

Prevalence, types and perceived causes of common soccer injuries....By Mohammed Yasin

**JIMMA UNIVERSITY
COLLEGE OF NATURAL SCIENCES
DEPARTMENT OF SPORT SCIENCE
SCHOOL OF GRADUATE STUDY**



**PREVALENCE, TYPES AND PERCEIVED CAUSES OF COMMON
SOCCER INJURIES IN THE CASE OF SOME SELECTED MALE
PLAERS IN ETHIOPIAN PREMIER LEAGUE**

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MOHAMMED YASIN**

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**A THESIS PRESENTED TO DEPARTMENT OF SPORT SCIENCE, JIMMA
UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
MASTER OF SCIENCE IN SPORT SCIENCE (FOOTBALL COACHING)**

ADVISORS:

KINDIE GETACHEW (ASS. PROFESSOR)

SISAY MENGISTU (MSC)

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Approved by the Board of Examiners

_____ **Signature** _____ **Date** _____

Chairman, Department,

Advisor _____ **Signature** _____ **Date** _____

Co-Advisor _____ **Signature** _____ **Date** _____

Internal Examiner _____ **Signature** _____ **Date** _____

External Examiner _____ **Signature** _____ **Date** _____

ACKNOWLEDGEMENTS

I would like to present my heartfelt gratitude to my instructors and advisors to Ato Kinde Getachew (Ass.Prof.) and Ato Sisay mengistu who have given me all necessary guidance, fruitful advice suggestion and correction throughout my research work.

Also, I would like to express my deepest gratitude to all Jimma University sport science department members for their cooperation.

Also, I would like to express my deepest gratitude to Dr Sirak Habtemariam who gave me unreserved cooperation, fruitful advice, appreciable encouragement, suggestion and correction throughout my research work.

Finally, I am indebted to the participants in this study who devoted their precious time for giving the necessary information.

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Abstract

The objective of this research was to investigate the prevalence, types and perceived cause of common soccer injuries of male Ethiopian premier league. To achieve this objective, Saint George, Muger and Awasa Kenema clubs were selected by simple random sampling technique. Then, 73 players, 6 injured players and 3 medical practitioners were selected with simple random sampling method and purposive sampling. Questionnaire and structured interview were used to collect data. The data gathered through questionnaires were analyzed by using frequency counts and their percentages whereas the interview data was analyzed through thematic analysis. The study found out that Groin ,Ankle and Toe injuries were the most common injuries ; the most common mechanism of injuries were tackling from an opponents and the perceived causes of those injuries were inappropriate training field and not using protective equipment during training session. Recommendations were also forwarded based on the findings.

CHAPTER ONE

INTRODUCTION

1.1. BACKGROUND

Participation in sports has grown rapidly over the past decades. Soccer is one of the most popular sports in the world and it is a free flowing game that has relatively few rules and requires little equipment. The sport is played by people of all ages and sexes. There is no country on earth that does not play football. Soccer, commonly known as football provide many young people with an opportunity for healthy exercise (Levy & Lohnes, 1996) Interns of spectators, participants, the techniques that unrepeated skills displayed by players the game is become the most popular.

Soccer is a high-velocity collision sport. This characteristic, along with a permanent increase in the number of participators, has raised the injury risk in this sport. The characteristics of soccer, along with the required functional activities, obviously place great demands on technical and physical skills of the individual player. According to Hawkins & Fuller (1999) soccer is known to be associated with a relatively high injury rate compared to other contact team sports.

Soccer injuries are generally defined as either cumulative (overuse) or acute (traumatic) injuries. Overuse injuries occur over time due to stress on the muscles, joints and soft tissues without proper time for healing. They begin as a small, nagging ache or pain, and can grow into a debilitating injury if they aren't treated early. Acute or traumatic injuries occur due to a sudden force, or impact, and can be quite dramatic Include: The most common of all ankle injuries, an ankle sprain occurs when there is a stretching and tearing of ligaments surrounding the ankle

joint. Achilles tendonitis is a chronic injury that occurs primarily from overuse and it felt as pain in back of the ankle.

In Ethiopia male soccer teams are grouped into two divisions: the first division is called premier league and the second divisions is called national league. The first division is more competitive than the second one because it is the one from which Champion Clubs are drawn and regional as well as international competitions deal with. In addition to that, the national team soccer players are selected from teams of the first division. Therefore, there could probably be an expectation of more injuries in the first division than in the second division. However, the researcher has also to consider that the second division teams are fighting in order to get a place in the first division. After each league season, the last two teams in first division moves to the second division whereas the first two teams in second division joins the first division. As both divisions are in incessant competitive events, the researcher believes that there might be a high risk of both acute and overuse soccer injury occurrence. Some soccer players in Ethiopia participate in competition at both national and international level, which expose soccer players to more risk of injury and thus ensures the health and safety of the soccer players.

Ethiopian premier soccer league consists of 14 teams, who play against every other team twice in one season, once on the home ground and once on the away ground. In the home team's point of view, there are three outcomes of a single soccer game, namely win, draw and loss, in which the home team earns 3, 1 and 0 points and the away team earns 0, 1 and 3 points respectively. Teams are ranked according to the total earned points. Soccer is also played in other formats, such as knockout tournament and round robin tournaments.

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A set of sporting programs such as warm-up, stretching, protective and suitable equipment, appropriate surface as well as appropriate training, adequate recovery, psychology and nutrition have been designed as main components of injury prevention and rehabilitation (Brukner and Khan, 2003).

According to Van Mechelen, Hlobil & Kemper (1992); Van Mechelen (1997) & Hawkins (2001) the process of injury prevention can be considered in 4 stages: Firstly, the extent of injury must be identified and described. Secondly, the factors and mechanisms that play a part in the occurrence of injuries have to be identified. Thirdly, preventive strategies are implemented based on stage 1 and 2 and finally strategies are evaluated to see effectiveness.

According to various literatures (Hawkins & Fuller, 1999; Hawkins 2001) severity of sports injuries was described as minor, moderate, major and severe, depending on the time taken by the player to return to sport activity. Being involved in soccer in Ethiopia at both national and international level soccer players exposes to the risk of injury. Generally, this research was investigate the prevalence, types and perceived causes of commonly sustained soccer injuries in Ethiopian premier league.

1.2. STATEMENT OF THE PROBLEM

Injuries classified as strains, sprains, or contusions represented 69-81% of all injuries (Hawkins & Fuller, 1999; Hawkins 2001; & Rahnama, Reilly, & Lees, 2002). Others injuries, such as, fractures (relatively uncommon), dislocations, tendonitis, overuse injuries, and heat-related injuries, also occur in soccer but are not unique to soccer or is not seen in disproportionate

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numbers among soccer players American Academy of Pediatrics (AAP, 2000). The authors further specified that about half of the injuries arise from player to player contact, including tackling, being tackled, and collisions, and the remainder (non-contact) arise from actions such as running, shooting, turning and heading.

From these points of view, soccer injuries are very critical issue not only due to their permanent damage on players but also its psychological impact on other players' performance. As a result even though the researcher expects lots of research on this problem, the author practically observe scarcity of research conducted on this problem at Africa level in general and Ethiopia in particular. Hence, the purpose of this research is to fill gap that is observed on the stated problem. More specifically, the current research focuses on answering the following basic research questions.

- What is the prevalence of soccer injury 1st level premier league in Addis Ababa?
- What are the types of injuries are commonly occur?
- What are the perceived causes of these injuries?
- Do the players' age has its own role in the occurrence of injury?
- What is the frequency of injury more occurred on training or on competition?
- In which mechanisms have players were commonly injured?
- In which time of training or competition within 90 minutes the highest injury was repetitively occurred?
- Do the players use proper protective equipment during training and competition?
- In which field has players mostly face an injury, away or home field?

1.3. OBJECTIVES

1.3.1. General objectives

The general objective of this research is to investigate the prevalence, types and perceived causes of soccer injuries and mechanisms in which injuries will be minimized in Ethiopia premier league of soccer teams.

1.3.2. Specific objectives

The specific objectives are:

1. To assess the prevalence of common soccer injury 1st premier league of Ethiopia.
2. To assess the most common types of injury.
3. To assess the perceived cause of these injuries.
4. To assess In which mechanisms have players were commonly injured.

1.4. Significance

This study was describing the extent of injury and identifying factors and mechanisms that play a part in occurrence of injuries at Ethiopian premier league. Also it will give information on how to solve the problems that face the Ethiopian national team and premier league members. This study also believed to open ways for other researchers who are interested up on the issues raised.

1.5. Delimitation

To be cost and time effective, the student researcher has delimited the research area on identifying common soccer injuries in the case of some selected Addis Ababa 1st division soccer clubs. Participant was players, injured players and clubs medical practitioners.

1.6. Limitation

The study, however, was not without limitations. One limitation was that the survey was limited only on three male premier league clubs due to time and financial constraints. This undoubtedly affects the generalization of the results to other clubs. In the course of conducting the study a number of limiting factors encountered, respondents had the tendency to hide in providing the exact response as what they were existing and attempt to keep secret of their clubs. In addition, the scarcity of time to assess different views was also one limitation.

1.7. Operational definition

Injury: an incident occurring during a training session or a match and causing a soccer player to miss the competition and are simply body tell that something wrong was happening.

Soccer injuries are generally defined as either cumulative (overuse) or acute (traumatic) injuries. Soccer injuries to the upper extremities usually occur from falling on an outstretched arm or from player-to-player contact. These conditions include wrist sprains, wrist fractures, and shoulder dislocations.

CHAPTER TWO

REVIEW LITRATURE

2.1. PREVALENCE AND INCIDENCE OF SOCCER INJURIES

A number of studies concerning the prevalence and incidence of soccer injuries have been reviewed. Literature defines prevalence and incidence of soccer injuries in different ways. Incidence may be referred to as the number of injuries per number of training hours or the number of injuries per player per season / tournament. When assessing injury incidence and prevalence, it also becomes important to define an injury. A study conducted by Dvorak (2000) on 588 players from Germany, France, and the Czech Republic followed weekly over the course of one year by unbiased physicians, revealed an incidence of 4.3 injuries per 1000 training hours, 20.3 injuries per 1000 competitive match hours, and 7.3 injuries per 1000 hours of total exposure. The author defined injury as one causing the injured player to seek medical attention and related rehabilitation and miss training and competitive matches.

2.2. AREAS, NATURE, MECHANISMS AND SEVERITY OF INJURIES

2.2.1. Area of Injuries

Most studies reviewed under prevalence and incidence took into consideration causes, types and nature of soccer injuries. As Rahnama, Reilly, and Lees (2002) reported that a great deal of research on soccer injuries has been carried out in England and Iceland. A number of facts about their nature, causative mechanisms, and characteristics have been established. Lower extremity injuries represent 60-87% of the total injuries incurred by soccer players of both sexes (AAP,

2000; Hawkins, 2001) the knee was the most affected joint followed by the ankle joint. However, according to Frantz (1999) & Hawkins & Fuller (1999) the most affected joint was the ankle (26.6 and 17% respectively) followed by the knee (21.7 and 14% respectively).

2.2.2. Nature of Injuries

Soccer injuries are generally defined as either cumulative (overuse) or acute (traumatic) injuries. Overuse injuries occur over time due to stress on the muscles, joints and soft tissues without proper time for healing. They begin as a small, nagging ache or pain, and can grow into a debilitating injury if they aren't treated early. Acute or traumatic injuries occur due to a sudden force, or impact, and can be quite dramatic Include: Ankle Sprains the most common of all ankle injuries, an ankle sprain occurs when there is a stretching and tearing of ligaments surrounding the ankle joint. Achilles tendonitis is a chronic injury that occurs primarily from overuse and it felt as pain in back of the ankle.

Regarding the type of injuries Hawkins et al. (2001) found that most of the thigh injuries were muscular strains (81%). Of the knee injuries, 39% were ligament sprains, 75% of which were to the medial collateral ligament. Injuries to the ankle were predominantly ligament sprains (67%), over 80% being to the lateral ligament complex. The injuries classified as strains, sprains, or contusions represented 69-81% of all injuries (Hawkins & Fuller, 1999; Hawkins et al., 2001; & Rahnama et al., 2002). Others injuries, such as, fractures (relatively uncommon), dislocations, tendonitis, overuse injuries, and heat-related injuries, also occur in soccer but are not unique to soccer or is not seen in disproportionate numbers among soccer players (AAP, 2000). In the

study conducted by Frantz et al. (1999) bruises and joint swelling or inflammation were recorded among the commonest types of soccer injuries.

2.2.3. Severity of Injury

Literature defines severity of injury in various ways. The injury severity was defined as slight, minor, moderate or major, depending on the length of time needed for recovery, with over 65% being minor, 25% moderate and 10% serious (Rahnama, 2002, & Hawkins, 2001). The time for recovery being two to three days for slight, four to seven days for minor, one to four weeks for moderate, and more than four weeks for major or serious injuries (Hawkins & Fuller, 1999; Hawkins et al., 2001 & Woods, 2002). They further stated that, because the season was 22 weeks long, average injury severity could underestimate the average recovery time for serious injuries, for example, an anterior cruciate ligament (ACL) injury, which usually requires reconstruction and prevents a player from playing for 6 - 10 months. However Van Mechelen (1992) & Van Mechelen (1997) recommended that the severity of sports injuries be described on the basis of six criteria: nature of injury, duration and nature of the treatment, sporting time lost, work time lost, permanent damage, and cost.

2.2.4. Mechanism of Injury

Mechanisms of injury in soccer are commonly divided into either contact or non-contact (Krosshaug et al., 2005). Contact injuries may further be subdivided into: direct (a direct blow to the lower extremity of the injured player; thigh knee or lower leg), or indirect (where the injured player is held, hit or pushed in a body region other than the lower extremity (Krosshaug et al., 2005). The authors further specified that about half of the injuries arise from player to player contact, including tackling, being tackled, and collisions, and the remainder (non-contact) arise

from actions such as running, shooting, turning and heading. In addition to that, the role of muscle fatigue has been identified as a factor in injury causation, and it is believed that this can partly explain the greater injury incidence observed in the second half of competitive matches, especially during the final 15 minutes (Hawkins et al., 2001).

2.3 TYPES AND CAUSES OF SOCCER INJURIES

Soccer injuries to the upper extremities usually occur from falling on an outstretched arm or from player-to-player contact. These conditions include wrist sprains, wrist fractures, and shoulder dislocations. Sprains and strains are the most common lower extremity injuries. Studies have shown that the majority of football injuries occur in the lower extremities, especially affecting the ankle, knee, hamstrings and groin. Ankle and knee sprains and hamstring and groin strains may leave athletes out of play for several weeks. The severity of these injuries varies. Cartilage tears and anterior cruciate ligament (ACL) sprains in the knee are some of the more common injuries that may require surgery. Other injuries include fractures and contusions from direct blows to the body (Steven Subotnick, 1980).

2.3.1. Ankle Injuries

The ankle joint is a simple hinge, but its structure is fairly complex. It is composed of the lower ends of the two shin bones, the tibia and fibula, which form a dome over the talus bone the talus in turn, sits over the heel-bone (calcaneous). Sideways movement is prevented by the bone design and ligaments.

Ankles, besides giving you ability to adapt to uneven surfaces also produce propulsion and absorb shock. If you have a stiff ankle from injury or from over-taping for a sport, your shin bones can be damaged by unabsorbed shock, as can your foot or even low back (Steven Subotnick ,1980).

2.3.1.1. Ankle Strains

Is an injury between muscle and tendon or tendon or tendon and bone. It often occurs in conjunction with a sprain is a potentially more severe injury which wrenches the ankle. Three grades of ankle strain.

1. Over- stretching of the tendon or muscle
2. Partial tears of a tendon or muscle
3. Complete tear the tendon or muscle, this requires a cast or surgery.

Repeated strains and sprains: - a tear in the ligaments (connecting tissues between bones, not properly treated may leave you with chronic instability and weakness of the ankle which causes you to twist ankles frequently. Walking or running on uneven ground is especially dangerous for you. Repeated injuries damage a joint and cause arthritis.

Ankle sprain with associated tendon strain, as Sheldon Roberts, would occur on the old soccer players (Steven Subotnick ,1980).

2.3.1.2. Ankle Sprains

The most common of all ankle injuries, an ankle sprain occurs when there is a stretching and tearing of ligaments surrounding the ankle joint. There are two types of ankle sprains (and strains), depending on whether you twist the inwards (inversion) or outwards (aversion).

Inversion:-is common ankle injury, joints turning inwards inversion sprains tear the outside ligaments of your ankle. The most likely cause of twisting is stepping unexpectedly on an object like stone or rock.

Aversion: - is another type of ankle injury is an out ward turning of the ankle. It usually occurs on slippery surfaces, an in high speed activities. If the feet are flat there is tendency of aversion sprain. First aid treatment for injuries to the legs, ankles, and feet is summed up by short- hand term RICE (Steven Subotnick ,1980).

2.3.2. Lower Leg Injuries

The two bones of the lower leg Tibial and Fibula. The tibia, the main weight bearing bone, is the hard ridge you feel in front of the leg. It has little protective muscle or fat covering and is vulnerable to trauma and to overuse injuries like stress fractures. In the back of the leg, the largest muscle of the calf (gastrocnemius) lies just behind the knee and run down the back of the leg (Steven Subotnick ,1980).

There are several important tendons in lower leg. There are hamstring tendons- those hard cords you feel in the back of the knee-and adductors, which pull the thigh-bone in ward. The patellar tendon at the end of the thigh muscle (quadriceps) straightens the knee, and is attached to the bump on the knee. The Achilles tendon is very thick and power full. It is connected to the middle

of the back of the heel and separated from upper part of bone by a small sac of fluid which allows friction- free movement (Steven Subotnick , 1980).

Many of foot movement involve coordinated action between different groups of tendons. Lower leg tendons are protected by an enclosing sac of synovial fluid to ensure free movement. The lower leg can be injured in the four main areas; The front (anterior), the back (posterior), and the inner (medial) and outer (lateral) sides (Steven Subotnick ,1980).

2.3.3. Knee Injuries

The knee is one of the largest joints in the body, and one of the biggest problems for runners and athletes. It is extremely vulnerable to traumatic injuries as well as to overuse injuries. About 30 percent of all running injuries occur in this joint. The knee consists of three major components: Thigh bone, shin bone and knee-cap. The knee cap (patella) a loose bone formed in the lower end of the quadriceps muscle group, sits atop the juncture of the thigh and shin bone. It slides over the thigh bone condyle during knee movements. Between the knee cap and the thigh bone is a fluid filled gap (Steven Subotnick ,1980).

Another fluid filled gap exists between the thigh and the shin bones. This gap actually consists of two compartments, one on the inner side and one on the outer side of the knee. The inner gap called the medial meniscus; the outer gap is the lateral meniscus. The two meniscus are rubbery, elastic pads that buffer the junction of the two joint surfaces (Steven Subotnick ,1980). A special type of cartilage called articular is found only in bone ends that meet to form moving joints and covers the bone surfaces in the knee. Articular cartilage is a functional part of the bone structure

and is different from the knee cartilage (menisci). Articular cartilage is like Teflon once damaged it doesn't repair itself. The cartilage will never be as good as it originally was, even with surgery. The joint capsule, the covering which encloses the joint, is lined with another kind of lubricating (synovial) membrane (Steven Subotnick ,1980).

The ligaments and tendons play a big part in the control and stability of the knee. When you walk or run, the knee stabilized by strong ligaments attached on either side. Ligaments in the back protect the knee, but do not function as major stabilizers. Within the knee joint two strong ligaments (the cruciates), cross-cross each other to hold joint together. Once the cruciates ligaments are injured the knee is unstable and will not support weight. The patellar tendon is the only tendon on the front of the knee there are many more tendons on either side of the lower part of the knee (Steven Subotnick, 1980).

2.3.3.1. Knee Cap Dislocation

In severe knee-cap dislocation, the pain severe under such circumstances wrap the knee in an ice towel and go to hospital and keeping knee absolutely still. Sometimes, the knee- cap slips out of place on recurring basis; it may slip out as you run or as you run up stairs (Steven Subotnick, 1980).

2.3.4. Groin Injury

Any pain in the groin should be thoroughly checked by doctor since there are a multitude of possible causes. Injuries in the groin area are sometimes a result of slipping when running on slippery roads, straining tendons and muscle as you try to keep your balance. Another possibility for cause of pain in the groin is excessive running on hard surfaces with poorly cushioned shoes.

Repetitive stress in running or cycling can also cause inflammation of the front the pubis (osteitis pubis) which occurs commonly in male athletes aged thirty to fort (Steven Subotnick ,1980).

2.3.4.1. Groin Strain

A groin strain is different than osteitis pubis because the damage involves muscles, ligaments and tendons, instead of cartilage. The groin can be strained from a sever over stretching in single sudden injury, or from accumulation of stress. You may have been running on wet and slippery ground or slipped on a patch of ice and contracted your groin muscles to stop yourself from falling. Athletes who play soccer and foot ball or compete in track and field events can pull a groin muscle. Sprinters, as well as marathoners also are at risk for groin strain. For immediate relief of the pain of groin strain, apply ice packs or heating pad, and see doctor (James M. Booher and Garry A. Thibodeav, 1994).

2.3.5. Achilles Tendonitis

Achilles tendonitis is a common injury in runners and other athletes who run often during sports. The Achilles tendon is the largest and most vulnerable tendon in the body. It joins the gastronomies (calf) and the soleus muscles of the lower leg to heel of the foot. The gastronomies muscle crosses the knee, the ankle, and the subtler joints and can create stress and tension in the Achilles tendon. Tendons are strong, but not very flexible so they can only so far before they get inflamed and tear or rupture. Achilles tendonitis is a chronic injury that occurs primarily from overuse. It tends to come on gradually over time until pain is constant and exercise or activity too painful to continue. The biggest cause of chronic Achilles tendonitis is ignoring early warning signs and pushing through pain. If the Achilles tendon is sore, or aches, you need to pay attention and rest it immediately (James M. Booher and Garry A. Thibodeav, 1994).

2.3.6. Hamstring Injury:

Hamstring injuries, such as pulls, tears and strains, are common among athletes who play sports that require powerful accelerations, decelerations or lots of running. The hamstring muscles run down the back of the leg from the pelvis to the bones of the lower leg. The three specific muscles that make up the hamstrings are the biceps femurs, semi tendinosus and semi membranous. Together these powerful knee flexors are known as the hamstring muscle group. An injury to any of these muscles can range from minor strains, a pulled muscle or even a total rupture of the muscle (James M. Booher and Garry A. Thibodeav, 1994).

Common Causes of Hamstring Injuries Hamstring pulls or strains often occur during an eccentric contraction of the hamstring muscle group as an athlete is running. Just before the foot hits the ground, the hamstrings will contract to slow the forward motion of the lower leg (tibia and foot). Less commonly, a hamstring injury is the result of a direct blow to the muscle from another player or being hit with a ball. Some of the factors which may contribute to a hamstring injury includes: doing too much, too push beyond your limits, tight hip flexors, weak lutes [butt muscle], poor flexibility, poor muscle strength, and muscle imbalance between the quadriceps and hamstring muscle groups, muscle fatigue that leads to over exertion, improper or no warm-up (James M. Booher and Garry A. Thibodeav,1994).

2.3.7. Hip Pain Overview

The hip joint attaches the leg to the torso of the body. In the hip joint, the head of the thighbone (femur) swivels in a socket, called the acetabulum that is made up of pelvic bones. While many

causes of hip pain can arise from the joint itself, there are numerous structures surrounding the hip that can also be the source of pain (Lewin, 1989).

2.3.8. Muscle Strains

In a survey of injuries at a professional football club, it was reported that 26.8% of all injuries involved muscles and tendons (Lewin, 1989). Muscles and their tendon attachments combine to form what are known as musculo- tendinous units. These musculo-tendinous units provide the force which is necessary for movement. Football is a dynamic sport which requires explosive movements (such as sprinting, jumping, shooting and heading the ball) with large forces generated by muscles and tendons. It is easy to see why over a quarter of all injuries affect these structures (Lewin, 1989).

Muscle strains can also be divided into three grades according to the severity of injury (Ekstrand & Gillquist, 1983a): Mild (first degree): a tear of a few muscle fibers with minor swelling and discomfort and with no, or minimal, loss of strength and restriction of movements.

Moderate (second degree): greater damage of muscle with a clear loss of strength.

Severe (third degree): a tear extending across the whole cross section of the muscle resulting in a lack of muscle function. It is generally agreed by clinicians that muscle strains occur when a muscle is either stretched passively or activated during stretch (Zarins and Ciullo, 1983).

A muscle strain is damage caused by over-stretching of muscle tissue. In football, this is thought to occur most frequently when movements such as sprinting, stretching for the ball or kicking the

ball are carried out in an un coordinated manner. The muscle tissue becomes overloaded and reaches a breaking point where a tear or partial tear occurs. The player will experience pain that will persist if he or she attempts to stretch or contract the muscle. Depending on their severity, muscle strains are categorized into Grades 1, 2 or 3: according to (Zarins and Ciullo, 1983).

- **Grade1strain**

There is damage to individual muscle fibres (less than 5% of fibres). This is a mild strain which requires 2 to 3 weeks rest.

- **Grade2strain**

There is more extensive damage, with more muscle fibres involved, but the muscle is not completely ruptured. The rest period required is usually between 3 and 6 weeks.

- **Grade3strain**

this is a complete rupture of a muscle. In a sports person this will usually require surgery to repair the muscle. The rehabilitation time is around 3 months.

All muscle strains should be rested and allowed to heal. If the patient continues to play, the condition will worsen. If ignored, a grade one strain has the potential to become a grade two strain or even a complete rupture (Zarins, B. and Ciullo, J.V,1983).

2.3.8.1. Common Muscle Injuries

Adductor muscles - these are commonly injured during football because they are put under a great deal of stress during turning activities. They are also very active during side foot passing.

Hip flexor muscles - these are the kicking muscles at the front of the hip which are very active during shooting and striking a ball (Zarins, B. and Ciullo, J.V.1983).

Quadriceps muscles - these powerful muscles of the thigh are responsible for straightening the knee and are active during running, kicking and jumping.

Hamstring muscles - these muscles are located at the back of the thigh and are most active during running, particularly sprinting, which is when they are most often injured (Zarins, B. and Ciullo, J.V.1983).

2.4. FACTORS INFLUENCING SOCCER INJURIES

Understanding the individual risk factors for injury in soccer is an important basis for the development of preventive measures (Arnason, Sigurdsson, Gudmundsson, Holme, Engebretsen, & Bahr, 2004). According to Hackney (1994) sports injuries are the result of both intrinsic and extrinsic factors, and doctors should be able to recognize the types of injuries associated with various sports. Intrinsic factors, also called internal athlete-related risk factors, (Bahr & Holme, 2003) include the age, sex, weight, strength, and flexibility of the athlete. Extrinsic factors, also called external environmental risk factors (Bahr & Holme, 2003) include training methods, the surface upon which the sport is played, equipment such as footwear and padding, and environmental factors such as the weather. In addition to these, McGrath, A. and Ozanne-Smith, J. (1997) added pre-season conditioning whereas Rahnema et al. (2002), in their study, found that playing actions, zone of pitch, periods of game were also among extrinsic factors influencing injuries.

2.4.1. Age

Aiming at the analysis of potential risk factors for muscle strain injury by means of data obtained prospectively from an injury surveillance system, Orchard (2001) conducted a cohort study

involving players and matches in the AFL between 1992 and 1999. In this study, age (when considered independently of past history) was found to be a risk factor for hamstring and calf muscle strains but not for quadriceps muscle strains. As Orchard (2001) stated that in older players while quadriceps muscle injuries are common in the dominant leg and are related to kicking in Australian football. In their study, Morgan & Oberlander (2001) reported on the role that age may have played in injury rates and severity, players have been divided into three age groups: those fewer than 25 years, those 25 to 30 years and those over 30 years. The results of this study revealed that player age did not play a role in the occurrence or severity of injury.

2.4.2. Facilities and Equipments of Football Training

Different pieces of equipments are needed during football training. In line with this idea, McGrath & Ozanne-Smith (1997), states that, “You may find it convenient to own your own equipments. Regardless of your situation, basic sources equipment will make teaching and coaching easier.” Therefore, to make the training session effective through the application of different technical-tactical skills it is mandatory to consider the basic training equipments. As a result, the following lists of materials are the most important parts for successful training (McGrath & Ozanne-Smith 1997).

2.4.2.1 Football Shoe

According to McGrath & Ozanne-Smith (1997), protective equipment such as shin pads and appropriate footwear were introduced in FIFA regulations as compulsory for both competition and training in 1990. Prior to FIFA regulations, the voluntary use of shin guards was limited. In the study concerning the evaluation of the effectiveness of shin guards in protecting against tibia

fracture in soccer players (Fransisco, Nightingale, Guilak, Glisson & Garret, 2000) the results have shown that shin guards provide significant protection from tibia fracture.

As McGrath & Ozanne-Smith (1997) explains that a typical football shoe is one which is made from leather and cut below the ankles and with a hard outsole to which studs are attached.

- Flat-soled shoes with no cleats or studs: are suitable on artificial turf and in locations the ground is hard.
- Molded cleats: are probably the most common shoes used in football/soccer and they are appropriate outdoors on grassy fields. The cleats are not removable.
- Screw-ins: are cleats shoes with removable and replaceable cleats. This shoe is appropriate for older players on very soft or wet fields.

2.4.2.2 Shin Guards

The shin guard is used to protect the lower leg from impact injuries. These injuries can range from sever to the minor bruises and scratches. The shin guard offers protection from some of these injuries. In relation to this idea McGrath & Ozanne-Smith (1997) describes that the shin guard can reduce the effect of bruising, glancing blows and scraping by the ground or an opponent's studs. It is unlikely to be effective against high energy direct blows which may lead to fracture. Nevertheless the shin guard provides an important protective function and its design and materials used in construction make it an important piece of equipment for the players.

2.4.3. Muscle flexibility

Muscular tightness is frequently postulated as an intrinsic risk factor for the development of muscle injury. In a prospective cohort study conducted by Witvrouw, Danneels, Asselman, D'Have & Cambier (2003), 146 male professional soccer players were examined before the 1999-2000 Belgian soccer competition. Players with a hamstring (N=31) or quadriceps (N=13) muscle injury were found to have significantly lower flexibility in these muscles before their injury compared to the uninjured group. No significant differences in muscle flexibility were found between players who sustained an adductor muscle injury (N=13) or calf muscle injury (N=10) and the injured group. The authors concluded that soccer players with an increased tightness of hamstring or quadriceps muscles have a statistically higher risk for subsequent musculoskeletal lesions. Their findings suggested that pre-season testing of flexibility of these muscles could identify soccer players at risk of developing muscle injuries.

Traditionally soccer is played on a rectangular field, not more than 68m wide and 105 m long with a predominantly grass surface, and less common a surface of sand, gravel or artificial turf. A player covers approximately 10 km of ground per game, of which 8-18% is at the highest individual speed and therefore suffers significant impact forces of two to three times his own body weight (McGrath & Ozanne-Smith, 1997). Therefore, the surface and the environmental surrounds are important factors to consider when reviewing the nature and incidence of soccer injuries (McGrath & Ozanne-Smith, 1997).

2.4.4. Fatigue and Aerobic Endurance Fatigue has been associated as a risk factor for injury, causing altered muscle recruitment patterns which may change the distribution of forces acting on muscular structures (Murphy et al., 2003). The temporal pattern of hamstring injuries during soccer match-play observed by Woods et al. (2004) further indicate increased risk of injury when fatigued. Also, as many of the injuries were sustained whilst running (57%), it was further suggested that any factor that may alter the complex neuromuscular coordination pattern that occurs during the running cycle may cause injury (Verrall et al., 2001). Fatigue towards the ends of each half of a soccer match, and increasing during the second half, may affect a number of potential aetiological factors for hamstring injury previously discussed. If the hamstring muscles become fatigued, both strength and flexibility of the unit may consequently be reduced (Agre, 1985). As Kraus (1959) reported that fatigued muscles relax more slowly and less completely than non-fatigued muscles, resulting in physiological contracture (shortening of the musculo-tendinous unit). Therefore, injury may occur as a consequence of the associated loss of acute flexibility or strength (Kraus, 1959). As Mair et al. (1996) furthermore observed reduced capacity of fatigued muscles to produce and absorb force before reaching the degree of stretch that causes injury. This may increase susceptibility to stretch injury in eccentric contractions, a common factor associated with hamstring strains (Stanton and Purdam, 1989; Hoskins and Pollard, 2005b). As well as physiological changes within a muscle, coordination, technique or concentration may also be affected when fatigued, which may predispose a player to injury (Croisier, 2004). Specifically, coordination of muscular contraction within the same muscle affected by fatigue may be involved in increased susceptibility to injury. Due to the dual innervation of the biceps femoris, fatigue could lead to asynchrony in the activation of the separate parts of the muscle and result in inefficiencies (Croisier, 2004). Alternatively,

proprioceptive acuity following fatigue could contribute to injury through deficient neuromuscular motor control and inappropriate muscular contraction (Hoskins and Pollard, 2005a). This may be observed as detrimental changes in technique, such as altered running technique following fatigue induced by repeated maximal sprints (Pinniger et al., 2000). In order to investigate fatigue as an a etioloical risk factor variable for injury in soccer, a form of aerobic fitness assessment is usually employed. In a prospective study following baseline assessment, Chomiak et al. (2000) identified poor physical condition to be a risk factor for all injuries, although specific injuries were not detailed. This finding supports the general agreement that lack of physical fitness is a risk factor for musculoskeletal injury (Neely, 1998). However, several studies have investigated this matter using military recruits rather than soccer players, or examined general injury risk factors as opposed to specific factors regarding hamstring strain injury. Additional research is therefore needed to substantiate and verify the claims of fatigue as a risk factor for hamstring strain injury, and investigate further its effects related to soccer-specific activities likely to evoke injury.

2.4.5. Warm up -Cool down

Adequate warm-up & pre-season conditioning

According to McGrath & Ozanne-Smith (1997) & Prentice (1999), programme such as physical fitness, a warm-up period of 15-20 minutes, stretching during cool-down, strengthening, endurance and power are imperative in pre-season conditioning for soccer players in order to cope with the requirements of competitions. Fatigued athletes have decreased skill performances, which can lead to injury (McGrath & Ozanne-Smith, 1997).

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The process which elicits the acute physiological changes that prepare the organism for strenuous physical performance is known as “warming up”. Warming up improves performance and prevents injury in vigorous activities by two essential means.

1st – rehearsal of the skill before competition commences, fixes in the athletes new muscular coordinating system the exact nature of the impending task. It also heightens his kinesthetic senses.

2nd The rise in body temperature facilitates the biomechanical reactions supplying energy for muscular contractions elevated body temperature also shortens the periods of muscular relaxations and aids in reducing stiffness. As a result of these two processes there is an improvement in accuracy, strength and speed of movement, and an increase in tissue elasticity which lessens the liability of injury .The value of warning up exercise to improve performance in endurance events (Laurence, 1958).

Do not cutting down the warm up or cool-down time, you risk more injury by cutting back on the warm-up. If you absolutely can't do the warm up, then do 10 minutes of medium to brisk walking before you start running. But be sure to finish the run with 9 minutes of stretching. If you don't do flexibility exercise, you're not eventually prepared for over stretching. Be aware that the longer you run, the tighter you are going to get, which limit the range of motion of the joints and Ligaments. Your stride will shorten, and your running will be less efficient.

The purpose of warm up- exercises is to prepare the body for the demands of running or playing a fast paced sport by raising the temperature and increase blood flow to the muscles. A good warm up provides:-

- Increased blood flow to muscles

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- Higher state of oxygen exchange between blood and muscles
- More oxygen pleased within muscles
- Higher metabolic rate
- Faster nerve impulse transmission
- Decreased muscle relaxation time following contraction
- Increased speed and force of muscle contraction
- Increased muscle elasticity
- Rehearsal effect (the body practices muscular patterns to be used later) (Laurence, 1958).

2.4.5.1 Cool –Down

Allowing heart beat to gradually lower to 120 beats per minutes or less helps prevent excessive pooling of blood in the lower extremities, reduces muscle soreness, and promotes faster removal of metabolic wastes such a lactic acid.

Stretching after a strenuous work out is essential for maintaining flexibility, and even important than warm up. All muscles perform better when stretched to 110 percent of their normal length.

(Carl E. Kiafs and Daniel D. Rnherm1977).

2.5. SPORTS NUTRITION

As expressed in Foundation Soccer Coaching Manual (2008), nutrition is an important part of any successful training program. Food is the fuel of athletic performance. Though the coach cannot control his/her athlete's food, rather he/she can guide them toward healthy eating. For this purpose, the coach should be acquainted with the basic of proper nutrition. In line with this view,

Foundation Soccer Coaching Manual (2008) states that, “success in sport is determined primarily by athletic ability and proper training; nutrition affects the athlete in many ways.

Nutrition is important for maintaining good health. A healthy athlete feels better, trains harder, recovers more quickly and is less susceptible to illness. So the coach can have a positive influence on his/her athlete’s attitude about nutrition as well as their eating habits. Young athletes, in particular, respect, admire and seek advice from their coaches.

Coaches often want to know exactly what constitutes a “balanced diet”. A balanced diet provides all the necessary nutrients and calories the body needs to function properly. These nutrients are carbohydrates, fats, proteins, vitamins, minerals and water. Just as there are many training strategies that achieve victory, there are a number of dietary patterns that provide good nutrition. Moreover, the Foundation Soccer Coaching Manual has expresses that most nutritionists agree that the nutritional guidelines developed to promote health also establish a good foundation for athletes who desire peak performance.

2.5.1. Calorie Requirements for Athletes

Calorie intake of athletes is different depending up on the type and level of physical activities (duration and intensity), and the age and body size. This indicates that the calorie intake and expenditure of athletes has a direct reaction with the type of activity they do, their body size and age. To strengthen this idea, Foundation Soccer Coaching Manual (2008) expresses that; calorie requirements vary greatly from person to person and are influenced by the level of physical

activity, body size and age. Therefore, it is impossible to establish a universal daily calorie requirement for athletes.

Some athletes have a hard time increasing their calorie intake because the volume of a larger meal causes them discomfort, especially if they are training soon after eating. Athletes juggling a heavy academic schedule with training and part-time job may have difficulty finding the time to eat. These athletes benefit from eating several small meals and snacks throughout the day.

2.5.1.1. Carbohydrate Intake

The athlete is often encouraged to eat dietary carbohydrates at special times, or in quantities greater than that, which would be provided in an everyday diet or dictated, by their appetite and hunger. The carbohydrate is used as fuel at onset of exercise at all intensities and is obligatory for the continuation of exercise at intensities above 50-60% of the subject's maximal oxygen uptake. Depletion of the muscle carbohydrate stores will impair exercise performance (Maughan, 2000). The main deficiencies in awareness of injury strategies for players were identified as: use of shin pads during training, carbohydrate intake before and after matches, cool downs after training and matches, and flexibility work. According to Hawkins and Fuller (1998a), these deficiencies were the indicators of a need for wider education of players in current injury prevention strategies.

The Official U.S. Youth Soccer Coaching Manual (2002) suggests that, "As a coach, parent, or athlete, you have to enough information about food and nutrition to create a good training diet. The training diet is the foundation for feeling on top of your game during practice or during a

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game.” During football/soccer training as well as during the match in order to persist in continuous training or game, players should take much amount of carbohydrate.

Since carbohydrates are immediate sources of energy, foods in players’ diet especially before training should be dominated by carbohydrate. Because, when players eat more carbohydrates, their glycogen level increases and stored in muscles and liver. As a result they can be sustained for long duration of training with enough amount of energy. In supporting this idea, the Official U.S. Youth Soccer Coaching Manual (2002) recommends: How much energy a player has at practice determines how much work can be done on the playing field or in a weight room. If inadequate carbohydrate is in the diet glycogen levels, the storage form of carbohydrate will be low and energy levels will be low. On the other hand, if glycogen levels are high because of a good food selection and appropriate timing of meals, energy reserve levels will increase.

So as to store enough amount of glycogen to be used as an immediate source of energy (fuel) during training or a much time, players should eat carbohydrate rich foods such as breads, pasta, rice and cereals. In addition to carbohydrate, protein should be given more emphasis while preparing or sharing athlete’s diet because, it has important nutrients which are used to repair body, and growth of tissues. In line with this idea, Foundation Soccer Coaching Manual (2008) has states: Protein is the major structural component of all the body tissues and is required for muscle growth and repair. Protein is not a significant energy source during rest or exercise. Although athletes have slightly higher protein requirements than non-athletes, athletes usually consume enough protein unless they are not eating enough calories. Protein requirement increase

when calorie intake is inadequate because the protein is used for energy rather than for muscle growth and repair.

Protein can be gained from both animals and plants. However, protein gained from animals has all the nine essential amino acids but not from plants. The major sources of proteins are meat, fish, egg, dairy products, beans, and grains.

Fat is used as the second source of energy next to carbohydrate. In addition to this fats used to protect different body organs (Foundation Soccer Coaching Manual 2008).

2.5.1.1.1. Pre-Training Diet

The two key nutrients important before exercise are water and carbohydrate. Examples of Carbohydrate-rich foods that can easily be eaten as an early morning, mid-morning, afternoon or early evening pre-exercise meal include.

- Raise blood sugar
- Protect glycogen stores
- Provide an immediate form of easy, accessible fuel.

In order to sustain for prolonged period of physical exercise (activity), players should eat much amount of carbohydrate foods than proteins and fats because carbohydrate is an immediate source of energy. In relation to this, Official U.S. Youth Soccer Coaching Manual (2002) expresses, in that the most important aspects of pre-competition meals are to elevate the body's carbohydrate stores, ensure hydration and yet provide satisfaction for the player.

However, while eating (taking) carbohydrate foods before training it is important to eat three hours before the training session. Moreover, he states that; soccer /football players should leave at list a 3-hour interval between a full meal and competition in order to minimize gastrointestinal problems such as nausea and a feeling of fullness.

According to the Official U.S. Youth Soccer Coaching Manual (2002) the two key nutrients important before training or competition are carbohydrate and water. More specifically, as sited in explains that; the meal should be high in carbohydrates, preferably complex carbohydrates such as bread, cereals, pasta, rice, potatoes, fruits and vegetables.

2.5.1.1.2. Post -Training Diet

The major considerations after competition are to replenish carbohydrate and fluid losses. As already mentioned, it is important to consume carbohydrates as soon as possible after exercise in order to achieve a quick and complete glycogen restoration. In this regard the Official U.S. Youth Soccer Coaching Manual (2002) indicates that, what is eaten after exercise determines how quickly the young athlete recovers and is able to perform either the next day or during a consecutive game. First carbohydrate rich foods eaten within the first two hours after intense physical activity restore glycogen, the body's storage form of carbohydrate.

The second nutrient to play attention after exercise is protein. By eating adequate protein after exercise young football/soccer players give themselves an advantage in two ways. First, they are eating appropriate nutrients (amino acids) to help repair the wear and tear on their muscle cells

and secondly, they are eating the nutrient that will promote growth of muscle cells. The combination of carbohydrate and protein after exercise is the key formula for optimal recovery along with adequate fluid.

2.5.2. Fluids and Their Importance

The Official U.S. Youth Soccer Coaching Manual (2002) states that, at a level of only 1-2% dehydration, a young football/soccer player will start to feel prematurely tired or fatigued. In addition to this, Foundation Soccer Coaching Manual (2008) explains that, dehydration, the loss of body water, impairs exercise performance and increase the risk of heat injury.

Furthermore, elucidates that minimal changes in body's water content can impair endurance performance. Without adequate fluid replacement, exercise tolerance shows a pronounced decrease during long term activity because of water loss through sweating.

Therefore, at rest players should drink adequate amount of water in order to control their body temperature during training, for eliminate of waste products from metabolism and for energy production. Moreover, the Official U.S. Youth Soccer Coaching Manual (2002) recommends that drinking before, during, and after a game of football/soccer as follows:

- Before a training session, drink 2 cups of fluid one hour prior to playing.
- During a training session, make an effort to drink 0.5 cup of fluid every 15-20 minutes of training or play time.
- After training or at the end of the training session, drink immediately and often until urine color is very light yellow to clear.

2.5.3. Vitamins and Minerals

As indicated in the Official U.S. Youth Soccer Coaching Manual (2002) Vitamins and Minerals do not provide energy. Carbohydrates, proteins, and fats are the energy nutrients. But, vitamins and minerals play key roles in helping the body breakdown carbohydrates, proteins, and fats for energy and build other body structures.

CHAPTER THREE

METHODOLOGY

3.1 Study Design

In order to investigate the Prevalence, types and perceived cause of soccer injuries of male Ethiopia premier league a cross sectional design was used. The cross-sectional is appropriate for this study, because it was conducted for a very short period of time on limited number of participants from different age groups.

3.2 study Area

The study was conducted in Addis Ababa between Januarys to June 2014.

3.3 Study Population

According to a report from Ethiopian Foot Ball Federation organization, 14 male 1st division premier league soccer teams were registered in Ethiopian foot ball federation in 2006 EC. Each team registered 30 players at the beginning of each champion season Due to homogeneous organization of all clubs the researcher focused on three clubs, namely St.george sport club, Muger sport club and Hawasa kenema sport clubs.

3.4. Participants, Sample size and Sample Techniques

73 soccer players from three clubs using Krejice & Morgan sample size determination method, six injured players and 3 medical practitioners from those 3 premier league clubs were the participants of the study. A stratified sampling technique was used to select soccer players. To select medical team practitioners and injured players purposive technique was used.

Table 1: Number of participants by players' position

No	Strata	Number of sample
1	Goal keeper	9
2	Defense	24
3	Mid fielder	25
4	Attackers	15

3.5. Instrument for Data Collection

The nature of the present studies was both qualitative and quantitative techniques. Hence, two types of instruments (questionnaire and interview) were used in this research. First, questionnaire was used to collect the data from all players. Next, in-depth interview was used for collecting data from injured players and medical practitioners.

3.6. Pilot Study

A pilot study was carried out to assess whether the participants easily understood the question that were asked on the final research and also how long it would take to complete the questionnaires. This pilot study was conducted on Sebeta Kenema's Football Club Players , one team medical practitioner and two injured players. Due to shortage of time, the researcher took 20 participants for pilot study from soccer players and two injured players and one team medical practitioner due to low number of team medical practitioners available. Based on the result of the pilot study, some questionnaires were modified and some was avoided.

3.7. Data Collection Procedure

First, questionnaires were administered for these players to collect data on the stated topic. Next, in depth interview was made injured players and with more experienced medical practitioners to collect detail information.

3.8. Data Analysis

Data collected using the above instruments was partly quantitative and partly qualitative. Hence, to analysis the prevalence, types and perceived cause of injured players rate of percentage and thematic analysis technique were used.

3.9. Ethical Consideration

McNamora (1994) identifies five ethical concerns to be considered while conducting this type of research. These are voluntary participation, no harm to respondents, anonymity and confidentiality, identifying purpose and reporting.

CHAPTER FOUR

RESULTS

The objective of the study was to investigate the prevalence, types and perceived causes of soccer injuries and mechanisms in which injuries will be minimized in Ethiopia premier league of soccer teams. In connection to these 73 players, 3 medical practitioners and 6 injured players were taken for the study. Below Table 2 presents the socio-demographic characteristics of respondents. Medical professionals were also taken for the study. Only 35.71 % are BA holders and 14.28 % are MA holders. The rest are diploma and certificate holders. All of the professionals had five years and above experiences.

Table 2: Socio-demographic characteristics of players across Age, Experience and Position

Item	Alternatives	No of respondent	percentage
Age	17-20	7	9.58
	21-24	46	63.01
	25-28	11	15.06
	29 and above	9	12.32
Experience	1-3	16	21.91
	4-6	28	38.35
	7-9	16	21.91
	10-12	13	17.80
	13 and above	2	2.73
Position	Goal keeper	9	12.32
	Defense	24	32.87
	Mid-fielder	25	34.24
	Fore ward	15	20.54

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As indicated in table 2 above, most of the sampled players (46, 61%) were aged between 21—24 while least number of players (7, 10%) were aged between 17—20. Regarding playing experience at premier league, the highest number of experiences (28, 38%) was found to be between 4—6 years whereas the least experience (2, 3%) was found to be 13 years and above.

With respect to the frequencies of injury occurring on training and competition, frequencies of injuries on training (69, 94.52%) is greater than the injury occurring on competition (59, 80.82%). Four of the interviewed injured players also said that they got the injury on training while two players replied on competition.

Table 3: Number of injuries occurred during training and competition

Injuries occurred	N	%
On training	69	94.52
On competition	59	80.82

However, the level of injuries occurring on competition and trainings were different. As indicated in table 4 below 19 (26%) and 21 (29%) of players had a minor injury on competition and training respectively. Besides 27(37%) and 32(44%) of players had a moderate injury on competition and training respectively. On the other hand, 11(15.06%) and 12(16.43) of players had a major injury on competition and training respectively. Moreover 2(2.73%) and 4(5.47%) of the players had severe injury on competition and training respectively. Whereas, 4 (5.47%) players on training and 14 (19.17%) players on competition were not injured at all. In general, this study revealed that the most levels of injuries were in moderate levels of injuries.

Table 4: Level of injuries that occurred during training and on competition

Level of injuries	On competition		On training	
	Frequency of injuries		Frequency of injuries	
	N	%	N	%
Minor	19	26.02	21	28.76
Moderate	27	36.98	32	43.83
Major	11	15.06	12	16.43
Severe	2	2.73	4	5.47
No injury	14	19.17	4	5.47

With respect to the frequencies of injuries in away and home matches, as indicated in table 5 incidence of injury was greater in away match (38, 52.05%) than home matches (35, 47.94%). Also, the majority of injured interviewed players also said they got more injury at away field (Home field).

Table 5: Percentage of injuries in away and home games

	Frequency of injury	
	N	%
Away injuries	38	52.05
Home injuries	35	47.94

According to players, concerning injured body parts or prevalence ,table 6 indicate the most affected part were the lower extremities Groin (29, 39.72%) followed by the Ankle (23, 31.50%), toe (11, 14.66%), knee (6, 8%) and trunk (4,5.33%). Similarly the medical practitioners also

mentioned that the common injuries are Groin, ankle and toe. Also the interviewed injured players said that most of the common injuries were groin, ankle, toe and knee.

Table 6: Percentages of injured body parts

Injured body part	Injury frequency	Percentage
Groin	29	39.72%
Ankle	23	31.50%
Toe	11	14.66%
Knee	6	8%
Trunk	4	5.33%

Regarding on mechanisms of sustained injuries, Table 7 below lists the mechanisms by which players were commonly injured during soccer training and match competition. The table presents the most common risk factors for injuries on training were tackled (33, 42.2 %) followed by collusion (24, 32.87 %), heading (5, 6.84 %), landing (4, 5.47 %), overuse, shooting and jumping respectively. Whereas the most frequently reported risk factors for injury on competition were tackled (30,41.09%), followed by collusion (22, 30.13 %) ,heading (2,2.73%), landing (2,2.73 %) , overuse, shooting and jumping respectively.

Table 7: Training and competitive mechanisms of soccer injuries

Mechanisms	Training injuries		Competitive injuries %	
	N	%	N	%
Tackled	33	42.20	30	41.09
Collision	24	32.87	22	30.13
Heading	5	6.84	2	2.73
Landing	4	5.47	2	2.73
Over use	1	1.36	1	1.36
Shooting	1	1.36	1	1.36
Jumping	1	1.36	1	1.36
Running	0	0	0	0
Turning	0	0	0	0

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As table 8 below shows the tackle of an opponent player was the main reason for players' injury (38, 52.05 %). The second one was the inconvenience of the training and competition field (25, 34.24 %) and the third was overload of the training (7, 9.58%). The training field, inappropriate playing shoes and tackled from an opponent player were the common reasons for the injuries as perceived by the injured players. As to the medical practitioners on the main causes of injuries the football field (especially training field), lack of an appropriate shoes, tackled from an opponent players and not using of protective equipment were mentioned.

Table 8: Respondents of Perceived reasons for players' injury

Reasons	Respond given by players	
	N	%
Tackle of an opponent player	38	52.05
In convenience of the field	25	34.24
Training burden/overload	7	9.58
Lenience of the referee	3	4.10

Regarding time of injury during competition ,table 9 indicate the highest injury was reported during the last end of playing time (76-90 minutes)34.24% and (61-75 minutes)31.50% and the least was reported at the beginning of the playing time. All of the injured interviewed players also said that they got the injury toward the end of the training or match.

Table 9: Time of injury during competition

Time	Number of injury	%
0---15	2	2.73
16---30	0	0
31---45	8	10.95
46---60	11	15.06
61---75	23	31.50
76---90	25	34.24

N.B Four players were not injured at all (5.47 %)

As table 10 shows 34 (46.57%) players were absent from training and competition for 2—3 days whereas 24(32.87%) of players did not miss the training at all the games and trainings.

Table 10: Consequence of injury in player’s attendance in training and competition

Option	N	%
2---3 days	34	46.57
4---7 days	11	15.05
1---4 weeks	2	2.73
Above 4 week	2	2.73
Not miss all	24	32.87

III. PROTECTIVE EQUIPMENT

During training, as table 11 shows, 48(65.7%), 45(61.64%) and 8 (10.95%) players reported that they never wear shin guards, ankle protection and appropriate foot wear respectively whereas only 11 (15.5%) and 11(15.5%) players reported that they wear shin guards and ankle protection respectively. Majority of the injured interviewed players said that they never used ankle protection and shin guards.

Table 11: Players protective equipment during training

	Always		Very often		Often		Sometimes		Never	
	N	%	N	%	N	%	N	%	N	%
Wear shin guard?	0	0	3	4.10	8	10.95	14	19.17	48	65.75
Wear-ankle protection	0	0	5	6.84	6	8.21	17	23.28	45	61.64
Wear appropriate foot wear(Shoe)	5	6.84	7	9.58	18	24.65	25	34.24	8	10.95

During competition, as table 11 showed all of the players (73,100%) wear shin guard and ankle protection during competition. Similarly, most of the players do wear appropriate foot wear (Shoe).

Table 12: Players protective equipment during competition

	Always		Very often		Often		Sometimes		Never	
	N	%	N	%	N	%	N	%	N	%
Wear, shin guard and ankle protection	73	100	0	0	0	0	0	0	0	0
Wear appropriate foot wear(Shoe)	61	83.56	8	10.95	4	5.47	0	0	0	0

IV. REASONS FOR PERSONAL INJURIES THE FOLLOWING RESPONSE OBTAINED FROM THE PLAYERS

During training, as table 13 indicates, all of the players (73, 100%) properly warm up either always or very often and nearly half of the players (36, 49.31% %) reported that they do warm up for 20 minutes and above, 29 (39.72%) reported that they do warm up for 20 minutes and 8 (10.95%) players said that they do warm up for 15 minutes. Most of the players also reported that (69,96.52%) properly do cool down activity always and some said very often. 35(47.94%) players also reported that they do stretching exercise as a group for a day during training , 24 (32.87%) players said that they did not do stretching exercise as a group during training and the rest said that either for two ,three or above three days.

Table 13: Players experience in warming up and cooling down

	Always		Very often		Often		Sometimes		Never	
	N	%	N	%	N	%	N	%	N	%
Would you properly warm up before training	64		9		0		0		0	
Would you take cool down activity after training ?	69	96.52	4	5.48	0		0		0	0
Would you do cool down activity after competition ?	0		3	4.1	4	5.47	19	26.02	47	64.38

V. CONCERNING NUTRITIONAL CONSUMPTION

Concerning nutritional consumption, 65(89.05%) players said that they consumed carbohydrate always and the rest 8(10.95%) players said that they took carbohydrate very often. With respect to water consumption 25(34.24%) players said that they drink water always during training/competition, 24(32.87%) players said that they drink water very often during training/competition, 15(20.54%) players said that they often drink water during training/competition and 9(12.32%) players said that they drink water sometimes during training/competition. Most of the players (51, 70%) said that their coaches did not give them any clarification on what to eat or drink.

Table 14: Players nutritional consumption

Food consumption	Always		Very often		Often		Sometimes		Never	
	N	%	N	%	N	%	N	%	N	%
Carbohydrates consumption	65	89.05	8	10.95						
Water intake of players	25	34.24	2	32.87	1	20.5	9	12.32	0	0
			4		5	4				

CHAPTER FIVE

DISCUSSIONS

The aim of this study was to identify the prevalence, types and perceived causes of common soccer injuries in the case of some selected male players Ethiopian premier league. This chapter discusses frequency of injury occurred, prevalence of injury or injured body part mechanisms of sustained injury, perceived causes of injury and level of injuries.

As indicated in table 2 most of the sampled players (61%) were aged between 21-24, while least number of players (10%) were aged 17-19. The majority of them were aged between 21-24 years old. Orchard (2001) concluded his study by mentioning that calf and hamstring muscle injuries are common in older players while quadriceps muscle injuries are common in dominant leg. Morgan and Oberlander (2001) reported on the role that age may have played in injury rates and severity; players have been divided in to three age groups, those below 25 years, those 25-30 years, and those over 30 years. The result of this study revealed that the age ranges of Ethiopian premier league players are in younger age groups. This show that age did not play a role in the occurrence of injury.

With respect to the frequency of injury occurred on training and competition, the frequency of injuries on training is greater than the injuries occurring on competition. Four of the interviewed players also said that they got the injury on training, while two players replied on competition. Wong and Hong (2005) in their review paper, indicates that the injury rate during competition is higher than during training. This result is not consistent with the result of the studies of Wong and Hong (2005). Therefore, I have come across the following facts. During the training hours,

each player wants to be selected. Even those who are on the bench works so hard so as to be elected by their coach. This is because of an eagerness to be selected and to become regular player.

As indicated level of injuries occurrence during training and competition table 4 shows that Moderate injuries, Minor injuries, Major injuries, severe injuries, were happen during competition. Also level of injuries during training were Moderate, Minor, Major and severe. The injury was classified Minor, Moderate, and Major and severe depending on the length of time needed for recovery .This show that the most levels of injuries were more moderate than minor ones. The definition of injury severity adapted in this study was the same as the one used in other studies (Hawkins & Fuller, 1999; Hawkins et al. 2001 and Woods et al. 2002) reported on their study the same idea.

As table 6 indicated concerning injured body part or prevalence of injuries, the most affected body part were the lower extremities which are Groin injury followed by Ankle injury and Toe respectively. Similarly the medical practitioners and injured players replied the same answers.

Previous studies have reported that the most soccer injuries occurred in the lower extremities. According to (Morgan & Oberlander, 2001) the study on British soccer players, reported that 77% of injuries were located in the lower extremities and the knee with 54% of injuries was the most common site of injury. This result is not consistent with the result of Morgan & Oberlander (2001) studies. The causes of pain or injury in the groin is excessive running on hard surfaces with poorly cushioned shoes , repetitive stress in running or cycling can also cases this pain. This

shows that the Ethiopian premier league players mostly do training on hard surfaces with poorly cushioned shoes.

Regarding on mechanisms of sustained injuries, table 7 shows that the most common risk factors for injuries on training were tackled followed by collusion, heading, landing, over use, shooting and jumping. Whereas the most frequently reported risk factors for injury on competition were tackled, followed by collision, heading, landing, overuse, shooting and jumping. As (Krosshaug et al, 2005) specified that about half of injuries arises player to player contact , including tackling, being tackled and collusions and the remainder (non contact) arises from actions such as running ,shooting , heading and turning , thus the result of this study is found to be consistent with the result of (Krossshaug et al, 2005).

With respect to the frequency of injuries in away and home matches table 5 shows that, incidence of injuries was greater in away match than home matches. Which means incidence of injury in away match is greater than home match. This result is consistent with the findings of Rahnama, N, Reilly, T. and Lees, A. (2002).They suggested some psychological factors as the reason for their results, such as stress, lack of acquaintance with the playing surface and spectator support. Bray & own (2002) reported that before competition at home games, most players have higher self concept, better self-confidence, less anxiety and modified stress. The stress and anxiety are possible reasons for the high incidence of injuries in players Bray & own (2002).

Regarding injury time table 9 shows the highest injury was reported during the last end of

playing time 76-90 minutes, and 61-75 minutes. As (Murphy et al.,2003) suggests that fatigue has been associated as a risk factor for injury , causing altered muscle recruitment patterns which may change the distribution of force acting on muscular structure. Accordingly (Kraus, 1959) reported that fatigued muscles relax more slowly and less completely than non fatigued muscles. Therefore the result of this study is consistent with the idea of Kraus (1959) and Murphy et al. 2003.

As table 11 shows during training most players reported that they never wear shin guards, ankle protection and appropriate foot wear respectively whereas only least players reported that they wear shin guards and ankle protection respectively. Majority of the injured interviewed players said that they never used ankle protection and shin guards. Protective equipment has been designed to shield various parts of the body against injury without interfering with this sporting activity (Brukner and Kahn, 2003). However the use of protective equipment by Ethiopian premier league players during training was very critical .Therefore the idea of (Brukner and Kahn, 2003) and the result of this study is consistent.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The general objective of this research is to investigate the prevalence, types and perceived causes of soccer injuries and mechanisms in which injuries will be minimized in Ethiopia premier league. The nature of the present studies was both qualitative and quantitative techniques. Hence, two types of instruments were used in this research. First, questionnaire was used to collect the data from all players. Next, in-depth interview was used for collecting data from injured players and medical practitioners.

The study, however, was not without limitations. One limitation was that the survey was limited only on three male premier league clubs due to time and financial constraints. This undoubtedly affects the generalization of the results to other clubs.

Despite these limitations, the study came up with the following important findings.

- The number of injuries during training is more than competition time. This is mainly because of :-
 - a. Each player tries to be selected for the coming game , so , he plays with full force.
 - b. The training field is not that much comfortable as the competition field.
 - c. Since they play without referee , accidents (injuries) could occur now and then
- Attending training program is a must. Unless and otherwise, players fully attend their training programs , they can't be successful and achieve their goals. Even , some players

attend their competition with their hidden injuries because of the pay they get on that day. A very slight injury can become serious problem in the long run. So, players are advised to fully attend their training program me and keep themselves healthy.

Since tackle of an opponent player is the main reason for the players' injury, it is very important to give education and warning for the players. This can lead to two main advantages.

- a. The player would get yellow or red card.
- b. The player himself would be injured.

- The most prevalence injury was Groin, ankle, and toe respectively. The cause of pain or injury in the groin is excessive running on hard surfaces with poorly cushioned shoes. The major reason for this is in appropriate training field and tackled from opponent.
- Concerning the training and competition field, the club heads (management of clubs) and the football federation should take the highest responsibility on the construction and maintenance of the field. It also very important to give a good follow up for the field and also advised to give a continuous maintenance to it.
- Concerning types or level of injuries occurrence during training and competition Moderate injuries, Minor injuries, Major injuries, severe injuries, were happen respectively.
- The more injury time on the game was from 76—90 minutes. This is the time when almost all the players are very tired, so the coaches should give serious attention to it and tell the players to play fairly and protect themselves. Injuries could affect the individuals and the club in general. This at last leads to losing the game.
- The study showed that the major failures of the players is that most of the time , when they go to a training field they do not wear shin guards , ankle protection and they wear un appropriate shoe. Its disadvantage is that the players would be injured and could be

disqualified from the game, so coaches are highly advised to give lesson on this and take strict follow up.

- Cool down activity is not accomplished at the end of every game. Though, cool down activity is very necessary, players do not give it due attention it. Since this activity is done at the end of the game , the players
 - a. Forget it because of achieving success.
 - b. Forget it because of losing the match.
 - c. The coaches did not give much concentration on it, so do the players.
- Stretching activities are not exercised most of the time by the players. The coaches, most of the time, do not include it in their weekly plan. By not doing stretching exercises, players would be susceptible to different injuries.
- On the consumption of different nutrients and water intake of players coaches take the full responsibility. The duty of a foot ball coach is not only giving guides and techniques and tactics, but also highly responsible to tell them what to eat, when to eat and what they shouldn't eat. It also very important to the coach to tell them how much litter of water the player should drink in a day.
- From my study results, the most Ethiopian premier league players are aged from 21-24 (46%) and the least aged are from 17-20 (7%). It is clearly understood that players aged from (17-20) could achieve good results if they are admitted to join clubs. But, since they were not given an opportunity, players aged (21-24) was admitted to the game.
- Concerning the playing experience of the Ethiopian premier league the highest is 4-6 years (28%). Their ages and years of experience do not match. This means that players spend their playing age time at low level league or they quit playing while they are at good performance years.
- Regarding incidence of injury in away match is greater than home match.

6.2 Recommendations

Based on the finding of the injuries and perceived causes of the Ethiopian premier league players the following possible solutions are suggested in hoping that the problems would be resolved.

- The proper foot wear, shin guards and ankle protection should be used during the training time.
- The playing and training field should be given higher priority. Each concerned body has to give due attention to the construction and follow up of the field.
- Each club should have enough amount of budget. This could help the players to have enough amounts of materials and to have an abundant amount of money for food and drinks. This could help them to have full confidence in their training and competition.
- The causes of pain or injury in the groin is excessive running on hard surfaces with poorly cushioned shoes , repetitive stress in running or cycling can also cases this pain. Therefore the coach should consider this problem and should modify the training area.
- Prevention of injuries should always be a priority and is even more important when treatment possibilities are restricted.
- Preventive strategies with specific training programs significantly reduce the incidence of injuries.
- Soccer players need to be educated in the form of Health Promotion programs about protective equipment, practice of sporting activities such as warm-up, cooling down, stretching, individual and team strengthening and flexibility exercise. Those programs must also include carbohydrate and water intake, all prior to and after training and competitive sessions.

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- A session needs to be held with coaches to advocate the use of unsafe playing surfaces, and emphasis the use of protective equipment during both training and competitive sessions.
- The session must also highlight the sporting activities such as warm-up, cooling down, stretching, flexibility and strengthening exercises as well as nutritional advices for soccer players.

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