C. 6-9 year

D. above 10 year

5. Have you create awareness about injury to your Athletes before training and competition?

A. yes                      B. No

6. At what time mostly you train your athletes?

A. Morning      B. After noon      C. Evening      D. Both morning and after noon

7. Is the training field is available and suitable for athlete training?

A. Yes                      B. No

8. Have you discuss with your athletes about sport injury and its prevention?

A. Yes                      B. No

9. Have you motivate the injured Athlete for upgrading their psychology?

A. Yes                      B. No

10. List some cause of sport injury in your athlete training center?

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11. What measures do you take to prevent sport injury?

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**PATR 5**

**Questionnaire to be filled by Medical Physiotherapy**

The purpose of this questionnaire is to obtain information on Causes and Management of Sport Injuries and Its Impact on Athlete's Performance at Athlete Tirunesh Dibaba Sport training Center. The information procured through the questionnaire will be used only for Statistical analysis purpose. Any information that you give will be kept confidential. Hence, your cooperation in giving genuine information is highly valuable for the accomplishment of study.

**N.B:** There is no need of writing your name on the questionnaire

1. Sex of respondent      Male       Female   
2. Age      A.  $\leq 20$       B. b/n 20 and 30      C.  $\geq 30$

3. Level of education
  - A. Diploma
  - B. Bsc
  - C. MSc
  - D. PHD
4. Experience of respondent
  - A. 1-2year
  - B. 3-5 year
  - c. 6-8 year
  - D. 9 year and above
5. Which event athlete mostly visits your staff?
  - A. long distance athletes
  - B. middle distance athlete
  - C. both of them
  - D. none of them
6. In which area the athlete mostly injured?
  - A. lower limb
  - B. upper limb
  - c. core body
  - D. all
7. Is you discuss /give lesson/ for the athlete about sport injury?
  - A. yes
  - B. No
8. The center has the medical treatment center for sport injury in the training center?
  - A. No
  - B. Yes
9. Do you have enough medical equipment required for sport injury treatment?
  - A. yes
  - B. No
10. Do you mention the cause of common sport injury in middle and long distance?

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11. What is your suggestion to the club to manage athletic injury in middle and long distance event?

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