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Sports injury - Fractures

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Abstract

In today's scenario the sports have become highly competitive. The nature of all sports has become aggressive. So the chance of injuries also rises. This article will light up the most common sport injury i.e. fracture. We have 206 bones in your body that make up your skeleton. Our skeleton supports and protects the soft tissues in your body and allows you to move. Bone is a living tissue with a soft center of bone marrow that produces blood cells. Your bones have a hard outer surface (the cortex) that contains minerals such as calcium. Healthy bones are strong and can bear a lot of weight and force. They do bend a little and sometimes you may apply force to a bone but it won't break, but some times during a hard fall fracture can occurs. Fractures usually happen when too much force is applied to a bone, usually during a fall or a sports accident. There are different types of fracture but they all result in a partially or completely broken bone. If you have an accident or sports injury your bone may fracture into many pieces. Fracture is a most common sports injury which may be occurs at any time during the play.

Keywords: Injury, developing, physical, fitness, dagnosis and treatment

Introduction

Sports are an integral part of a society. A sport by nature is enjoyable, challenging. The phenomenon of sports today intervenes in many field. Sports and the games are the popular time pass for every age group person which provides them relaxation. Sports play important part in developing physical fitness and helps in utilizing the leisure time. The other aspect of sports is that Sports carry an element of risk in the form of injury. Every day lot of peoples plays many sports or takes part in many physical activities to improve their physical strength and fitness. In fact there are no sports which don't carry risk of injury. In some sports chance of injury may be more due to its nature on the other hand it may be less. Sports injuries are common among athletes and other people who participate in sports. Sports participation always carries the risk of injury. Sports medicine is the subject which helps us in prevention of injuries, illnesses, diagnosis and treatment of injuries and rehabilitation and return to physical activity again. There are many precautions which help us in prevention of these injuries. The prevention of injuries in sports depends on being well prepared, but also on appropriate clothing and protection, good equipment, sensible rules, adequate facilities, regular health controls. Diagnosis and treatment of injuries are the main part of orthopedic sports medicine. A correct diagnosis is requirement for successful treatment. Serious acute injuries are generally treated adequately in the emergency departments. The sub-acute and major injuries present more of a problem to the coach, the trainer or the physician. Injuries such as those from overuse of the tendons and bones, as well as cartilage injuries, are often difficult to diagnose and treat and they are not always well understood. Rehabilitation and return to sport of ten require teamwork involving the physician, the physical therapist, the trainer, and the athlete. Injuries heal at varying paces depending on what type of tissue is involved and also on the severity and location. If the rehabilitation is to be successful, it is essential that the person in charge of treatment have a thorough knowledge of the healing process in the different tissues and also be familiar with the demands of the sports concerned. Finally, sports medicine is a discipline involving many different medical sciences. The sports medicine doctor can be an orthopedic surgeon, a rehabilitation specialist, a family physician or one of many other specialists. In a few countries there are special education programs to become a sports medicine specialist. Every country has its own slightly different system, but it is to be hoped that in the long term all countries will come on the same platform regarding this issue and they

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Will be more aware in this area and more and more researches will be conducted in the field of sports medicines specially regarding with the sports injuries and their treatment.

Meaning of Sports Injuries

Injuries that occur while playing sports or while taking part in any physical activity is said to be a sports injury. Participation in sports is generally regarded as a healthy, challenging and exciting activity for people for all age groups. It provides many benefits to any individual. However sports injury remains a risk for all participants. Injuries are often a common occurrence for those participating in sport. It is therefore important that those involved in sport should have knowledge of the factors that can cause injuries, as well as to those that play a part in preventing them. Some risk factors are inbuilt in sports that cannot be removed by participation, so players need to have knowledge of both the physiological and psychological mechanisms of injury in terms of occurrence, treatment and subsequent rehabilitation. There are many kinds of sports injuries some are very serious and other may not. Many factors are there which may be a main cause of any kind of sports injury. There are many reasons for the sports injuries some are mentioned below

- Not warming up properly before exercising
- Using the wrong equipment
- Pushing yourself too hard
- An accident.

Fractures

A fracture may be defined as a complete or incomplete break in a bone. In the fracture some unexpected and intolerable force is given to the bone as a result complete or incomplete breakage in the bone occurs and sometimes that force that breaks the bone can also injure muscles, tendons, and other soft tissue surrounding the bone. Bones are normally strong and very hard. However, in the very young they are still soft and somewhat elastic. But when some kind of directly hard force is applied to the bones it may result in the fracture. Sports by nature are very aggressive and a lot of physical activity is required to play any sport. As a result a lot of sports injuries may also occur during the time of play. From these sports injuries fractures are the common one. As mentioned above during the time of play many kinds of accidents occur these kinds of accidents may be caused by knowingly or unknowingly by the opponent team members or some other reason behind them. When some kind of force is applied directly on the bone or a joint may give rise to the bone injury either at the point of impact or some distance away. Fractures account for 5-6% of all sports injuries. Else than sports there are many other reasons which may cause fractures. These are disease processes, such as osteoporosis, that can affect the bones as well. Such diseases play a significant role in fracture occurrences, Fractures may occur with a fall, motor vehicle accident, a direct blow to the bone, or a twisting or pulling motion. Bones that fracture most frequently include multiple bones in the wrist, hand, and foot; the toe, finger, ankle, rib, hip, nose, spine, and collarbone (clavicle). Risk increases with osteoporosis, age, and bone marrow tumors. High-risk activities and reckless behavior and anything that increases the risk of falls may be some other reason behind fracture

Symptoms of fractures

The main symptom of a fracture is pain. This can be quite

severe and may make an injured person feel sick and light-headed. The pain gets worse when he tries and moves the affected area. He may not be able to use the affected area, for example he may not be able to walk on a broken ankle or use his hand if he has a broken wrist.

Other symptoms of a fracture include:

- Swelling
- Bruising
- A grating feeling or noise – you may hear your bone break during an accident
- The area looking deformed or twisted

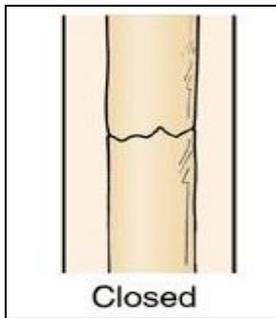
Causes of fractures

There are a number of different causes of fractures in sports. The main ones are listed below.

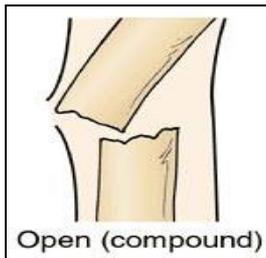
- The most common cause of a fracture is when some severe force is applied on the bone. This can happen during a fall or in an accident while playing any sport.
- Roughly play or not using proper equipments can also cause fracture
- Sports are aggressive by nature. So some kind of hard hitting by the opponent may be the reason for fracture
- Not proper warm up may be the reason
- Not following the sport rules and regulation
- Lack of physical fitness can cause fracture
- Bone conditions, such as osteoporosis, can cause fractures. This is because your bones become fragile and brittle and this makes them more likely to break.
- Bones can fracture because of over stress on them. This thing happens when we overuse that bone or give overburden to that bone for example in weight training
- A sudden violent muscular contraction during the physical activity may be responsible for fracture
- Fracture may also result from the combination action of the direct and indirect forces in the twisting of an ankle while playing

Types of fractures

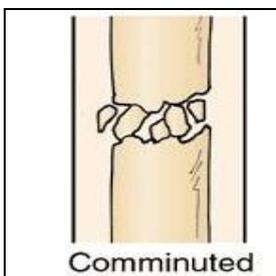
Our bones can be fractured in various ways but. What type of fracture you get it depends upon the factor how you get injured? There are several ways to classify a bone fracture, which is important to know because it gives us certain information about the fracture and the treatment needed. A general classification involves displaced bone fracture, undisplaced bone fracture or hairline fracture, pathological bone fracture, and compound bone fracture. Displaced bone fracture is when the broken ends of a fracture move away from each other and a gap is between them. Undisplaced bone fracture or hairline fracture is when the bone breaks and a crack is made. This type of fracture typically stays in place and remains without a gap. A pathological bone fracture occurs when a disease (cancer or osteoporosis) has weakened the bone. A bone is classified as a compound bone fracture when the bone breaks and penetrates through the skin creating an external wound. Mainly doctors recognize two main types of fractures simple and compound. But there are several intervening categories depending upon the severity of the fractures and the impact it makes on the other parts of the body such as skin, blood vessel, nerves etc. There are at least 8 types of fractures that are mentioned in sports medicine literature



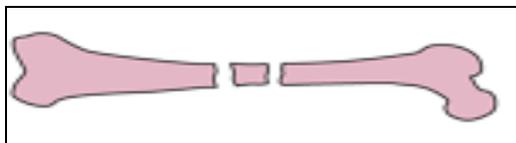
1. **Simple fracture:** A simple fracture shows no break in the skin and no wound leading to the bone. It is also called closed fractures



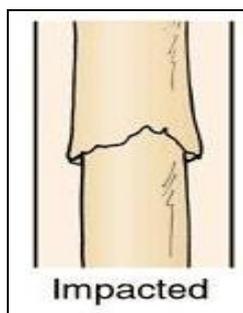
2. **Compound fracture or open fracture:** In a compound fracture, the skin will be damaged and the broken ends of the bone may even be seen sticking through skin. There are many possibility of the infection due to easy access of the germs to the site of the fracture. In this type of fracture the site must be cover up until the stitches are not done and proper prevention measures should be taken



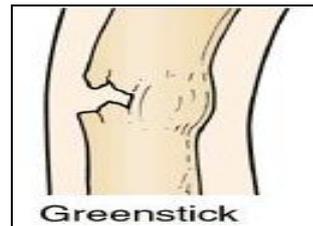
3. **Comminuted fracture:** In this kind of fracture the bone is broken into several pieces. These pieces can also harm some internal organs.



4. **Multiple fracture:** Multiple fracture means there is more than one fracture in a bone



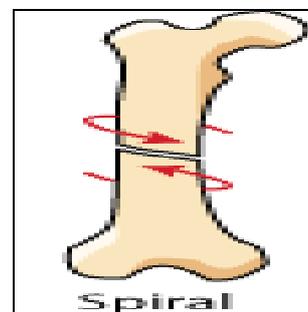
5. **Impacted fracture:** In the impacted fracture the two ends of bones get driven into each other



6. **Green stick fracture:** In this kind of fracture the break occurs only part way through bone. This kind of fracture is often occurs in the infant and children. A bone may crack under the impact of an accident but does not break as it happens in the case of adult



7. **Stress fracture:** the stress fracture is an overuse injury. It occurs when muscles become fatigued and are unable to absorb added shock. Eventually, the fatigue muscle transfer the overload of stress to the bone causing a tiny crack called a stress fracture



8. **Spiral fracture:** A spiral fracture results when a bone is broken by a twisting force

Treatment of fractures

There are various way in which fractures can be treated some are done by doctors and some by the person him self who got fractured.

First aid: First aid is a primary treatment of the fractures. It is done by the fractured person himself. If he thinks that his bone is broken, or he is helping someone who has got fractured, he must try to support the affected area and stop it from moving around. This will help to prevent further damage and will ease the pain. He can use cushions, clothes or your hand to support the area. If he have an open fracture, he should don't try to close the wound or put the bone back into place. In this case he must cover the wound with a clean dressing or cloth until you can get treatment.

Non-surgical treatment: Before doctor can treat your fracture any person will need to move your bones back into their

normal place. This is called reducing the fracture. Because this can be a painful procedure, you may have a general or a local anesthetic. Closed fractures can be treated using a cast or a brace or by using traction. Person can use cast. A cast is a hard and rigid protective covering, which holds your bone in place and helps it to heal. Casts can be made of plaster of Paris or fiberglass. A brace is similar to a cast but it allows you to move in a limited way. In the case of fracture traction isn't often used, but it involves bringing your bones into line with each other using a gentle but steady pulling action. Weights are used to gently pull the bones together and these are attached to your skin using tape, or to your bone using metal pins. Traction can be used as an initial treatment, before surgery. It's usually used for leg fractures. Some fractures, such as broken ribs, can't be treated using a cast or traction. For these types of fracture, your doctor may ask you to take painkillers and reduce the amount of activity you do until the fracture heals.

Surgery: Depending on the type of fracture how harsh it is, it may need to have an operation to fix the bones in place to allow them to heal. During the operation surgeon will move broken bones into the correct place and then fix them using metal rods, screws and metal plates. They attach onto the surface of your bone. In some operations surgeon will then closed the skin and cast or brace shall be putted on to your bones to protect them as they heal. In other operations the metal plates and screws are attached to metal bars outside your skin. This forms a frame that holds your bones in the proper position so that they can heal.

Physical therapies: As fracture heals person may be referred to a physiotherapist (a health professional who specializes in maintaining and improving movement and mobility). He or she can help a person to build up strength in his bones and muscles and to ease any stiffness. Person may be given an exercise program to follow, which will help him to get back a full range of movement in the affected area. It is important to note that in all cases of fracture proper treatment is required either by the doctor or by the patient himself

Most common method of treatment of fractures

Rest: Rest the affected area. Stay off the injured foot or ankle until it can be fully evaluated. Walking, running, or playing sports on an injured foot or ankle may make the injury worse.

Ice: Apply ice to the affected area as soon as possible, and reapply it for 15–20 minutes every three or four hours for the first 48 hours after injury. Ice can decrease inflammation.

Compression: Wrap an elastic bandage (such as an Ace® wrap) around the affected foot or ankle. The wrapping should be snug, but not so tight as to cut off circulation.

Elevation: Elevate the affected extremity on a couple of pillows; ideally, your foot or ankle should be higher than your heart. Keeping your foot or ankle elevated also decreases swelling.

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