THE PREVALENCE OF INJURY IN RUNNING IN THE CASE OF SOME SELECTED FIRST DIVISION CLUBS IN ADDIS ABABA.

By

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A thesis submitted to the school of graduate studies of Addis Ababa University in partial fulfilment of the requirement for the degree of Masters in sport science.

September 2012

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Approval of the Board Examiners

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Acronyms or Abbreviations

ATFL = Anterior talofibular ligament

BMI = Body mass increase

CFL = Calcagno- fibular ligament

ICE = Ice, compression and elevation

MT = Metatarsal

MTP = Metatarso phalangeal

NSAIDs = Nonsteridal anti- inflammatory drugs

PFP = patelo-femoral pain

PTFL= posteriopr talofibular ligament

ROM = Range of motion

RICE = Rest, ice, compression, and elevation

RRI = Runner related injury

Abstract

The study is about the prevalence of injury in running in Addis Ababa first division athletics clubs of Federal maremia, Federal police and Ethiopian neged bank. The study devoted to deal with the prevalence of injury in running. The method employed runners, physiotherapist, coaches, and sport managers which working with athletes at clubs selected using purposive sampling.

The study involves 3 clubs which participated in Addis Ababa first division .from all clubs 60 athletes were selected randomly and from each club 2 coaches were selected purposely by their position.

With regarded to data gathering from the respondents the research employed questionnaire with closed and open ended. The data collected were analyzed and interpreted by using percentage statistical analysis in tables.

The researcher found the prevalence of injury in the three clubs are Knee injury, Ankle injury, Hamstring injury, Injuries to the connective tissue , Muscle injuries Achilles Tendon and Stress fracture of the bone. The main causes to injury are the athletes run with the, experienced (elite) athletes, incorrect training program, eager to win, lack of balanced food, overload training, restless training, restless training, lack of warming up cool down, lack of warming up cool down, lack of warming up cool down, unsafe training environment, training above their age level and unwillingness of the athlete to coaches.

The researcher forwarded that runners must understand the prevalence of injury cause of injury and making awareness about injury prevention mechanism. Clubs, coaches and other concerned bodies will work hard to minimize the athlete who unnecessary suffers from injury.

CHAPTER ONE

1 Introduction

1.1 Back Ground of the Study

Running is one of the most popular sports in the world. Its popularity is still increasing. Running as an exercising can strengthen the limbs, develop the lungs, and promote the circulation of the blood. Running remains one of the most popular ways for Ethiopian to seek fitness. And is the primary exercise modality for many individuals of all ages. Its low cost, versatility convenience and related health benefits appeal to men and women of broad cultural, ethnic and economic back grounds. With more children and adults. Participating in recreational and competitive running. However running has also a harmful affects some of these brake bones, sprain ankles, tear muscles and all other sorts of injuries. The incidence of injuries has steadily increased. Most running related injuries affect the lower extremities are due to preventable training errors and some may necessitate medical evaluation or a significant reduction in training.

A runner related injury /RRI/ is associated with high socio economic costs and could force the athlete give up running for a considerable amount of time. Negative experience caused by a RRI can influence the physically active future of an individual significantly. Moreover, the accumulation of injuries during a training program for novice runners is often associated with the failure of building a physically active life style. This indicates a high need for preventive effort against RRI. Still the implementation of prevention increases extremely slower.

Both prevalence and incidence of RRI show that prevention can have a significant impact.

Injuries of the lower leg/shin, Achilles, tendon, calf, and heel/ foot also toes/and upper leg/hamstring, thigh and quadriceps/are common.

Less common sites of lower extremity injuries are the ankle and the hip/pelvis

Injuries are often observable among professional sports men/women or others and it is observable that some of the professionals decrease in their performance and even some of them fail to come back to the sport at all.

Some of the Addis Ababa first division athletics sport clubs athletes may face injuries.

Referring to these athletics sport clubs, this research paper is designed to assess the prevalence of injuries in running.

This specially asks is that the clubs do know the prevalence of injuries? For this particular study information was collected from Addis Ababa athletics sport clubs using.

Many athletes still are suffering injury even scientists try to drag people to sport stadiums. observing all principles related to each sport including Therefore, one of the reasons for individuals interesting implementing regulations accurately and using of the best to do sporting activities is obtaining health and happiness fitness equipments. Some reasons for sports injury in are achieved through the implementation of sports training classes are including; incorrect training and activities. However, the phenomenon of physical injury is inappropriate running athletic skills, lack of nerve and always a problem for athletes and coaches besides all the muscle coordination, lack of coordination between team benefits to participating in sports programs, both in public members (team sports). Some sports injuries may be and in the professional level. Lack of knowledge caused by colliding of athletes with each other, hall floor, of athletes and coaches about injury reasons and in the ground and sport equipments, too. Therefore, if other hand lack of careful planning by the managers safety conditions and physical environment is conducive and coaches to prevent sports injuries, has led to not to athletes, the possibility of injury exists in these only detaching of elite athletes and professional activities . Since the implementation of activities sports because of injury, but also encountering of related to sports have been met always with different problems and fear of injury lead to less motivation.

Name of the club	Number of athletes			Number of coaches			Establishment Year E.C
	M	F	Total	M	F	Total	
Ethiopia Electric	35	28	63	1	2	3	1953
Federal Maremia	80	79	159	8	2	10	1976
Defense	115	76	191	5	---	5	1936
Mengist Betoch	11	12	23	2	---	2	1971
Federal police	121	19	140	10	4	14	1940
Neged Ethiopia bank	27	51	78	2	3	5	1975
Total	389	265	654	28	11	39	

As the information gathered from Addis Ababa athletics federation the chart shows more about the clubs to show the number of athletes and coaches, and date of establishment.

The general aim of the research is to find the prevalence of injuries in running in some selected athletics clubs of Addis Ababa. From the above six first division clubs the researcher selected randomly three clubs based on the criteria of random selecting sampling method. The selected clubs are Federal Maremia, Federal police and neged Bank of Ethiopia.

1 .2 Statement of the Problem

Running is one of most popular sporting and leisure activities. While running is promoted by health professionals and has a wide variety of medically and socially related benefits, it needs to be recognized that, as with any sport, injuries can occur in athletics the knee downward; knee, ankle, foot, shin splints, gastronomies-soles, Achilles tendon etc injuries. The majorities of injuries are musculoskeletal in nature and associated with overuse. The constant repetition of the same movements required to run, along with factors related to the runner and their environment, are obvious contributors to the etiology of running injuries. Running injuries including: warming-up and stretching, correction of training errors, attention to the running environment, correction of running technique, footwear, use of orthotics, preventing runner and transport collisions, adequate treatment and rehabilitation.

In running injuries are common due to various reasons the prevalence of injuries of the athletes on different parts of their body.

This research is aimed at finding the prevalence of injury in running in the case of some selected athletics clubs in Addis Ababa. Based on the above idea the researcher raised one question what may be the major prevalence injury in running in some selected athletics clubs

in Addis Ababa? Hence the research will attempt to answer the following basic research questions.

1.3 basic research questions

1. How is the prevalence of injury in running?
2. Which body parts are affected mostly?
3. What are the possible major factors which contribute to the problem?

1.4 Objective of the Study

1.4.1 General Objective

The general objective of this study is to identifying the major prevalence of injury in running and their association in some selected athletics clubs in Addis Ababa to suggest the possible recommendation for running injury and to find the best solution of these injuries.

1.4.2 Specific objective

The specific objective of this research is:-

1. To identify the prevalence of injury in running.
2. To identify the types of injuries frequently occurring in running.
3. To identify the cause of injury in running.
4. To identify the most affected body part of athletes in running.

1.5 Significance of the study

This study is basically to address prevalence of injury, causes of injury and most affected body parts of athletes. From this point of view, the researcher believes to study prevalence of injuries like Knee & Leg Injuries (Shin Splints, Anterior Compartment Syndrome, Patellofemoral Pain Syndrome Stress Fractures) Foot & Ankle Injuries (Plantar Fasciitis, Ankle Sprain, Achilles Tendinitis**)** in the development of athletics training and athletes in some selected first division clubs in Addis Ababa. Hence the study is expected to clarify some injury variables that influence athletics training.

Specifically, the study has the following significance.

- It provides information to coaches, club administrators, athletics federation and athletes about the influence of injuries on athletics training.
- It is expected that based on the research findings appropriate measures should be taken by stake holders to minimize down athletics injuries.

- The study gives some clues to experts concerned with prevalence of injuries that influence athletic training in first division clubs.
- The study also helps as a spring board or an initial reference for farther research on injuries that influence athletics training in clubs.

1.6 Delimitation of the study

Prevalence of injuries is very wide concept which is related to many factors. So it is difficult to include all components of injuries in the area of the research. Therefore the scope of this study is only about the occurrence injuries in running that influences athletics training in Addis Ababa city administration three first division athletics clubs (Federal Maremia, Commercial Bank of Ethiopia and Federal police) which are selected randomly out of six first divisions in Addis Ababa athletics federation.

Prevalence of injuries in athletics training could be observed at all first division clubs in Addis Ababa.

1.7 Limitation of the study

The researcher has the following problems that are affecting the result of the study. These are

- Time constraint(shortage of time)
- Carelessness of the respondents to answer and turn the questionnaire correctly
- Shortage of related review literature

1.8 Definitions of terms

Sports injury is defined as any damage to tissues as direct result of participating in sport and exercise, which causes the frequency and/or intensity of participation to be changed or ceased.

Achilles Tendonitis is an inflammation of the tendon that leads from the calf down to the heel.

Avulsion fracture is the separation of a bone fragment from its cortex at an attachment of a ligament or tendon

Bruise is an inflammation of a bursa. Bursa can become injured and inflamed as a result of direct trauma or constant friction between supporting structure.

Bunion (Halluxvalgus) a feeling tenderness over the inner side of the joint between your first metatarsal (MT) and big toe, or hallux,

Corns are a conical wedge of keratinized with apex pointing towards the sub coetaneous tissue.

Fracture is a break in a bone

Hallux valgus is a complex deformity of the proximal phalanges.

Hallux rigidus is limited range of motion of the great toe.

Hematomas are a collection of blood pooled in a particular area as a result of a blow to that area.

Incidence describes the rate of injuries in a given time frame, in a given population.

Muscle cramp is an involuntary sustained contraction of the muscle, which may be caused by mineral deficiency, an injury to the muscle, or an insufficient supply of blood to the area to remove built- up waste products (lactic acid).

Murch fracture is a stress of the second (or sometimes third) metatarsal

Muscle pull is a stretch, tear, or rip in the muscle and is properly known as a muscle strain.

Muscle strains are complete or partial muscle or tendon rupture.

Prevalence describes the percentage of athletes in a given population that have a sports injury at a given time.

Shin splints any sort of leg pain associated with exercise; the term actually refers to pain along the tibia or shin bone, the large bone in the front of the lower leg.

Sprained Ankle is a common fitness related injury, results from a twisting of the ankle.

Sprains are injuries that occur around a joint, damaging the ligaments that attach bone to bone.

Strain is a twist, pull, or tear of a muscle or tendon, a cord of tissue connecting muscle to bone. It is an acute.

Stress fracture a partial or complete fracture of bone due to its inability to with stand non visible applied in a rhythmic, repeated, sub threshold manner

Tear is a disruption of the fibres of a muscle or tendon.

Tendonitis is an inflammation of a tendon that results in swelling and pain

Tinea pedis is the most common infections affecting runners' feet

Water in the knee: - Bursitis, water on the knee usually results from a twisting of the knee

CHAPTER TWO

2. Review of related literature

Sport injuries are diverse in terms of the mechanism of injury, how they present in individuals, and how the injury should be managed. Defining exactly what a sports injury is can be problematic and definitions are not consistent. Sports injury is defined as any damage to tissues as direct result of participating in sport and exercise, which causes the frequency and/or intensity of participation to be changed or ceased. This definition includes minor sports injuries that may not receive medical treatment in addition to more severe injuries that do require medical attention.

2.1 Ways of Classification of injuries in running

This classification of injuries in running is based on anatomical location.

2.1.1 Injuries to the foot

Running is a natural extension of walking. Babies learn to walk, and later, as children, they speed up and teach themselves to run. Both walking and running are very natural. Yet technically different developmental events. Those differences include an airborne phase in running that is not present in walking. The lower extremity ranges of motion are much longer in running. The muscle firing amplitude is much greater in running. The forces on the foot have different locations in walking and running. The total forces encountered when running are 2 to 3.6 times higher than in walking. All of these differences have been deduced to cause at least a fourfold increase in strain on the supportive structures, which can cause injury not only to the foot but also to other body segments.

2.1.2 Foot pain in runners

According to Thomas A. pletrocarlo the feet are one of the most common areas of injury among runners. This is predictable when one considers myriad factors affecting a runner's feet. These include biomechanical variations, body weight, running surface, running shoe, cumulative mileage training errors, and impact factors.

Better running shoes have enhanced shock absorption and diminished the risk of overuse and impact related injuries. Running shoes also tend to have improved stability in the heels because of the use of deeper extended heel counters and dual- density midsoles. This design

has created stability for pronation prone runners, thus reducing the incidence of biomechanical- related injuries.

2.1.3 Foot Injuries

bunion(Halluxvalgus)

feeling tenderness over the inner side of the joint between your first metatarsal (MT) and big toe, or hallux, and notice that the end of the toe starts to point outwards, forming an angle of up to 90 degrees with the MT. Pressure of any sort over the joint can cause both redness and pain.

The deformation is obvious, and underlying this will be wear and eventual arthritis of the first metatarso-phalangeal (MTP) joint. The space opened out by the splitting of the joint is filled by a thick-walled bursa – the bunion. Bunion-sufferers often lose their transverse arch under the metatarsal heads, which exaggerates the problem**.**

March Fracture

this is a stress fracture of the second (or sometimes third) metatarsal. You'll feel pain in the middle of the long bone(s) of your foot, which will slowly increase with distance, reaching a crescendo as you end your run. The pain will return earlier during the next session and become severe sooner, forcing a premature finish. This pattern will continue.

Peritendinitis

the Achilles tendon is surrounded by a paratenon to help lessen friction with movement. You will notice swelling, thickening and tenderness in comparison with the other tendon, due to friction on the Parthenon.

Foot biomechanics in running

Running is a complex series of interactions involving the feet and lower extremities, with contribution from the trunk and upper body as well. A detailed understanding of the linked biomechanical components of running allows for successful diagnosis and treatment of running

Running biomechanics can be affected by both intrinsic and extrinsic factors. Intrinsic factors stem from a runner's structure and biomechanics. Extrinsic factors negatively affecting foot

biomechanics include improper footwear, training errors, unfavorable running surface, and so on.

Forefoot

Forefoot pain can be caused by:

Metatarsal Stress Fractures

Metatarsal stress fracture is common. All metatarsal can be involved. The second and third are involved most often and the fourth, first and fifth less often. Stress fracture can be occurring at the base of fifth metatarsal, distal to the tuberosity.

Stress fracture may seen to the acute due to sudden overload of repetitively stressed bones.(Angus M. Mcbryde)

The athlete complains of fore-foot pain, aggravated by running or weight bearing activities. The neck of the second metatarsal is the most common site of pain.

The most difficult fractures to manage are those at the base of the second metatarsal, the proximal shaft of the fifth metatarsal, and the sesamoid bones.

Sesamoid injuries

Sesamoid injuries in runners are not common. More than 50% of body weight is transmitted through the great toe complex, including the MTP joint and the tibial and fibula sesamoid. This weight combined with the repetitive nature and increased ground reaction forces in running, can contribute to sesamoid injuries. The initial complaints of sesamoid pain may include tenderness and occasionally swelling directly beneath the first metatarsal head.

Sesamoid injuries can include traumatic fracture, stress fracture, and sprain of a bipartite sesamoid. These are usually associated with marked tenderness and swelling in the sesamoid region. The patient will often walk with their weight borne laterally to compensate.

Physiotherapy, padding to distribute the weight and corticosteroid injections can all be effective.

First Metatarsophalangeal Joint Sprain

This sprain occurs as a result of excessive forced dorsiflexion of the first

MTP joint, and is referred to as “turf toe”. There is a history of vigourous “bending” at the first MTP joint, with pain on movement. The injury involves a sprain of the plantar capsule and ligament. Physiotherapy and orthotic correction may be required.

Fractures of the fifth metatarsal

Neck fracture

Acute fractures of the neck of the fifth metatarsal are common. The mechanism occurs through inversion of the foot. Although pain is acute, it is not common for a runner, in the heat of competition, to ignore the injury, only to find swelling, tenderness, and the inability to walk after a race.

Base fracture

Acute fracture of the metatarsal base is often the end result of a developing stress fracture in that area. Mild pain along the lateral foot is often ignored by the runner, who feels that this is due to strain or tendinitis, since these tend to occur more commonly in running sports than do acute fractures.

Styloid fracture

Fracture of the fifth metatarsal styloid is the result of the inversion of the foot against a contracting peroneus brevis muscle. Avulsion of the styloid process occurs with or without part of articular surface.

Acute fractures of the middle metatarsal

Fractures of the metatarsal can occur in the neck, shaft or base. Acute fractures of the neck are due to direct trauma. Although dorsal and lateral displacement are common, open reduction is indicated only if displacement is significant enough so that the weight bearing characteristics of the forefoot are significant altered.

Multiple fractures also occur, and open reduction with internal fixation is necessary.

Fracture of the toes

Fractures of the phalanges occur most commonly by striking an object, such as a curb or tree. These are not common since the runner usually wears a shoe. Crush injuries occasionally

occur and may be troublesome since the crush involves soft tissues, bone and neurociculatory structures.

Fracture of the mid foot

The midfoot is composed of the navicular, cuboids, and three cuneiform bones. He midtarsal and tarsometarsal joints are supported by a strong ligamentous system that is not injured often. Illustrates the many small ligaments in the midfoot area. However, midfoot sprains can result from sever twisting mechanisms or forceful direct trauma that causes a subluxation of the involved tarsal's or metatarsals. These sprains produce tenderness at the site of injury, and often weight bearing is extremely painful tenderness may be elicited at the involved joint by gentle passive proration and abduction of the forefoot.

The most important causes of midfoot pain are:

Navicular Stress Fracture

It is important to diagnose this condition, as significant morbidity is associated with non-union. Dorsal foot pain and pain and tenderness over the navicular are clinically suggestive.

Extensor Tendonitis

Extensor tendonitis will cause an ache over the dorsal aspect of the mid foot and insertion of tibialis anterior. The extensor tendons may be weakened and strengthening is essential.

Midtarsal Joint Sprains

These joint pains happen occasionally, especially when instability of the foot is present. In particular, the calcaneonavicular ligament may be injured.

Lisfranc and chopart fractures

Occasionally, a severe flexion injury to the foot occurs, disturbing the tarsometataral joints. Such fracture dislocation at lifranci's joint is due to sudden plantar flexion metatarsal, forcing a disruption at the proximal joint.

A disruption may occur through any or all of the five tarsometatarsal joints. Disruption through chop art's joint usually occurs due to injuries creating forces of the greater magnitude, such as a sudden, unrestrained fall.

Stress fracture a stress fracture occurs through time related use, rather than through significantly increased loads on a particular bone. The second the third metatarsal carry the

highest forefoot loads due to their more rigid proximal joints. Therefore, this is the most common area for stress fracture. The base of the fifth metatarsal is also common since a secondary pathway for load distribution occurs in that area.

2.2 Afflictions of joints

2.2.1 Turf toe

Acute and chronic stress occur all the joints of the foot. These stresses can be on the dorsal or plantar regions, causing metatarsalgia, or through medial/lateral stresses with injury to the collateral ligaments. Turf toe is a condition where by forced abduction and extention of the hallux results injury to the medial collateral ligaments of the hallux metatarsophalangeal joint

2.2.2 Hyperflexion injury

Hyper flexion of the hallux; tripping occurs when the toe is caught and pulled downward on a curp or other fixed object, causing acute hyper flexion at the interphalangeal or metatarsophalangeal joint.
These forms of compensation may result in proximal leg pain.

2.2.3 Hind foot

The hind foot is composed of the calcaneus and talus. These bones serve as attachments for the medial and lateral ligaments that support the ankle joint; therefore injuries to the hindfoot include sprains of the ankle.

2.2.4 Hind foot injuries

Heel pain

Inferior heel pain is one of the most common injuries in running.

Heel pain syndrome

Heel pain syndrome is the most common cause of inferior pain in runners. The classic symptoms are pain in the heel on rising in the morning and bearing weight on the heel or after sitting for long periods. The pain and stiffness typically improve with activity, but after prolonged activity the pain returns. The maximum amount of pain is usually on the medial aspect of the calcaneus at the insertion of the plantar fascia and intrinsic muscles.

2.3. Dermatologic foot problems

Various skin and nail problems can occur in a runner's foot. These problems are often exacerbated by friction, shoe pressure, and irritation, as well as by heat and moisture retention in running shoes. This section deals with some of the more common disorders.

Friction blisters

Friction blisters are a common occurrence in runners. When shearing forces are applied to the skin, a dyshesion occurs intradermally, or between the epidermal and \dermal layers, causing an accumulation of fluid or blood. Various factors can contribute to blister development, including improper shoe fit, skin moisture, skin temperature, improperly fitting shoes, bony prominences, and so on.

Contact dermatitis

Contact dermatitis can occur as a result of an allergic reaction to one or more components of running shoes. This condition is quite rare. Potential allergens in shoes include the toe box - material, tanning agents used in leather, dyes, metal.

Tinea pedis

Tinea pedis is the most common infections affecting runners' feet. A combination of moisture, darkness and heat, all found in runners' shoes, are contributing factors. The most causative fungal organisms include trichophyton rubrun and trichphyton mentagrophytes.

Plantar warts

Plantar warts are common in runners and non runners. It is commonly thought that excess moisture on feet may have a contributing role. The causative organism of a warent is a papilloma virus. Although planter warts are among the most common skin maladies, they are also often difficult to treat. Subungual hematoma is a common finding in runners. The hallux is the most commonly affected toe, although all toes are susceptible.the hematoma is usually caused by repeated pressure and trauma associated with tight fitting shoes, inadequate height in the toe box, or inadequate shoe length.

Subungual hematoma in a runner is typically an insidious problem and is not necessarily acutely painful. In acute cases associated with pain, the nail plate needs to be decompressed, draining the underlining hematoma.

Corns

A corn is a conical wedge of keratinized tissue with apex pointing toward the subcutaneous tissue. A corn has a central core that can be very painful.the two types of corns are hard corns (heloma durum) and soft corns (heloma moll). Hard corns are usually present on the lateral aspect of the proximal intrphalangeal (pip) joint of the fifth toe and on the dorsal aspect of the pip joints in the second to fourth digits. Soft corns are most commonly encountered in the fourth web space as a result of the irritation between the head of the proximal phalanx of the fifth toe and the base of the proximal phalanx of the fourth toe. The corn remains soft owing to returned moisture in the web space.

Calluses (hyperkeratosis)

Calluses are thickened of the skin generated by excessive localized pressure either from abnormal anatomic intrinsic factors or from factors such as improperly fitting shoes. Plantar keratosis may be diffuse or punctuate in appearance.

2.4 Tendinitis and plantar fasciitis in runner

2.4.1Plantar Fasciitis

Plantar fasciitis used to describe a painful condition located about the posterior medial surface of the foot just distal to the attachment of the plantar fascia to the calcaneus

The pain is generally most severed after running, and early in the morning after rising. It is not common for the athlete to feel or complain. Of modularity in the proximal medial plantar fascia.

The plantar fascia is a dense fibrous membrane that extends the entire length of the foot, from the calcaneal tubercle to the proximal phalanges. Plantar fasciitis is a degenerative condition of the plantar aponeurosis. It is caused by repetitive micro trauma as part of an overuse syndrome.

Pain under the heel centre at the origin of the plantar fascia. This is a fan-like web of tough fibres which spreads across the underside of the foot and attaches to the origins of the toes, and its main purpose is to maintain the shape of the longitudinal arch. (This arch, along with the transverse arch which stretches across the metatarsal heads, allows proper pronation, which helps to absorb landing forces and provides some elastic recoil as your foot pushes away from the ground.) The pain is worse when running or walking, and often particularly bad first thing in the morning.

2.4.2 Fat Pad Contusion

This type of contusion occurs as an acute injury after a fall onto the heel or chronically as a result of excessive heel strike, such as long jumping. Treatment consists of avoiding aggravating activities, and strapping. A padded heel cup is helpful for jumpers.

2.4.3 Entrapment of the first branch of the lateral plantar nerve

One of the most commonly over looked causes of chronic heel pain in athletes is entrapment of the first of the lateral plantar nerve. The first branch innervates the periosteum of the medial tuberosity, the long plantar ligament, the abductor digiti quinti, and the flexor brevis muscles. The exact site of the intrapment usually is between the deep fascia of the abductor hallucies muscle and the medial caudal margin of the medial head of the quadrates plantae muscle

2.4.4 Plantar Fascia strain

Plantar fascistic or plantar fascia strain involves inflammation of the plantar facia, resulting in pain in the heel. The cover all the tissue in the body (muscle, ligament, organs).the plantar fascia covers the plantar ligament in the bottom of the foot, and the inflammation usually occurs where the ligament attaches to the heel bone. Plantar fascia strains are easy to identify because they create pain when running or walking, especially when the person has not warmed up. Getting out of bed in the morning and walking will create pain the heel.

2.4.5 Hallux valgus

Halux valgus is a complex deformity consisting of lateral deviations of the proximal phalanx, medial deviation of the first metatarsal, and valgus rotation of the hallux.

2.4.6 Hallux rigidus

Hallux rigdus represents degenerative arthritis of the MTP joint of the great toe .it is characterized by limited range of motion of the great toe in both dorsiflextion and plantar flexsion. The cause of hallux rigidus has been the objective of much debate. Several theories have been proposed, including an elongated first metatarsal, dorsiflextion of the first metatarsal, systemic arthritis, trauma, and infection.

Hallux rigidus presents several problems to a runner. The size of the exostoses can result in shoe rubbing and irritation for the toe box of the shoe. Shiftiness of the first MTP joint may

result in abnormal biomechanics, and the runner may compensate by running on the lateral border of the foot or abducting the foot to roll over the medial aspect of the hallux.

2.4.7 Nerve entrapment syndromes

Heel and foot pain are common complaints among runners. Although tarsal tunnel compression of the tibial nerve is a well recognized nerve entrapment syndrome causing pareshesias in the aspect of the foot, other lesser known peripheral nerve impingements occur, causing ankle pain in runner.

2.5 Ankle pain in runners

These injuries include sprains, strains, and contusions. The most common of all athletic injuries are ankle injuries, ranging from 17% to 20% in most sports. Although ankle injuries are quite common, the complex etiology factors leading to these injuries are unknown. Divers components considered to be potential risk factors of injury have been divided into extrinsic and intrinsic variables. Extrinsic factors include the type of sport, paling time, and level of competition, equipment, and environmental conditions. Intrinsic factors consist of physical characteristics such as age, sex, fitness level, previous injury, and strength, range of motion, joint laxity, and joint stability. the impact of loading on the foot and ankle and the effects of ground reactive forces have been Acute extensively studied.

These forces are altered by many factors including footwear (barefoot versus shod) and velocity (walking, sprinting).the repetitive transmission of these forces to the foot and ankle have been linked with specific injuries.

2.5.1 Ankle sprain

Sprain of the lateral ankle ligaments is a very common injury.

A sprained ankle can happen to athletes and non-athletes, children and adults. It can happen when people take part in sports and physical fitness activities, or when they simply step on an uneven surface, or step down at an angle.

The evaluation of ankle injuries can be simplified by understanding how anatomic factors dictate specific injury patterns. The high number of recurrent sprains and the frequency of long-term complications from instability and arthritis suggest that the current management protocols may not be always optimal.

2.5.2 Tibial Periostitis

Periostitis is the most common shin injury that runners experience. There is Onset of pain early during activity, which may subside with continued activity, although this is variable. Pain may continue following activity. The pain is diffuse along the anterior, but more likely, the posterior border of the tibia. It may be distinguished from a stress fracture of the tibia by its diffuse nature, as opposed to the localised pain that occurs with a stress fracture.

Tibialis Anterior Tendonitis

Tibialis anterior tendonitis presents as localised tenderness, crepitus and pain on resisted dorsiflexion. It is usually due to restriction in joint ROM or downhill running. Treatment requires NSAID, physiotherapy and mobilization of the ankle joint.

Tibialis Posterior Tendonitis

Tibial posterior tendonitis is the most common cause of medial ankle pain. This condition may occur as a result of prolonged stretching into eversion and is often associated with excessive subtalar pronation. Treatment with physiotherapy, NSAIDs, and orthotics may be required to control excessive pronation.

2.5.3 Peroneal Tendonitis

Peroneal tendonitis is the most common overuse injury causing lateral ankle pain.
Inflammation of the peroneal tendons or sheaths may be due to excessive eversion (running on slopes, etc.) and is commonly associated with excessive pronation. Localised tenderness over the peroneal tendons is occasionally associated with swelling and crepitus

2.5.4 Syndesmosis injuries

The tibiofibular syndesmosis comprises the anterior inferior and posterior inferior tibiofibula the transverse ligament, ligaments, and the interosseous membrane. It maintains the relationship between the tibia and fibula and provides a lateral constraint to the talus within the ankle mortise.

Syndesmosis ruptures are commonly associated with deltoid ligament injuries. The mechanism of injury for syndesmosis disruption is a plantar flexion external rotation injury
Athletes with syndermosis injuries complain of anterior lateral ankle pain in the region of the syndermosis. The degree of swelling and pain associated with the injury can be significant. Patients have difficulty bearing weight in the injured ankle.

2.5.5 Tarsal Tunnel Syndrome

This syndrome occurs as a result of entrapment of the posterior tibial nerve in the tarsal tunnel where the nerve winds around the medial malleolus.

This syndrome often occurs as a result of trauma (inversion injury to the ankle) or overuse associated with excessive pronation. Features of this condition are pain radiating into the arch of the foot, heel and toes, and pins and needles and numbness on the sole of the foot aggravated by prolonged standing, walking or running.

2.6 Shin pain and compartment syndromes in running

2.6.1 Shin splints

Shin splints are one of the most common running injuries. They result from tired or inflexible calf muscles putting too much stress on tendons, which become strained and torn. Over pronation aggravates this problem, as can running on hard surfaces, such as concrete; and running in stiff shoes.

Beginners are the most susceptible to shin splints for a variety of reasons, but the most common is that they're using leg muscles that haven't been stressed in the same way before. Another common cause of shin splints among beginners is poor choice of running shoes or running in something other than running shoes. Runners who have started running after long layoffs are also susceptible to shin splints because they often increase their mileage too quickly.

Symptoms of shin splints include an aching, throbbing or tenderness along the inside of the shin (although it can also radiate to the outside) about halfway down or all along the shin, from the ankle to the knee. This discomfort is due to the inflammation of the tendons on the inside of the front of the lower leg. This is basically the definition of shin splints. (Sports medicine specialists don't like to use the term shin splints because it commonly refers to several lower-leg injuries. We'll use it anyway, but we'll focus on the specific problem that is the most common: tendinitis of the lower leg.

Another symptom is pain when you press on the inflamed area. The pain of shin splints is most severe at the start of a run, but can go away during a run once the muscles are loosened up (unlike a stress fracture of the shinbone, which will hurt all of the time). With tendinitis, pain will resume after the run.

There is usually an inflammation of the tendon or muscle in that area (Allen, 1979, p.59). the exact causes of shin splints are not known, but an educated guess involves “faulty posture alignment, falling arches, muscle fatigue, overuse stress, body chemical imbalance, or a lack of proper reciprocal muscle condition between the anterior and posterior aspects of the leg’ occur after a change in activity, such as running longer distances or increasing the number of days you run too quickly.

(klafs and Arnheim,1981,P.38). People with flat feet are more likely to develop shin splints. Treatment includes: rest, stretching exercises, slow return to activity after several weeks of healing.

2.6.2 Posterior Tendinitis

Posterior tibial tendinitis occurs in the distal one fourth of the leg, where the posterior tibial tendon can be palpated for areas of tenderness, fullness, and thickening. Acute problem relate to increased mileage on unforgiving surfaces; the tendon appears normal. Runners prone to these problems have increased pronation on gait. In chronic tibial tendinitis, the tendon is abnormal on palpation and has a thickened sheath.

2.6.3 Exertional Compartment Syndrome

Exertional compartment syndrome is another cause of calf or shin pain. This condition, in which the sheath around the anterior or posterior compartments is too tight, presents with increasing pain with the onset of running. Pain is not present initially, but over 15–20 minutes the calf or anterior shin pain increases. Pain comes on earlier if the running pace is harder or if the athlete runs hills. The athlete experiences a cramping pain, and cannot usually “run through” it. Diagnosis is by history and by measurement of compartment pressures in the exercising muscles.

Surgery is usually required to correct the syndrome.

2.6.4 Gastrocnemius/Soleus Complex

Calf pain can be caused by small or large tears of the gastrocnemius/soleus complex. The medial head of the gastrocnemius is a common area to injure, as is the junction of the Achilles tendon with the calf complex. This can be treated with local physiotherapy and an appropriate stretching regime.

2.7 Running injuries of the knee

Knee problem is the most common problem cause of pain in runners and the most common causes of the knee pain is the patelloformal joint

The knee is basically a hinge joint, allowing backwards and forwards motion, but it is also able to rotate slightly in on itself. The bending and straightening is controlled by the hamstring and quadriceps muscles at the back and front of the thigh bone respectively, and their size and position affects the angles the legs move at, and particularly the way that the patella (kneecap) moves.

'Runner's knee' used to be known as chondromalacia patellae, but is now more often referred to as patello-femoral pain (PFP). It occurs when the patella fails to move smoothly and centrally through the femoral groove at the lower end of the thigh bones. This is sometimes due to muscle imbalance or abnormal anatomy, but it can also be the result of another injury

2.7.1 popliteal (Baker's)Cyst

Bursa is a space between soft tissues and/or bone and is filled with fluid which acts to reduce friction between adjoining surfaces. However, if it becomes damaged, more fluid is formed, causing it to swell, become inflamed and sometimes infected.
A swelling which develops behind the knee and probably prevents full bending and straightening. The pressure causes aching and tenderness, worse after training, and sometimes the area feels hot, or inflamed.

Comparing the back of one knee with the other demonstrates obvious clinical signs and your doctor will probably discover a decreased range of movement. Baker's cysts are sometimes secondary to other disease, so he will also look for rheumatoid or osteoarthritis in the knee and other joints, ascertain how far down into the calf the bursa extends, and possibly be able to detect fluid in the knee joint with which the cyst is connected.

2.7. 2 Over use synovitis

Some runners may have a chronic knee synovitis without apparent intraarticular pathology and with no history suggesting possible injury, other than that of increased running. In effect the quadriceps is too weakened functionally at the increased distances to adequately shock absorb and decelerate in the landing phase of the gait cycle runner should stop running until the remains free of any synovial effusion.

2.7.3 Lateral patellar compression syndrome

The lateral patellar compression syndrome is characterized by pain on the lateral aspect of the knee along the pat joint, increased mileage hard running surface interval work puts, and running hills all may contribute to the problem.

Runners describe the pain as being and aching relived only by rest or reduction their workout sometimes the runner feel uncomfortable when sitting for a long time, particularly with their knee in flexion, or state that their knees feel tight or creaky as they move about afterwards.

2.7.4 Chondromalacia patella

According to Robert E. and G. Richard Paul Chondromalacia patella signifies physical damage to the articular surface of the patella and possibly similar damage to the opposing surface of the femoral condyle. It is a common cause of knee pain inn runners, and the physical complaints are similar to those of the lateral patellar compression syndrome the pain is usually more severe and longer duration

2.7.5 Bursitis/ tendinitis

Running frequently produces inflammatory changes in the tendons about the knee, other than those involving the quadriceps patellar mechanism. The repetitive motion of running also leads to the development of friction syndromes or inflammation of bursae.

2.7.6 Prepatellar Bursitis

The runner feels pain in the soft tissues over lying the superficial surface of the patella. It may be induced by chronic stress, such as kneeling in a tile installer, or occasionally from blow to the knee. The soft-tissue swelling in the propatellar area is confined to a distincbursa, and there may be fluid within the bursa.

2.7.7 Medial collateral Bursitis

Brantigan and Voshell describes the no name, no fame bursa located between superfacial and deep portions of the medial collateral ligament at the medial joint line. Occasionally, runners

have pain in this area that may be difficult to distinguish from the pain of peripheral meniscal tear or even of inflammation of the pes anserinus bursa, with inflammation of vosnell's bursa, the runner may have pain even sitting, particularly if he/she is in cramped quarters and is forced to keep hi/her knee at 80 degree to 1oo degree of flexion. There should be no enffusion, and tenderness is localized to the area along the superficial portion of the medial collateral ligament just below the joint line.

2.7.8 Meniscal Injuries

Moon snap-in cartilages form a buffer in the centre of the knee joint and allow some rotation. These are known as menisci and are placed either medially or laterally.

Injury can occur to normal and ageing menisci; it tends to occur in the posterior portion and is seven times more common on the medial side, which bears the brunt of your weight. There are various types of tear to the menisci, depending on the cause, but the effect is usually the same pain and disability.
The pain is usually on the joint line and the knee may feel unstable. It is realised now that a meniscus tear frequently occurs in conjunction with other damage to the collateral or cruciate ligaments, so the knee may swell with an effusion of clear serum and/or blood, and a tear which.

2.7.9 Water in the knee

Bursitis, water on the knee usually results from a twisting of the knee. When the knee is hit the bursa (a fluid membrane that facilitate joint movement) may become inflamed, and an excess of fluid may develop.

2.7.10 Ligament injuries

Sprains or major tears of the ligament of the knee such as the medial and lateral collateral and anterior, posterior cruciate ligament are uncommon in runners. If, however the runner slips or has a misstep and puts appropriate stress on the knee, sprains or tears may occur. This type of stress might happen in cross country events where the runners are often on even surfaces.

A runner could land awkwardly on his leg and apply a valgus stress to his knee, causing pain and soft tissue swelling around the medial collateral ligament.

Another rare ligamentous injury for a runner occurs if he lands on the extended knee and feels a popping sensation. Prior ligament injuries may play a major role for runners when the athlete turns to running as his new sport may people with previous ligament injuries are able to run without significant difficult, but when one starts to pivot or cut, the knee ligament instablitysyndromes are a problem.

Anterior Cruciate Ligament Injury

The majority of people possess both anterior and posterior cruciate ligaments, which form an X-shaped structure through the middle of the joint, their function being to prevent fore and after movement of the tibia on the femur. Injury, in the form of a rupture, may be due to an accident in everyday life, or as a result of sporting trauma.
There is no question of carrying on in the majority of cases, as the knee gives way, becomes painful and will swell with blood on the day of injury. It will be difficult to walk on, let alone run.

Medial Collateral Ligament Injury

Although any force from the outside may sprain the medial collateral, the usual cause in runners is a twisting of the knee while the foot is stuck in a pothole or if the foot has suddenly slipped on a greasy surface. This will cause acute pain on the inner side of the knee. In some runners a more chronic injury can occur if they have knock-knees, or those who always run on a camber. Continuing to run will not only prolong your pain but could cause secondary injuries through a change in your gait.

However, runners who sprain their medial collaterals use their quadriceps muscles less as a result, and develop wasting, particularly of the inner quads. Your doctor will need to exclude cartilage and cruciate injuries, as they often occur in conjunction with collateral tears.

2.8 Hamstring Injuries

Robert E. Leach and G. Richard Paul are explained Injuries to the hamstring muscles and tendons are common in a variety of running sports. The most common injury is a strain, which occurs in the muscle belly substances or at the muscle tendon junction. Total rupture of a hamstring muscle or tendon is unusual but is occasionally seen in sprinters or hurdlers more

commonly seen are a partial tear of the muscles. After an acute episode, there is localized swelling with deep hemorrhage, plus pain with palpation or any attempted stretching of the hamstrings. The major problem with runners having hamstring pulls is that they return to action too quickly, making them subject to recurrent injuries.

Hamstrings are unusual in that they pass over two joints, the hip and the knee. They are therefore most likely to be injured when the hip is bent and the knee fully straightened. Further stretching may cause an injury that varies from a strain to a classic rip.

Acute strains occur during rapid acceleration or deceleration, and present as acute pain and a tearing sensation in the hamstring area. The tear occurs at the musculo-tendinous junction, and can be mild or severe, depending on the number of fibres torn. The athlete will have pain on stretching the muscle, local pain that may be high, mid-muscle, or low, and pain on resisted contraction.

Chronic scarring may result from repeated hamstring tears, and can cause pain in the hamstring with running due to entrapment of nerve tissue in the scarred area.

An aggressive stretching programme and local deep massage are needed to break down the scar tissue.

High hamstring tendinopathy is a special condition that occurs as an over-use injury among middle and long-distance runners.

Although the hamstrings run down the back of the thigh, injury to the lower part may well be felt behind the knee, either on the inside or outside.

Not only may there be pain behind the knee, but, depending on whether the muscle sheath higher up the thigh is breached, there may or may not be visible tracking of blood down the thigh.

While the knee is bent and the area is not under pressure, there may appear to be little wrong. Straightening the knee and stretching the hamstrings, however, should show all the classic signs of a hamstring injury.

Hamstring injuries occur

High incidences of hamstring muscle strains are associated with sports that involve stretch shortening cycle activities: Sprinting, High-intensity Running, Stopping, Starting, Quick change of direction, Kicking.(Brooks et al ’06, American Journal Orthopaedic Society for Sports Medicine.)

2.9 Hip Disorders

2.9.1 Hip Injuries in Running

Most running-related injuries affecting the lower extremities are due to preventable training errors, and some may necessitate medical evaluation or a significant reduction in training.

Hip injuries in runners are due to interactions of intrinsic and extrinsic factors that adversely affect the complex regional anatomy. Acute or chronic hip pain presents a diagnostic and therapeutic challenge because the vague, nonspecific symptoms and signs may originate from local, regional or distant foci. Muscle strains and tendonitis are the most common aetiologies of hip pain and typically result from sudden acceleration/deceleration manoeuvres, direction changes or eccentric contractions.

Hip injuries in running are often related to extrinsic factors including improper technique, poor shoes or running surfaces, abrupt changes in running routines, inadequate nutrition or hydration, excessive mileage or rapid intensity advancement If these and similar factors are not addressed, hip injuries may reoccur when runners resume their previous training regimens.

Adductor Injuries

Adductor strains are common in hurdlers and most field event disciplines. The adductor muscles can be strained at their origin at the pubic symphysis or further distally in the muscle belly. Other conditions may lead to groin pain, and adductor strains should be differentiated from osteitis pubis, pelvic, or high femoral stress fractures, or sacroiliac joint referral. Adductor muscle strains are tender when palpated at the area of the strain, and cause pain both on stretching and on resisted adduction. A good stretching programme and appropriate warm up and warm down will help prevent adductor tears.

Although the quadriceps and hamstring muscles mainly move the knee joint, the hamstring group arise above the hip, too, and play a small part in the movement of that joint. Other tissues also incorporate the pelvis as well as the upper leg, with the result that pelvic and upper leg injuries may sometimes be indistinguishable and may often become confused. By virtue of their anatomy, hip joints allow a wide range of movement, not only forwards and backwards, outwards and inwards, but also rotational, and each of these movements requires appropriately placed muscle contractions. Some muscles even perform two functions, depending on the position of the hip. The function of the adductor muscles is to pull the thighs together and rotate the upper leg inwards, as well as stabilizing the hip.

These muscles may be torn at their origin from the pelvis or in their bulk on the inside of the thigh.

In an acute tear there is sudden pain over these areas, which probably occurred as your foot slipped sideways or outwards, as when crossing a steeplechase hurdle. Because the muscles stabilize the hip, continued running will be painful.

There may be a tender swelling where the muscle was injured, and any action which holds the knees together will be painful. Outward movement of the hip will be restricted by spasm and pain. Complete ruptures are uncommon.

Trochanteric Bursa

Runners' pain over and below the bony outer part of the hip joint is frequently diagnosed as a bursa forming with discomfort in the outer buttock and thigh. Some of the discomfort may well be due to tautness of the iliotibial band, whose other end we met on the outer side of the knee. All this muscle is contained within the inelastic stocking-like fascia lata – the reason that our thigh muscles don't sag like those in the belly.

There is an increasing ache over the bony trochanter of the hip, which becomes painful with extra mileage. Pain may radiate down the thigh at night, while rolling the straight-kneed leg inwards will increase the pain.

Iliotibial Band Syndrome

Iliotibial band (ITB) syndrome is an overuse injury that occurs when the iliotibial band repeatedly rubs over the lateral femoral epicondyle. The soft tissues in that area become swollen and painful; symptoms are aggravated by further knee motion. Etiology may be due to rapid increases in training, by overtraining, by running on a slanted surface such as a roadside or by running downhill. It can be associated with biomechanical abnormalities such as genu varum, supinated feet and, in some cases, excessive pronation.

Retropatellar Pain

Retropatellar pain or "runner's knee" is the most common knee problem seen in runners, and is usually caused by training error or poor biomechanics. Pain is often felt deep within the knee and into the posterior knee. It is often worse with climbing stairs or running hills and after standing up from a sitting position with the knee bent for any length of time ("theatre

sign”). Excessive foot pronation is often associated with the condition, and should be looked for and treated.

2.10 Spinal injuries

2.10.1 Causes of Spinal Injuries

Track and field training and competition create many chances for extreme and possibly injurious spinal stresses. Postural stress can cause general and specific aches and pains, and through accommodation of joint and soft tissue structures, result in dysfunction. Lifting in weight training, throwing weighted implements, and spinal torsion and compression caused by pole vaulting, jumping, hurdling, and running can all cause acute or chronic back syndromes. Precipitating factors include

2.10.2 Traction Apophysitis and Avulsion

The rectus femoris takes origin from the anterior inferior iliac spine, and the

sartorius takes origin from the anterior superior iliac spine. Both of these muscles can cause traction at these sites and lead to apophysitis in the young athlete, and also to avulsion. These should be treated as a 3rd degree strain and managed accordingly.

2.10.3 Pelvis and Sacrum

Robert E.Leanch indicates that Stress fractures of either the pelvis or the sacrum are relatively rare in runners. Because of the rarity, the diagnosis may be missed. Various muscle or tendon .Maladies initially be suspected. In the pelvis, the most common site is the ischiopubic ramus. This location with local pain, may lead to a physician to consider adductor strain or even osteitis pubis. Only in recent years have the first cases of stress fractures of the sacral wing been reported. These probably were previously misdiagnosed because of the symptoms could easily represent lumbosacral strain. The diagnosis would be very difficult to make on traditional roentgenograms.

For both the pelvis and the sacrum, the diagnosis is likely to be made on the basis of a bone scan.

Tarsal bones are frequently involved by stress fractures. Various tarsal bones have been noted to have stress fractures, including calcaneus, the navicular, the medial cuneiform and the lateral process of the talus.

Tarsal fractures are less common in runners. It is difficult to diagnose because affected athletes confuse the symptoms with an arch strain or possibly inflammation of the posterior tibial tendon. The frequent history of some trauma accompanying the tarsal bone stress fracture may also interfere with the diagnosis.

2.12 Achilles tendon injuries

Judith F. baumhaver, Michael .J. Shereef, and John. Gould are defined Achilles tendonitis is an inflammation of the tendon that leads from the calf down to the heel.

It is a common problem in athletes. Causes often include training errors or biomechanical factors, but the condition can come on for no apparent reason. There can be inflammation of the paratenon around the tendon with associated thickening (diffuse), crepitus and pain on movement, or on getting out of bed in the morning. The Achilles tendon itself can be inflamed with a great deal of local pain on palpation of the tendon. Localised thickening of the tendon can occur, and is often associated with cystic changes in the tendon.

Classification of chronic Achilles tendon pain ranges from retrocalcaneal bursitis to peritteddinits, tendinosis, tendinitis, partial rupture, and complete rupture.

2.12.1 Peroneal Tendon injury

Peroneal is the most common overuse injury causing lateral ankle pain. Inflammation of the peroneal tendons or sheaths may be due to excessive eversion (running on slopes, etc.) and is commonly associated with excessive pronation. Localised tenderness over the peroneal tendons is occasionally associated with swelling and crepitus.

The majority occur with an inversion ankle injury. The more common problem of peroneal tendinosis has been reported as a cause of chronic ankle pain in runners.

Bassett and Speer found that with an inversion ankle injury and plantar flexion of less than 15 degrees, the peroneal retinaculum would be injured with resulting instability to the peroneal tendons. With plantar flexion in the range of 15 to 25 degrees, both peroneal tendons are perched along the distal fibula. With subsequent inversion motion, tendon damage resultan results. With plantar flexion greater than 25 degrees, the peroneal tendon is well seated behind the fibula, protecting from injury. Treatment consists of physiotherapy, assessment of biomechanical abnormalities and correction.

2.12.2 Tarsal Tunnel Syndrome

This syndrome occurs as a result of entrapment of the posterior tibial nerve in the tarsal tunnel where the nerve winds around the medial malleolus.

This syndrome often occurs as a result of trauma (inversion injury to the ankle) or overuse associated with excessive pronation. Features of this condition are pain radiating into the arch of the foot, heel and toes, and pins and needles and numbness on the sole of the foot aggravated by prolonged standing, walking or running.

2.12.3 Anterior Impingement

Anterior impingement of the ankle may be the cause of chronic ankle pain or may follow an ankle sprain. As a result of persistent forced dorsiflexion (kicking), exostoses develop on the anterior margins of the ankle joint. As they become larger they impinge on overlying soft tissue and cause pain.

2.12.4 Osteochondral Fractures

Fractures of the talar dome, which occur in association with ankle sprains, are commonly overlooked. These occur when there is a compressive a clinician to the diagnosis Usually the fracture is not detected component to the inversion injury, especially when landing from a jump. The symptom of ankle pain, recurrent swelling ankle instability, or the feeling of catching or locking of the ankle lead initially and the patient presents some time later complaining of an unremitting ache in the ankle, despite appropriate treatment for an ankle sprain.

2.13 Mechanisms of Injuries

Lateral ankle sprains occur as a result of landing on a plantar flexed and inverted foot. These injuries occur while running on uneven terrain, stepping in a hole, stepping on another athlete's foot during play, or landing from a jump in an unbalanced position. When this happens, the full force of the body's movement is placed on the anterior talo-fibular ligament. This may stretch, with tearing of some of its fibres (sprain) or it may tear completely. If there is a major injury of the anterior talo-fibular ligament, the forces transfer to the calcaneo-fibular ligament and the tibio-fibular ligaments, which may also be sprained or torn. Occasionally small pieces of bone may be torn off with the ligaments.

In a few cases, a twisting force on the ankle may cause other damage. The bones around the ankle may be broken, a piece of the joint surface inside the ankle may be chipped off,

ligaments connecting other bones in the foot may be sprained or torn, or the tendons around the ankle may be damaged.

Ligamentous injury to the ankle can involve the lateral, medial or sydenesmosis ligamentous complex. Clear elucidation of the mechanism of injury aids in making the proper diagnosis. eversion injuries can lead to ligament tears and, when associated with external rotation of the foot, sysdesmosis injuries. Plantar flexion and inversion ankle injuries can lead to rupture of lateral ligamentous complex of the ankle. The most extensive clinical studies of ankle ligament injuries have been conducted by Brostrom and colleagues. They found isolated ruptures of the anterior talofibular ligament (ATFL) in 60% of inversion ankle sprains. A complete rapture of the ligaments resulted in a tear of the joint capsule. The CFL was never ruptured alone, through ankle ligament sectioning and strain pattern studies; the ATFL has been shown to be the primary restraint to inversion injury when the foot is in plantar flexion, where as the CFL is the main lateral stabilizer in a neutral ankle positin.

An ankle sprain is further stratified into grade I, II, or III based on the severity of the injury.

Grade I sprain involve a ligament stretch without macroscopic tearing, minimal swelling or tenderness, minimal functional loss, and no mechanical joint instability.

A grade II sprain is a partial macroscopic ligament tear with moderate pain, swelling, and tenderness over the involved structures.

A grade III sprain is a complete ligament rupture with marked swelling, hemorrhage, and tenderness. Loss of function and sever joint instability occur.

The diagnosis of an acute ankle sprain is based on a through history; complete physical examination including observation, palpation, range-of-motion, strength, and provocative stability testing and radiographic evaluation.

Chronic recurrent ankle sprains, whether mechanically or functionally unstable have been treated with either anatomic lateral ankle ligament repairs or lateral ankle ligament re

2.14 Upper extremity injuries

Upper extremity injuries usually occur in the shoulder or elbow of javelin, discus, or hammer throwers or shot putters. Overuse (too much too soon), biomechanical imbalance due to improper technique, or failure to completely rehabilitate a prior injury are the most common causes. Runners may injure an upper extremity due to a fall, collision, or other accident. More injuries occur in training than in competition.

The entire body is important in maximising optimal performance and in preventing injuries of the upper extremity. Hip-shoulder orientation and trunk position change throughout the throw.

A shot putter must support the heavy shot with his or her fingers while the large scapular anchoring muscles must slow the arm after the shot has been released. Discus and hammer throws are centrifugal motions that produce fewer shoulder problems than do overhead events.

2.15 Quadriceps Injuries

The quads and hams, to be colloquial, surround the knee in a tripod-like fashion, the quadriceps through the patella and its tendon acting to straighten the knee, while the hamstrings at the back of the thigh diverge, to be inserted behind the knee on the inside and outside to complete our tripod. If you think of them as being like the guy ropes of a tent, a tightening of one group will stretch the other, and it is this alternate movement that enables the knee to function.

The quadriceps muscles may be torn anywhere from hip to knee. The common acute tear will cause sudden pain, accompanied by weakness which may make you stumble or fall. It is more likely to occur if you are pushing off to jump a hurdle or obstacle, or to go uphill.

Little difficulty is usually experienced in the diagnosis of a quadriceps tear. There is pain at the site of injury and any resistance to straightening of the knee will cause pain at this site. As a bruise forms, there is thickening of the muscle, which becomes hard and tender, although, if the muscle is severed completely (a not uncommon situation) a gap may be visible when the muscle contracts.

2.16 Injuries of connective tissue

Tendons connect muscle to bone. Ligaments connect bone to bone to limit movement in the joint(where two bones meet and range of motion is possible cartilage surrounds the ends of the bones at the joint to prevent bones from rubbing against one another. All these are connective tissues and all can be injured in physical activity. Common injuries are tendonitis, Achilles tendon rupture, shin splints, sprained ankle, and water in the knee, plantar fascia strain, and tennis elbow.

2.17 Tendonitis

Tendonitis is an inflammation of a tendon that results in swelling and pain. The pain tendon it is worse when not exercising, since the muscle to which the tendon is attached is not stretched and creates a greater pull on the tendon.

Since exercise actually relives the pain of tendonitis, the tendency is to continue exercising, with the result often being a worsening of the conditions. Tendonitis, most common in Achilles tendon (just above the heel).

A tendon is covered by a sheath that surrounds it completely. When a tendon is inflamed, the swelling causes it to stick to the sheath instead of sliding smoothly through it. This can be very painful. Tendonitis often starts with simple tenderness over the tendon and progresses to a painful state that restricts movement. In its most severe state, there is painful and sometimes audible **crepitus**. Crepitus is caused by the tendon rubbing against the sheath. To the injured athlete, it feels like two pieces of sandpaper rubbing together. The cause of tendonitis can be an acute trauma or continued overuse.

Acute Tendonitis

This occurs with one sudden overextension of the tendon, which stretches the tendon beyond its normal limits, but does not result in rupture. An example of such an overextension would be a high jumper overextending to hit his takeoff mark, collapsing forward and shifting all his weight to the tendon just below the knee.

Overuse Tendonitis

This occurs with repeated activity that slightly overloads the tendon. The cumulative effect of this repeated overstretching is an inflamed tendon.

An example of such repeated overstretching would be the runner who changes his training to include more hill work and experiences pain in his Achilles tendon. If overuse tendonitis is not treated properly and the athlete continues to train without modification, tendonitis may become chronic a state in which the athlete is never free of the problem.

Treatment of tendonitis consists of reducing the inflammation by resting the tendon, icing the tendon and sometimes by taking an anti-inflammatory medication.

Sometimes the problem will require a stronger drug prescribed by a physician. Severe cases of tendonitis often require physical therapy. Rest is a key factor in recovery.

2.18 Soft tissue injuries

Sprains

Sprains are injuries that occur around a joint, damaging the ligaments that attach bone to bone. Sprains are caused by an overextension of the normal range of motion that particular joint. The most common cause of ankle sprain is inversion (turning the sole of the foot inward and damaging the ligaments on the outside of the ankle).

The extent of the damage to the joint is measured by the amount of trauma caused to the ligament. Sprains are graded as follows to indicate severity:

First-Degree Sprain. The ligaments around the joint are stretched. Symptoms are temporary pain, loss of function, weakness, tenderness at the point of injury and mild Swelling.

Second-Degree Sprain. The ligaments around the joint are partially torn. (Think of the ligament as a rope with some of the fibers torn, but the rope itself is still intact.

Symptoms are tenderness over soft tissue, weakness, swelling, discoloration and limited function.

Third-Degree Sprain. This is a complete rupture of one or more ligaments around the joint. Symptoms are constant pain, loss of function, extreme tenderness over ligaments, swelling and discoloration.

Sprains are generally characterized by swelling, discoloration, temporary or lasting pain and decreased mobility. A phenomenon which frequently occurs immediately after a sprain is numbness, which allows the ankle to be examined easily, but gives an incorrect indication of the severity of the injury. Be cautious about allowing an athlete with a sprain to resume training or competition. Resting that day will be rewarded with an early return to training, rather than by guessing wrong and causing further damage. The immediate treatment for sprains should be I-C-E compression and elevation.

2.19 Synovial joint injury

Acute joint injuries

Sprains

The sprain, one of the most common and disabling injuries seen in sports, is a traumatic joint twist that results in stretching or total tearing of the stabilizing connective tissues. When a joint is forced beyond its normal anatomical limits, microscopic and gross pathologies occur. Specifically, there is injury to ligaments and to the articular capsule and synovial membrane.

Effusion of blood and synovial fluid into the joint cavity during a sprain produces joint swelling, local temperature increase, pain tenderness, and skin discoloration.

The joints that are most vulnerable to sprains in sports are the ankles, knees, and shoulders.

Chronic joint injuries

According to IOC sport medicine manual chronic physical injuries or problems occurring from sports participation, chronic synovial joint injuries stem from micro traumas and overuse. A major cause of chronic joint injury such as osteoarthritis is failure of the muscle to control or limit deceleration. Athletes can avoid such injuries by avoiding chronic fatigue and training when tired and by wearing protective gear to enhance active absorption of impact forces.

Tear

A tear is a disruption of the fibres of a muscle or tendon. This can be tiny and microscopic (often called a strain). A tear can also be more severe, and involve larger fibres of muscles and tendons. Tears (and strains) occur when a muscle or tendon is over-stretched or when a muscle contracts too quickly. The severity of the tear can range from the microscopic level (a strain) to a small number of fibres through to a complete rupture of all muscle fibres.

Dislocations

Dislocations are injuries to joints where one bone is displaced from another. A dislocation is often accompanied by considerable damage to the surrounding connective tissue. Dislocations occur as a result of the joint being pushed past its normal range of movement. Common sites of the body where dislocations occur are the finger, shoulder and patella.

2.20 Injuries to the muscle

Injuries to muscles are located throughout our body .they are connected to our bones by tendons and when they contract, muscles are for our ability to move anybody part. Sometimes muscles are injured as a result of physical activity. The most common injuries are muscle pulls and muscle cramps.

Muscle cramps and spasms

Muscle cramps and spasms lead to muscle and tendon injury. A cramp is a painful involuntary contraction of a skeletal muscle or muscle group. Cramps have been at tribute to luck of water or other electrolytes in relation to muscle fatigue. A spasm is a reflex reaction caused by trauma of the musculoskeletal system.

Muscle soreness

Overexertion in strenuous muscular exercise often results in muscular pain. Most people, at one time or another, have experienced muscle soreness, usually resulting from some physical activity to which they are unaccustomed.

Muscle stiffness

Muscle stiffness does not produce pain. it occurs when a group of muscles have been worked hard for a long period of time. The fluids that collect in the muscles during and after exercise are absorbed into the blood stream at a slow rate. As a result, the muscle becomes swollen, shorter, and thicker and therefore resists stretching. Light exercise, massage, and passive mobilization assist in reducing stiffness.

Muscle Strains

A muscle strain injury occurs as a result of tension to the muscle-tendon unit. This tension can result in simple overstretching of the muscle-tendon unit with pain and no loss of function to the extreme of complete muscle or tendon rupture. This injury typically occurs as a result of eccentric overload where there is a tension and a lengthening of the muscle or tendon rupture.

Strains occur either within a muscle or at the point where the muscle and the tendon join, not at a joint. If an athlete sprains an ankle, the overextension of the muscles surrounding the joint may result in a muscle strain as well as an ankle sprain. If you have ever sprained your ankle and had the muscles on the side of your leg hurt, you probably also strained your peroneal muscles above the ankle. Strains can be caused by one traumatic overextension or by continued overuse.

Muscle strains, are classified into first, second and third degree injuries.

A First-Degree Strain is minor partial injury to muscle tendon unit. This is a typically no sign of swelling, but bruising and tenderness at the area of injury may be evident. The function of the muscle- tendon unit is intact although pain full when resisted contractions are attempted.

A Second-Degree Strain is associated with muscle tendon fibre damage. This is associated with a greater degree of pain and swelling, bruising and in some situations a palpable detectin the muscle-tendon unit. Second degree strains are associated with weakness and impaired function.

A Third-Degree Strain is the complete disruption (palpable gap and complete loss of function) of that muscle- tendon junction unit. If the injury occurs at the muscle tendon

junction there typically will be a larger amount of bleeding and bruising. (IOC sport medicine manual 200)

A **fracture** is a break in a bone. This can result from a direct force, an indirect force or repetitive smaller impacts (as occurs in a stress fracture).

If the skin over a fractured bone is intact, the fracture is described as ‘simple’ or ‘closed’. If the skin over a fracture is broken, the fracture is described as ‘open’ or ‘compound’. The skin might be broken either by the force of the injury that caused the fracture or by a piece of broken bone protruding through the skin. A fracture is described as ‘complicated’ if nearby tissues and/or organs are damaged.

Muscle cramps

A muscle cramp is an involuntary sustained contraction of the muscle that may be caused by mineral deficiency (salt, potassium, magnesium, or calcium), an injury to the muscle, or an insufficient supply of blood to the area to remove built- up waste products (lactic acid). One common form of muscle cramp is a stitch; a sharp pain, usually on the sides of the upper abdomen. It is believed that this is a cramping of the diaphragm, which controls breasting.

Stitches can be prevented by not citing just before exercising. (Reilly,1981, p81) once they happen, exercise should stop. Place the palm of your hand over the stitch, and exhale several breath. When the pain stops, you can resume exercising.

Muscle cramps like muscle soreness, muscle cramps can be a problem related to hard conditioning. The most common cramp is tonic, in which there is continuous muscle contraction. It is caused by the body’s depletion of essential electrolytes or an interruption of synergism between opposing muscles.

Muscle pulls

A muscle pull is a stretch, tear, or rip in the muscle and is properly known as a muscle strain muscle pulls may be a result of insufficient warm up, imbalance in muscle strength, poor flexibility, mineral imbalance caused by a great deal of sweating or faulty diet or overtraining. When a muscle pull occurs, a sharp pain will be felt, and any further movement of that part of the body will hurt. When touched, that muscle hurt, and there may be some spasms visible (rapid constrictions).

Treatment includes RICE: rest, ice, compression, and elevation.

Muscle pull commonly affects these muscles: hamstrings, quadriceps, calf, and groin.

Sports injuries are caused by intrinsic factors and extrinsic factors:

Calf Muscle Tear

Unlike compartment syndromes, this injury hits you with sudden pain, like a kick in the back of the calf. A tender area in the calf, often with a change in density due to the burst blood vessels and formation of a bruise which may sometimes become visible

Muscle Hernia

This condition comes about in the lower leg when a sheath containing a muscle bursts and allows the muscle to bulge out.

There will be swelling over an area of muscle, often with a reduction in pain of the compartment that has been under pressure.
Different types of hernias may occur, including inguinal, abdominal, or femoral.
Any of these may be caused by a sudden rupture of the fascia and muscle or they may develop progressively over time. Inguinal hernias are the most common and the most easily diagnosed.

2.21 Injuries to bones

The 206 bones in the body are also subject to fitness related injury.

Bone bruises

A blow to a bone can be quite painful, but often not very serious. Some blood vessels may be ruptured, causing skin discoloration, and some pain may linger.

Fractures

Sometimes the blow to the bone, or the stress upon it, is so great that actually breaks. Aside from the pain and damage to structure and mobility broken bones may cause secondary problems.

Skeletal trauma

Because of its viscoelastic properties, bone will bend slightly. Bone is generally brittle and is a poor shock absorber because of its mineral content. This brittleness increases under tension forces more than under compression forces.
Bone trauma can generally be classified as periostitis, acute fractures, stress fractures, and epiphyseal condition.

Periostitis

An inflammation of the periosteum can result from various sports traumas, mainly contusions. Periostitis often appears as skin rigidity of the overlying muscles. It can occur as an acute episode or can become chronic.

Acute bone fracture

A bone fracture can be a partial or complete interruption in a bone's continuity; it can occur without external exposure or can extend through the skin, creating an external wound (open fracture).fractures must be considered one of the most serious hazards of sports and should be suspected in musculoskeletal injuries.

Longitudinal fracture

Longitudinal fracture longitudinal fractures are those in which the bone splits along its length. They are often the results of an athlete jumping from a height and landing in such a way as to impact force or stress to the long axis.

Oblique fracture

Oblique fractures occur when one end of the bone receives sudden torsion or twisting while the other end is fixed or stabilized.

Avulsion fracture

Avulsion fracture an Avulsion fracture is the separation of a bone fragment from its cortex at an attachment of a ligament or tendon. This fracture usually occurs as a result of a sudden, powerful twist or stretch of a body part. A tendinous avulsion can occur when an athlete falls forward while suddenly bending a knee, which causes a patellar fracture.

Sesamoid

A stress fracture of the sesamoid bone of the foot is particularly disabling for a distance runner. The pain usually develops gradually but is exacerbated with faster running. However, because of the exposed position of the sesamoid bon, this stress fracture may cause pain with certain other normal activities such as going up and down stairs. Localized swelling and pain with direct pressure over the injured bone lead to the correct diagnosis.

Runners with a sesamoid fracture frequently have had symptoms for a while before they seek medical treatment.

2.22 Back pain in running

According to Charles J. Gatt.Jr researcher show that within the general population, as many as 70% of people will complain of back pain at some time in their lives. In general, these are self- limiting episodes and require no formal medical treatment. For the running population, back pain is not as common as injuries of the lower extremities. The typical patient with back pain has traditionally been thought of as a middle-aged, overweight individual leading a sedentary life style. Because typical runners are neither sedentary nor overweight, few are affected by back pain.

Spinal injuries

Causes of Spinal Injuries

Track and field training and competition create many chances for extreme and possibly injurious spinal stresses. Postural stress can cause general and specific aches and pains, and through accommodation of joint and soft tissue structures, result in dysfunction. Lifting in weight training, throwing weighted implements, and spinal torsion and compression caused by pole vaulting, jumping, hurdling, and running can all cause acute or chronic back syndromes. Precipitating factors include:

Sitting Posture

A good sitting posture maintains the spinal curves normally present in erect standing posture. Poor sitting posture reduces or accentuates the normal curves enough to stress the ligamentous structures and induce pain. A poor sitting posture can produce pain to the back itself without any additional stress or injury. An athlete suffering from low back pain can experience increased pain from sitting or rising from sitting. When an individual sits in a chair for a few minutes, the lumbar spine assumes the fully flexed position, in which the muscles are relaxed and the weight bearing stress is absorbed by the ligamentous structures. An increase in intradiscal pressure occurs as the spine moves toward the flexed position in sitting, and decreases as the spine moves into extension.

Lack of Postural Extension

Another predisposing factor to low back pain is the loss of lumbar extension. A loss of spinal extension influences the athlete’s posture in sitting, standing, walking, and running. From faulty postural loading, the spine undergoes adaptive changes.

2.23 Frequency of Flexed Position

The majority of activities that an individual performs occur in the flexed position.
Theoretically, this produces stress on the annular wall and causes the fluid nucleus to move posteriorly.

Unexpected and Unguarded Movements

Unexpected and unguarded movements in track and field may cause an acute episode of low back pain. Throwers and jumpers often experience muscular strainsor ligamentous sprains. In attempts to reduce low back pain episodes, it is necessary to examine and advise each athlete regarding the precipitating factors involved.

Postural Syndrome

Pain of postural origin is intermittent and appears when soft tissues surrounding the lumbar joints are placed under prolonged stress. Upon evaluation, inspection and lumbar range of motion is normal. Postural assessment generally indicates poor sitting and standing posture; treatment should work to correct posture, strengthen muscles if any weakness is found, and stretch tight structures.

Dysfunction Syndrome

Dysfunction syndrome occurs when adaptive shortening and resultant loss of mobility cause pain before gaining a full range of motion. Adaptive shortening and loss of mobility can result from poor postural mechanics, spondylosis, trauma, or disc derangement. Treatment should emphasise lengthening of the shortened tissues and improving range of motion.

Derangement

Disturbance of the intervertebral disc mechanism is responsible for the most disabling cause of mechanical low back pain. The actions of the disc have been described and documented by various authorities to explain the relationship of the disc and increased pain upon movements. Minor disc bulging may cause deformity and limitation of movement, and certain movements of the spinal column increase the bulge while others may reduce it. Shifting the fluid nucleus of the disc may also disturb annular material.

2.24 Stress Fractures

Robert E.Leach expressed Stress fractures are among the more common injuries that occur in runners. They are the source of disability, but that disability is usually brief. With early diagnosis treatment usually becomes simple and the period disability is lessened. Stress

fractures account for approximately 10% of all sports injuries and range between 4.7% and 15.6% of all injuries to runners are stress fracture. Many studies have identified predisposing factors causing bone to be more susceptible to insufficiency fractures are by definition fractures occurring when normal bone is subject to stress. Etiologic factors resulting in stress fractures include running errors, anatomic variation such as cavus (rigid) or pronated feet poor footwear, and temporary inactivity.

Stress fractures occur in all sports that require repetitive running and jumping but are common in long distance runners than any other athletes.

Femoral Neck

Stress fractures of the femoral neck are much less common in runners than they are in military recruits. They do, however, have a high possibility of complications including displacement of the fracture and a vascular necrosis. An affected runner usually complains of pain in the groin area or, in some instances, some anterior thigh pain. An antalgic gait and some loss of range of motion or pain with motion are common. In some instance, routine radiographs show sclerosis in the femoral neck.

Femoral shaft fractures

Johnson and Colleagues 1994 report stated that stress fractures of the femoral shaft are much more common than previously documented. In study by Hershman and associates, the majority of these stress fractures were found in the mime dial, posterior medial cortex of the proximal femoral shaft.

A runner with a stress fracture of the femur usually reports a history of a vague deep thigh or groin pain. The occurrence of groin or thigh pain may lead the physician to think of a muscle strain, hamstrings, adductors, and quadriceps all can be involved in runners. a carful physical examination should distinguish between a stress fracture of the shaft and a muscle strain.

Tibia

Tibial stress fracture is the most common stress fractures in athletes in general and in runners in particular. In Matheson and colleagues study, 49% of the stress fractures occurred in the tibia. In Barrow and saha's study of women runners, 63% of the stress fractures occurred in the tibia, with approximately half of these in the distal portion of the tibia, one quarter in the proximal, and the reminder in the midportion.in proximal tibia, a common site is just below the midial tibia plateau.

Fibula

Fibula fractures are not common in runners but in one study they did affect athletes runners complain of pain with running. That pain is well localized. In some instances, with distal fibula stress fractures near the ankle, joint, the pain might be thought to be intraarticular.
Different diagnosis might possibly include an anterior exertion compartment syndrome or peroneal nerve entrapment.
Fibula fibular stress fracture causes lateral leg and ankle pain and is common in both runners and other athletes.

2.25 The Effect of Footwear in Running

Mileage

Higher mileage often increases the rate of injury. Running causes microscopic tears in muscles. When the body repairs these tears, it forms scar tissue, which is stiff and unable to stretch. As a result, this scar tissue leads to tight muscles, which are less capable of absorbing shock and also can lead to muscle imbalances (Weisenfeld, Burr, 1981).

Gender

Anatomical differences due to age and gender also play a role. Females are reported to have a larger hip width to femoral length ratio which increases the likelihood knee and shin injuries Also differences in foot width and hormones may contribute to back pain, thigh injuries and ligament damage in females.

BMI

The impact force due to gravity when the foot strikes the ground is usually absorbed by the tendons and joints in the leg. However, increased BMI or body mass will increase the impact force which increases stress on these joints (especially the knee).

Running Surface

Softer running surfaces can aid in the absorption of impact force, but also requires more effort from the muscles and can strain the Achilles tendon (Bloom).
Harder surfaces increase impact forces, but provide a solid, even and accessible surface for running (Bloom, Smythe, 2002). Moderate surfaces provide a good middle between the two but often can be uneven, which can lead to ankle injuries.

Age

As humans age, bone loss can lead to a greater risk of stress fractures and muscles are slower to repair.

2.26 Heat injury in runners

Heat injury is a threat to all distance runners, regardless of experience. Sustained high metabolic rate and unavoidable dehydration are constant stresses to adequate temperature regulation. The best defense against heat injury is prevention. Heat casualties are inevitable, however, in large warm-weather races, and preparation should be adequate to handle these problems.

Body temperature

During steady- state exercise, body temperature in runners normally increases to a range of 38 to 42 degree Centigrade. The elevation in body temperature is actively regulated to maintain a state of controlled hyperthermia, which is also compatible with optimum biochemical activity, blood flow, and oxygen transport for muscle contraction.

The runner is, however, also vulnerable to heat injury as a consequence of the complex interplay between increased heat production, dehydration and circulatory and metabolic failure that may occur with substantial exercise. The critical thermal maximum core temperature humans appear to be 42 degree centigrade sustained temperature above this level result in thermal injury and clinical heat stroke.

Fluid loss volume depletion and electrolyte losses clearly potentiate the probability of heat injury in runners. Body temperature during exercise is significantly higher when dehydration exceeds body weight. In addition, reduced blood volume further decreases cardiovascular efficiency and cooling capacity.

Heat stroke

Heat stroke is the most serious of heat injuries that may be encountered in runners. The mechanism of exertional heat stroke probably involves the accumulated imbalance between metabolic and environmental heat gain and decreasing or impaired heat loss. The numerous contributing factors include: headache, loss of consciousness, coma, rapid full pulse, progressive volume depletion, alteration in cardiac output and skin blood flow, and decreasing or impaired sweat secretion or evaporation. Exertional heat stroke may occur in the presence of active sweating.

Heat exhaustion

Heat exhaustion is a moderate form of heat injury.

Heat exhaustion is characterized by moderate to severe volume depletion, with water losses usually exceeding electrolyte losses prolonged exercise. Characteristic symptoms of fatigue, muscle cramps, chills or shivering, profuse sweating, hypotension, nausea and headache are often severe enough to limit further participation in a road race. Significant hypovolemia may be tolerated while running, but may be followed by acute hypotension while walking or standing. Heat exhaustion victims are usually confused and irritable, but maintain consciousness while supine.

Hypothermia in runners

Road race events held in cool, wet, or windy conditions may result in post exercise hypothermia. Body core temperature rises and is maintained above normal during active running in cold weather. However, prolong exposure, decreased heat production due to slowing pace, and increased heat loss from skin may lead to gradual hypothermia.post exercise hypothermia is more common and usually occurs 20 to 30 after running, due to the combined effects of decreased heat production and re-entry of cool blood from peripheral subcutaneous tissues**.**

2.27 Environmental factors

Altitude

With increasing altitude there is a decrease in barometric pressure. The percentage of oxygen in the atmosphere remains the same (20.9%), however the partial pressure of oxygen decrease which reduces the oxygen content in the blood.

The hypoxia associated with high altitude triggers a number of physiological adaptations which may enhance performance dependent on exposure time and elevation.

Metabolically, hypoxia stimulates hyperventilation and this decreases arterial carbon dioxide

Resulting in respiratory alkalosis and subsequent increased renal excretion of bicarbonate in attempts to restore normal PH.

Athlete’s health at altitude

There are a number of medical complications associated with high altitude. The extent to which these illnesses may occur in un acclimatized persons is dependent on both the rate of ascent to altitude and individual medical history.

Forms of altitude illness

Altitude mountain sickness (AMS)

Chronic mountain polycythemia

High altitude pulmonary edema (HAPE)

High altitud cerebral edema (HACE)

High altitude retinal haemorrhage (HARH)

Cold injury: Hypothermia and frostbite (sport medicine manual 2000)

Barefoot Running

Running barefoot is associated with a substantially lower prevalence of acute injuries of the ankle and chronic injuries of the lower leg in developing countries, but well-designed studies of the effects of barefoot and shod running on injury are lacking. Laboratory studies show that the energy cost of running is reduced by about 4% when the feet are not shod. In spite of these apparent benefits, barefoot running is rare in competition, and there are no published controlled trials of the effects of running barefoot on simulated or real competitive performance

CHAPTER THREE
3. Research design and Methodology

This quantitative study aimed at examining the prevalence of injuries in Addis Ababa first division athletics clubs of Federal Maremia, Federal police and Ethiopia Neged Banks clubs. Moreover, quantitative research is a fact finding research with adequate and accurate interpretation of the finding. The attributes of quantitative research make harmony with the purpose of the study. Since the research aims at identity and prevailing major factors that encountered from the athletes and coaches.

The method employed, the instruments used, sampling procedures applied, method of data collection, variables and are described below.

3.1 Subjects

The subjects of the study were 377 target population athletes from Federal Maremya, 80 males and 79 females, Ethiopia Neged bank 27 males and 51 females, and Federal Police 121 males and 19 females' first division clubs in Addis Ababa athletics Federation. The sample population consists of 60 Athletes (30 male and 30 Female). And also, 6 coaches (4 males and 2 females) have been selected purposely from those clubs by their position.

3.2. Instruments of Data Collection

The instruments used in this research were collected by the questionnaire which has closed and open ended questions. The number of questions adjusted accommodates all the necessary information's and for athletes 15 and coaches 5 questions were employed.

3.3. Sampling Procedures

As of Addis Ababa Athletics Federation there are six first division clubs. Among these, the researcher randomly selected three first division clubs; those are Federal Maremai, Ethiopia Neged bank, and Federal police clubs. There are a total number of 377 (228 males and 149 females) athletes in the above sample clubs. The investigator selected 60 athletes (30 males and 30 females). The sample contained 10 males and 14 females from Federal Maremai, 4 males and 10 females from Ethiopia Neged Bank, and 16 males and 4 females from Federal police. There is 16 % of the entire population for the study by stratified random sampling technique. The main objective of using stratified sampling technique in the study was to select proportional samples from each club, stream and from both sexes. And also 6 coaches (4 males and 2 females) and were selected purposely from those clubs by their position.

Table-:- 1 Summary of population and the number of samples taken

Item	Total of number of population						Number of samples					
	Athletes			Coaches			Athletes			Coaches		
	M	F	T	M	F	T	M	F	T	M	F	T
Federal Maremia	80	79	159	8	2	10	10	16	26	2		2
Ethiopia Neged Bank	27	51	78	2	3	5	4	10	14	1	1	2
Federal police	121	19	140	2	3	5	16	4	20	1	1	2
Total	228	149	377	10	8	20	30	30	60	4	2	6

3.4. Method of Data Collection

The Amharic versions of the questionnaires were administered to the selected samples at different days. To assist the data collection and coaches have been involved to administer the questionnaire**.** The collected data was analyzed and compute for general comparison by using percentage.

CHAPTER FOUR

4. Analysis data and Interpretation of Results

This part of the study deals with presenting, analyzing and discussing the data collocated through questionnaires from the sources. Furthermore, the main findings of the study are presented with the help of tables followed by descriptive statements for analysis. The respondent to the study includes athletes and coaches.

4.1 Characteristics of the Respondents Athletes

Table 2:- Sex, age, educational status and demographic characteristics of the respondents.

Item		Respondents				Total	
		Number			%	Number	%
		Athletes	Coaches	Total			
Sex	Male	30	4	34	52	66	100
	Female	30	2	32	48		
Age	17-19	15	-	15	23	66	100
	20-25	35	-	35	53		
	26-30	7	-	7	11		
	31-35	3	2	5	7		
	36 and above	-	4	4	6		
Educational standard	Illiterate	-		-	-	66	100
	Primary (1-8)	25		25	38		
	Secondary (9-12)	33		33	50		
	12+ some training	2		2	3		
	Diploma	-	4	4	6		
	B.A/B.SC and above	-	2	2	3		
Sub-city	Yeka	25	2	27	41	66	100
	Arada	8	2	10	15		
	Bole	-		-	-		
	Kirkos	1		1	1		
	Addis ketema	2		2	3		
	Kolefe keranyo	5		5	8		
	Nefase selk lafto	6	1	7	11		
	Ledeta	1		1	1		
	Gulele	12	1	13	20		
	Akaki kality	-	-	-	-		

The above table indicates that both the athlete and coaches respondents 52% are males and 48% are females,23% respondents are between the age of 17 to 19,53% are between 20 to 25, 11% between 26 to 30%, 7% are between 31 to 35 and 6% are above 36 years.

the educational status indicates that there is no illiterate athletes and coaches, 38% primary (1-8), 50% secondary school, 10% 12+ some training, 10% diploma, and 6% are first degree and above.

From the above table it also shows residences of the athletes and coaches 41% of them live in Yeka, 15% are live in Arada, 1% in kirkos, 3% in Addis ketema, 8% in Kolfekeranio, 11% in Nefas selk lafto, 1% in Lideta, 20% in Gulele sub city.

4.2 Analysis of the data obtained from athletes /runners

Table 3:- How many years have you been running?

Item	Response	Percentage
1-3	8	12.1
4-6	22	33.33
Above 7	30	45.45
Total	60	100

The above table shows 45.45% have been run above 7 years 33.33% have been run 4 to 6 years and 12.1% of the respondents said those 1 to 3 years have been run,

Table 4:- Have you got injured during activities or running in your sports life?

Item	Response	Percentage
Yes	46	66.66
No	14	21.21
Total	60	100

The above table indicates 66.66% of the respondents said that athletes have got injury during sport activities or running and 21.21% of the respondent did not faced for injury

Table 5:- On question number 7 if your answer is yes your reason is because of?

Item	Response	Percentage
The training load is very hard	15	25
Inadequate training load	8	13.33
Unsafe training environment	29	48.43
Lack of warm-up and cool dawn	4	6.66
Lack of balanced diet	3	5
Working with unsafe material	1	1.66
Over competition load	-	-
Total	60	100

The above table indicates 25% respondents are said that training load is very hard, 13.33% of the respondent said inadequate training load and most of the respondent (48.43%) said that unsafe training environment is the main cause to injuries.

Table 6:- On which body part have you injured mostly?

Item	Response	Percentage
Upper extremity	15	25
Lower extremity	45	75
Total	60	100

This table indicates the respondent said that 25% of athletes injured in the upper extremities and 75% of the respondents said that injured occurred in the lower extremity.

Table 7:- Before, after and during training /competition/ have you done warm up and cool dawn activities

Item	Response	Percentage
Yes	38	63.33
No	22	36.66
Total	60	100

The above table shows 63.33% of the respondents describe that an Athletes done warming up, cool down and stretching 36.66% of the respondents said that we do not done warming up, cool down and stretching exercise.

Table 8:- How do you describe your coach's style and his educational status?

Item	Response	Percentage
Poor	8	13.4
Moderate	40	66.7
High	12	20
Total	60	100

This table describe 13.4% of respondents said that educational status of the coach is poor, 66.7% of the respondent to agree the coach is moderate style educational status on the other hand 20% of the respondent said that the coach have high moderate style.

Table 9:- How many days per week do you run?

Item	Response	Percentage
4 days	2	3.3
5 days	5	8.3
6 days	12	20
7 days	41	68.4
Total	60	100

As it is displayed in the above table 68.4% of the respondents are run 7 days per week, 8.4% of the respondents said that 5 days run per week, 20 % of the respondents run 6 days per week. The rest of the respondents run 4 days per week.

Table10:- How many times per day do you run?

Item	Response	Percentage
1 times	10	1.7
2 times	50	83.4
Total	60	100

The above table shows 83.4% of the respondents run 2 times per day and 1.7% of the respondents said that 1 time run per day.

Table 11:- Most of the weekly training program place is on?

Item	Response	Percentage
Track	9	15
Asphalt	8	13.33
hills and downs	43	71.66
Total	100	100

This table shows that 71.66% of the respondents said that the training program focus in the ups and downs in the wood, 15 % of the respondents are said training program is in the truck and 13.33% of the respondent are said that the training program on the asphalt

Table 12:- Did the club doctors, managers and coaches gave you education about the cause and prevention methods of injuries regularly?

Item	Response	Percentage
Yes	0	0
No	60	100
Total	60	100

As it is displayed in the above table 100% of the respondents said that there is no an education about cause and prevention methods of injuries regularly

Table 13:- At what time of day do you normally run?

Item	Response	Percentage
Morning only	13	21.66
Afternoon only	4	6.66
Morning and afternoon	40	66.66
Total	60	100

The table describes 66.6% of the respondent said that most athletes are run during the morning and night time, 21.66% of the respondents describes athletes run in the morning time,6.66% respondents said that athletes run at afternoon and few respondent are said that the athletes run at night.

Table 14:- When you injured in the training and competition place have you got immediate first aid from your clubs physiotherapist?

Item	Response	Percentage
Yes	15	25
No	45	75
Total	60	100

The above table shows that 75% of the respondents said that they have not got immediate first aid and the rest respondent said that they have got first aid when injury occurred.

***The reason why athletes did additional training is**

Yes we do exercise by our selves

- To be improve our performance we do additional exercise

*** According the athletes mentioned causes to injury.**

- Lack of balanced diet
- Lack of enough rest after training
- Un programmed training
- Lack of scientific training method

*** When injuries are happened**

- Achilles tendon injured and has no enough treatment
- Knee broken has occurred
- Lack of warming up and stretching
- Un sufficient nutrition
- During training time athletes have not got treatment immediately after the injury happened so it increases its severity

***athletes raised the most exposed parts of the body in runners are:**

1. lower extremities

   1.1.Ham string

   1.2.Ankle

   1.3.knee

   1.4.Hip

***In your clubs what are the prevalence of injuries in the three clubs are**

- Knee injury
- Hamstring injury
- Muscle injuries
- Ankle injury
- Metatarsal phalanges
- Achilles Tendon
- Stress fracture of the bone

As mentioned by athletes the major causes of injury for runners were:

-The athletes run with the experienced (elite) athletes
- Incorrect training program
- Eager to win
- Lack of balanced food
- Overload training
- Restless training
- Lack of warming up cool down
- Unsafe training environment
- Training above their age level
- Unwillingness of the athlete to coaches

As they mentioned specific injury to runners were

-Lower extremities Hamstring
- Heel
- Ankle
- Knee
- Muscles
- Hip

1. **The training places mostly runners were injured as responded by them:**
   - Running with speed on the ups and downs the wood
   - Running on asphalts
   - Running on hard place
2. **As responded by athletes an injured runner rid off from training**
   - The hamstring and hips injuries take up to 6 months
   - It depends on according to the type of injury and its severity

3. **Most of the time in which training season runners injured? Athletes responded:**

- In the preparation period

- In the completion period

4.3 Analysis of data obtained from coaches

1. According to the data collected from coaches' major causes of running injuries were:

- The athletes run with the experienced (elite) athletes
- In correct seasonal training program
- Eagerness to win
- Lack of balanced food
- Overload training
- Restless training
- Lack of warming up and cool down
- Unsafe training environment
- Training above their age level
- Unwillingness of the athlete to coaches
- Having training in clubs and own manager
- Lack of equipments
- Unbalanced between training load and food in take

2. **As the coaches indicated the body mostly injured in running were:**
    - Lower Extremities
    - Knee
    - Ankle
    - Hamstringing
    - Leg muscles
    - hip
3. **the coaches shows that the place where mostly runners injured**

- Ruining on hills and downs
- running on Asphalt
- running on forest
- Running on stony areas

4. The coaches indicate that the injured athletes rid off from training

- It depends up on the type and its severity

5. The coaches said that most of the time athletes were injured

- In the preparation period
- In competition period

6. According to the coaches the following points are mentioned as the prevalence of running injury in the sampled clubs.

- Knee injury
- Ankle injury
- Hamstring injury
- Injuries to the connective tissue
- Muscle injuries
- Achilles Tendon
- Stress fracture of the bone

CHAPTER FIVE
5 Summary, Conclusions and Recommendations

This is the final part of the thesis which deals with the major findings, the conclusion reached at and the recommendations forwarded based on the finding.

5.1 Summary

The major purposes of this research were to find out the prevalence of injuries in running in Addis Ababa first division athletics clubs of federal police, federal maremia and Ethiopian neged Bank. To achieve this objective the following basic questions were raised

4. How is the prevalence of injury in running?
5. Which body parts are affected mostly?
6. What are the possible major factors which contribute to the problem?

In order to find out answer for the above questions, some first division athletics club athletes were made subjects of the study from Addis Ababa Athletics Federation. There are six first division athletics clubs in Addis Ababa Athletics Federation; three were selected using simple random sampling technique. In addition from each clubs by using stratified random sampling 60 athletes and 6 coaches were selected purposely from the clubs by their position. The analysis was made using 60(30 males and 30 females) athletes, 6(4 males and 2 females).

For this quantitative research approach, the data obtained through questionnaire was analyzed quantitatively by percentage and the data collected through questionnaire.

From the data analysis, the major findings obtained are summarized as follows:

- The athletes have been trained most of the time in unsafe training environment and this is the reason why athletes to be injured.
- Lower extremity is the main vulnerable body parts to injury.
- Inappropriate warming up, cool down and stretching were vital carouses of prevalence of running injuries in training and on competition.
- Every daily loaded training program is a cause to fatigue, to loss energy and this leads to injury.
- The athletes have been training twice a day and this is to muscle fatigue and lead to injury.
- Mostly weekly training program is ups and downs in the wood, so that these environments is very hard unsafe and the athletes mostly injured around this place.
-it was not given regular education about the cause and prevention methods of injury.
- Most athletes had training at the morning and at night, this type of restless

Training program is danger to athletes' health and leads to injury.

- The big mistake that athletes do is after the main training they by also run additional training by themselves and this are another cause to injury.

-Lacks of scientific training method, lack of balanced diet, lack of enough rest were the other causes athletes injury.

-when the physiotherapist was not present in the training place and if the athletes injured at this time they treat by their friends and by somebody who has not knowledge of massage so the athlete will be lead to severe injury.

5.2 Conclusion

After an intensive discussion of the findings of the study the researcher concluded as follows:

1. 53% of the respondent athletes have between 20 to 25. This shows that majority of the athletes age is at the right age of performance and competition level. But 11% of the respondents between 26 to 30 so that when the age increases the body functioning will be decreases and the runner has been easily injured.
2. 38% of the respondent athletes in primary education level, 50% secondary level, 3% 12+ level and the coaches 6% in diploma level 3% of them has B.A and above level.To recognized, followed scientific approach method and to understand the global world of athletics the three clubs athletes and coaches have yet not reach in the necessity level.
3. Most of the athletes 41% live in Yeka, 20% in Gulele, and 15% in nefas silk Lafto this indicates that the athletes are nearest to training ups and downs in the wood and this is one basic reason why athletes injured.
4. Lower extremity of the runners exposed to injury, the clubs, administers and the athletes need educate properly about prevention of injury.
5. 45.45% of the respondent said that they have 7 and above years of experience and this helps to prevent injuries and to be control themselves.
6. 66.66% of the respondents have injured athletes. This indicates that the cubs had lost many athletes and also it influences the Ethiopian athletics.
7. Adequate educational background, fitness, proper warm up, cool down and stretching exercise, scientific training program and massage helps to reduce the chance of injury.
8. Most of the runners have been injured inadequate (unsafe) environment, exercising beyond their ability and intake unbalanced diet.
9. Most Injuries in runners were: Knee injury, Ankle injury**,** Hamstring injury**,** Injuries to the connective tissue**,** Muscle injuries, Achilles tendon and Stress fracture of the bone.
10. Injuries in the selected clubs are occurred in the preparation and competition period.

5.3 Recommendations

After collecting, analyzing and interpreting data the following points are recommended to excellence prevention of prevalence of injury in running.

1. Even though the athletes have experienced in running they were exposed to prevalence of injury so, that concerned body are responsible to control it.
2. In the selected three athletics clubs majority of the athletes have been injured so the clubs, coaches and other concerned bodies should aware the prevalence of injury, cause and prevention method.
3. Coaches have a great role to minimize injury, to develop athletics, to control the training program to done the expected thing the club administration should assigned knowledgeable coaches.
4. Daily loaded training program is a cause to fatigue, to loss energy and this leads to injury, so the program should moderate.
5. Most of the runners have been injured inadequate (unsafe) environment especially around the hills and downs beside of this asphalt training also cause to injury it is important preparing running track regular education and orientations.
6. Physiotherapist should follow athletes during training and competition.
7. Most of the time injury in runners occurred in the lower extremity, in every Sport exercise Warming up, stretching and cool dawn after exercise is must.
8. Special care should be taken during preparation and competition period.
9. Prevalence of injury can be minimized and it is possible to prevent through education.
10. Training program should be according to the age level and experience of the athletes.
11. Training load and runner's food should be balance.
12. Lower extremity of the runners were exposed to injuries, the coaches, club Physiotherapist has responsible to prevent it.

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Appendix I

Addis Ababa University

School of graduate studies

College of natural science

Department Of Sport Science

Questionnaire to be filled with Athletes

Objectives: - The major objective of this questionnaire is to find out the causes and prevalence of injury in runners and its influence in the first division of Addis Ababa athletics sport clubs in Addis Ababa federal police, federal maremia and commercial bank of Ethiopia. By finding the causes and the prevalence of injury I translate the documents for the coming generation to students, researchers, historians and those who have interest in the athletics field and it uses as a source of research.

Your genuine idea is help me to graduate my second degree from Addis Ababa University.

Thank you in advance for your kind cooperation!

Directions: - 1. You are politely requested in advance to turn back this questionnaire after you fill the required information's genuinely.

2. You do not write your name.

3. Give short answer in the black spaces provided.

4. Put the tick (√) in the box to indicate your choice.

Part I. Demographic characteristics of respondents.

1. **Kefle ketema /sub city ----------**
2. **Woreda ----------**
3. **Age 17—19 ☐ 20—25 ☐ 26—30 ☐ 31—35 ☐ 36--40 ☐**
4. **Sex male ☐ Female ☐**

5. **Educational level**

Illiterate ☐ **Grade 12 completed and some training ☐**

Primary school (1-8) ☐ **Diploma holder ☐**

Secondary school (9, 12) ☐ **B.SC/B.A and abov ☐**

Part two

6. **How many years have you been running?**

A/ 1-3 ☐ **B/ 4-6** ☐ **C/ above 7 years** ☐

7. **Have you got injured during activities or running in your sports life?**

A/ yes ☐ **B/ no** ☐

8. **On question number 7 if your answer is yes your reason is because of?**

A/ the training load is very hard ☐

B/ inadequate training load ☐

C/ unsafe training environment ☐

D/ lack of warm-up and cool dawn ☐

E/ lack of balanced diet ☐

F/ working with unsafe material ☐

G/ over competition load ☐

9. **For your answer in question number 8 please justify how and what was the injury looked like?**

_____

_____

_____

10. **On which body part have you injured mostly?**

A/ upper extremities ☐ **B/ lower extremities** ☐

11. **For your choice on question number 10 please describe the injured body part**

_____

_____

_____

_____

12. **Before, after and during training /competition/ have you done warm up and cool dawn activities properly? A/ yes** ☐ **B/ No** ☐

13. **How do you describe your coach's style and his educational status?**

A/ poor ☐ **B/ moderate** ☐ **C/ high** ☐

14. **How many days per week do you run?**

A/ 4 days ☐ **B/ 5 days** ☐ **C/ 6 days** ☐ **D/ 7 days** ☐

15. **How many times per day do you run?**

A/ 1 times ☐ **B/ 2 times** ☐

16. **At what time of day do you normally run?**

☐

A/ morning only ☐ **B/ afternoon only** ☐ **C/ morning and afternoon**

17. Most of the weekly training program place is on?

A/ track ☐ **B/ Asphalt** ☐ **C/ ups and downs in the wood** ☐

18. Do the club doctors, managers and coaches gave you education about the cause and prevention methods of injuries regularly? A/ yes ☐ **B/ No** ☐

19. When you injured have you got immediate first aid from your clubs physiotherapist?

A/ Yes ☐ **B/ No** ☐

20. Do you think that your coaches program is not enough to you, and have you work additional training programs by yourself (describe)

_____

_____

_____

_____

21. Mention other additional reasons or causes for athlete's injury?

_____

_____

_____

_____

22. In your clubs what are the prevalence of injuries in runners?(mention them)

_____

_____

_____

_____

Appendix I

አዲስ አበባ ዩኒቨርስቲ

የተፈጥሮ ሳይንስ ፋካሊቲ

ስፖርት ሳይንስ ትምህርት ክፍል

ለሯጮች የቀረበ መጠይቅ፡፡

የመጠይቁ ዓላማ፡ የዚህ መጠይቅ ዋነኛ ዓላማ በአዲስ አበባ የሚገኙ የፌደራል ፖሊስ፣ ፌደራል ማረሚያና የኢትዮጵያ ንግድ ባንክ ሯጮች በልምምድና በውድድር ጊዜ የሚደርስባቸውን የተለያዩ ስፖርታዊ ጉዳቶችና መንስኤዎችን በመለየት መፍትሄቻቸውን በጽሁፍ በማስቀመጥ ለተማሪዎች፣ ለተማራማሪዎች፣ ለባለታሪኩ፣ በመስኩ ዝንባሌ ላላቸውና ለመጪው ትውልድ ለማስተላለፍ በመሆኑ እርስዎ የሚሰጡኝ ምላሽ ለሌሎችም የሚያግዝ ከመሆኑም በላይ በቀጣይ ለሚደረጉ ጥናቶች እንደ ምንጭ በመሆን ጠቀሜታው የጎላ ነው፡፡

ስለሆነም ውድ ጊዜዎት በመክፈል የሚሰጡኝ ግብአት በአዲስ አበባ ዩኒቨርስቲ ሁለተኛ ድግሪ ለመመረቅ የሚያስችለኝና ወሳኝ በመሆኑ በጎ ምላሽዎን እንደሚሰጡኝ በመተማመን ለሚደረግልኝ ትብብር ታላቅ ምስጋና በማቅረብ ነው፡፡

መመሪያ፡-1 ለጥያቄዎቹ በቅንነትና በታማኝነት መልስ ከሰጠህ/ሽ/ በጎላ መልስ የተሰጠበትን መጠይቅ እንድትመልሱልኝ በማክበርና በትህትና እጠይቃለሁ፡፡

2. ስም መፃፍ አያስፈልግም፡፡

3. ባዶ ቦታዉ ላይ አጭር መልስ ስጡ፡፡

4. በምርጫዉ ጥያቄዎች ፊት ለፊት ላይ በባዶዉ ሳጥን ዉስጥ(✓) ምልክት አድርግ/ጊ/፡፡ አመሰግናለሁ !!

ክፍል አንድ

1. **ክፍለ ከተማ ----------**
2. **ወረዳ ----------**
3. **እድሜ 17--19 ☐ 20---25 ☐ 26---30 ☐ 31–35 ☐ 36--40 ☐**
4. **ፆታ ወ ☐ ሴ ☐**

5. **የትምህርት ደረጃ**

ማንበብና መፃፍ አልችልም ☐ 12ኛ ክፍል ያጠናቀቀና የሙያ ስልጠና ☐

የመጀመሪያ ደረጃ ትምህርት (1-8) ☐ ዲፕሎማ የተመረቀ ☐

ሁለተኛ ደረጃ ትምህርት(9-12) ☐ የመጀመሪያ ዲግሪና በላይ ☐

ክፍል ሁለት

6. ምን ያህል ዓመት ሮጠሀል/ሻል)

ሀ/ ከ1-3 ዓመት ☐ ለ/ ከ4-6 ☐ ሐ/ ከ 7 ዓመት በላይ ☐

7. ልምምድ ስትሰራ/ሪ ስፖርታዊ ጉዳት ደርሶብህ/ሽ ያውቃል?

ሀ/ አዎ ☐ ለ/ የለም ☐

8. በተራ ቁጥር 7 መልስህ/ሽ አዎ ከሆነ ምክንያቱ ምረጥ/ጭ

ሀ/ በጣም ከባድ ልምምድ ስለምንሰራ ☐

ለ/ ተገቢ ወይም በቂ ልምምድ ስለማንሰራ ☐

ሐ/ የምንሰራበት ቦታ ምቹ ባለመሆኑ ☐

መ/ በትክክል የሰዉነት ማሟሟቅና ማቀዝቀዝ ባለማድረግ ☐

ሰ/ የአመጋገብ ስርአትን ባለመጠበቅ ☐

ረ/ ልምምድ የምንሰራበት መሳሪያ ተስማሚ ባለመሆኑ ☐

ሸ/ በዉድድር መብዛት ☐

9. በተራ ቁጠር 8 ለሰጠሽ/ሸዉ መልስ ጉዳቱ ሲደርስ እንዴትና ምን ይመስል እንደነበር ማብራሪያ

ስጡ፡፡_____

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10.በአብዛኛው በየትኛው የአካል ክፍል ላይ ጉዳት ይደርስብሻል/ሀል ?

ሀ/ ከአንገት በላይ ☐ ለ/ ከወ ገ ብ በላይ ☐ ሐ/ ከወገብ በታች ☐

11.በተራ ቁ ጥ ር 10 ለመረጥሽዉ መልስ የትኛዉን የሰዉነት ክ ፍ ል እንደሆነ ጥ ቀስ/ሽ;

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_____

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_____

12.ከልምምድ በፊትና በኋላ እንዲሁም በውድድር ጊዜ በቂ የስውነት ማሟሟቅና ማሳሳብ ትሰራለህ/ሽ? ሀ/ አዎ ☐ ለ/ አልሰራም ☐

13.የአሰልጣኙ የአሰለጣጠን ሁኔታና የትምህርት ደረጃ እንዴት ይገለጻል?

ሀ/ ዝቅተኛ ☐ ለ/ መካከለኛ ☐ ሐ/ ከፍተኛ ☐

14.በሳምንት ምን ያህል ቀን ልምምድ ትሰራለህ/ሽ)

ሀ/4 ቀን ☐ ለ/5 ቀን ☐ ሐ/ 6 ቀን ☐ መ/ 7ቀን ☐

15.በቀን ለምን ያህል ጊዜ ልምምድ ትሰራለህ/ሽ)

ሀ/1 ጊዜ ☐ ለ 2 ጊዜ ☐

16.በየትኛው ሰዓት ልምምድ ታደርጋለህ/ሽ ?

ሀ/ ጧት ብቻ ☐ ለ / ከሰዓት በኋላ ብቻ ☐ መ/ ጧትና ከነሰዓት በኋላ ☐

17.በየሳምንቱ የሚወጡ የልምምድ ፕሮግራሞች በ----------ቦታ ላይ ይበዛሉ፡፡

ሀ/ ትራክ ☐ ለ/ አስፋልት ☐ ሐ/ ዳገትና ቁልቁለት ☐

18.የክለቡ ሀኪም አስተዳዳሪዎችና አሰልጣኞች ለስፖርተኞች የጉዳት መንስኤና መከላከያው በተከታታይ ትምህርት ይሰጣሉ)

ሀ/ አዎ ☐ ለ/ የለም ☐

19.የክለባችሁ ወጌሻ በልምምድና በውድድር ቦታ ላይ በመገኘት ስትጎዱ እየተከታተለ አስቸኳይ እርዳታ ያደረግላቸዋል?

ሀ/ ያደርጋል ☐ ለ/ አያደርግም ☐

20. አሰልጣኝ የሚሰጠዉ ልምምድ በቂ አይደለም በማለት በግል ተጨማሪ ልምምድ ትሰራለህ/ሽ? ማብራሪያ

ብትሰጡኝ_____

_____

_____

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21.በእርስዎ ግምት በስፖርተኞች ላይ የሚደርሰው ስፖርታዊ ጉዳት ከምን የተነሳ

ነው ይላሉ?

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_____

_____

_____

22.በእናንተ ክለብ ውስጥ በአትሌቶች ላይ እየደረሱ ያሉ ጉዳቶች ምን ዓይነቶች ናቸው ?(ጥቀስዋቸው)_____

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Appendix II

Addis Ababa University

School of graduate studies

College of Life Science

Department Of Sport Science

Questionnaire to be filled with coaches

Objectives: - The major objective of this questionnaire is to find out the causes and prevalence of injury in runners and its influence in the first division of Addis Ababa athletics sport clubs in Addis Ababa federal police, federal maremia and commercial bank of Ethiopia. By finding the causes and the prevalence of injury I translate the documents for the coming generation to students, researchers, historians and those who have interest in the athletics field and it uses as a source of research.

Your genuine idea is help me to graduate my second degree from Addis Ababa University.

Thank you in advance for your kind cooperation!

1. **What are the major causes of injury for runners?**

   _____

   _____

   _____

   _____

2. **For runners which body part mostly injured?**

   _____

   _____

   _____

   _____

3. **At where training place mostly runners injured?**

   _____

   _____

   _____

   _____

4. **For how long have been an injured runner rid off from training?**

_____

_____

_____

_____

5. **Most of the time in which training season runners injured?**

_____

_____

_____

_____

6. **In your clubs what are the prevalence of injuries in runners?(mention them)**

_____

_____

_____

Declaration

This thesis is my original work and has not been presented in my other university and that all sources of material used for the thesis have been dully acknowledged.

Name _____

Signature_____

Date_____

This thesis has submitted for examination under my approval as a research advisor

Name _____

Signature_____

Date_____