

Sports Injuries and Prevention

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Available online at: www.xournals.com

Received 4th September 2018 | Revised 13th October 2018 | Accepted 14th December 2018

Abstract:

Participation in sports can lead to a healthier body as well as mind but sometimes it comes with an outcome of injury. Different types of injuries are caused by different games and it may be minor like abrasions, contusion etc. or may be major includes fracture, dislocation of bones, etc. During the activity of sports, cause of injury are many which includes improper training and wrong position of athlete. In the modern era where the activity of sports fascinate the people from all around the world need to maximize the beneficial effects of sports and proper planning and prevention is needed to minimize the injuries caused by the sports. The consequences from sports injury is most direct opposing and important. The injury caused by sports does not only effects the player, who get injured but also effect the whole team management and it may lead to limit or end the career of athlete. This article gives the classification of injuries and brief knowledge about some common sports injuries. To prevent the person or athletes from injury some prevention methods are also discussed.

Keywords: *Injuries, Sports, Management, Prevention.*

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Introduction

Injuries that commonly occurs during the sports and exercise is generally referred to as sports injuries. In literature injury is defined in two broad classifications, i.e. the first type of injury includes almost all type of common sports injuries during training or games such as abrasion, sprain, contusion, etc. During training session or game, these types of injuries may occur numerous times and gave result in highlighting components like bumping and tackling. These injuries are less possible to be neglected and will ultimately increase the captured volume data. The second type of sports injuries will basically include those type of injury which may result in a missed game or competition of the player. As the result of injury is the player is missing the game which ultimately makes this type of injury as a major sports injuries. This type of injury will include traumatic brain injury, fracture dislocation of bones, etc. in comparison to major injuries, its believed that minor injuries are the part of games in which player can continue his/her game (Bailey, 2010)

For a healthy lifestyle participation in exercise and sports are very valuable and the worldwide popularity of sports make the industry of sports very competitive and profitable for athletes. Which directly increase the physical and financial burden of sports. But sometimes participation in sports came with an outcome of various injuries. In today's modern era the competition is high and athletes who are injured is in under pressure. They want to return back to the competition as soon as possible otherwise there is a change of losing their place. Gender, the position of players, participation level, etc. are the things on which the injury is based. (Sreekaarini, *et al*, 2014; Dhillon *et al*, 2017)

It is clear that participating in sports can give a lot of health benefits but at every stage, good athletes stand with a variety of injuries. Different patterns and types of injuries are associated with different types of sports. (Maffulli, *et al*. 2010) In almost all the sports injuries occurred and any part of the body can be injured during sports or exercise. Lacking warm-up, poor training practices, inappropriate equipment are the main cause of sports injuries but sometimes accident is also a major cause of injury. With proper treatment and prevention, most sports injuries can be treated and athletes are able to play again. Bhardwaj, (2013) Athletes who participate in contact sports have the tendency of highest injury rate and the athletes which are related to individual sports have the affinity to get most serious injuries. Most of the childhood injuries occur in the course of unofficial

athlete activity or during the practice session. It is also the fact that the most common injuries are caused by contact with other external material such as a ball, hockey stick relatively than the collision of players. (Elmagd, 2016)

Sports Injuries Caused by the Physical and Psychological Factors: When different forces affect the different part of the body it will cause physical injuries. Injuries occur because of high-speed collision, overtraining, lack of warm-up, unbalancing of muscles, etc. The level of injury is estimated by the force which affects the body and it also varies from person to person, thus there are many methods which will help in managing the injury. High competition and stress of winning can cause the reason for sports injuries. In psychological causes, the fear of re-injury, felling of dreams and hopes being crushed, wrong relationship, lack of attention are included. Stress is also one of the main reason which is important to manage during therapy. During the therapy, it is important to know all the factors related to the injured athlete because there are many issues which are going in the life of athlete which may be personal but it is important to find out. It is also important to know that an athlete is never worthless even after the injury. During the process of therapy, fear of questioning on the ability of an athlete are the key elements after an injury which will further cause the symptoms of emotional distress. (<https://jyx.jyu.fi>)

Classification of Sports Injuries:

The classification of sports injuries is done according to the cause of injury or the type of damaging of body tissues. Injuries which are classified according to the type of body tissue damaged, the two categories are soft-tissue injury and hard-tissue injury and according to the classification of cause of injuries, it can be categories into three types:

1. Direct injury
 2. Indirect injury
 3. Overuse injury
- Direct injury: Direct injury is a type of injury which is caused by an external force such as by a collision with another individual or being struck with an object for instance tackle in rugby union and hockey stick respectively. Hematomas and bruises, bone fracture and dislocation of bone, damage of ligament and joint are the different types of injuries caused indirect type of injury.
 - Indirect injury: indirect injury can happen in two ways

An actual injury which can occur at a particular distance from the impact location like a dislocated shoulder can be caused if the person falls on an outstretched hand.

- This injury does not cause by direct contact with an object or person, it occurs when the action of performer built up the internal forces, which is generally caused by fatigue, overstretching, lack of fitnesses, improper techniques, etc. the main examples of these type of injuries are: muscle strains, tears, ligament strains, etc.
- Overuse injury: when an excessive or repetitive force should be engaged on the bones and other connective tissue of the body it is referred to as an overuse injury. In the early stage of this injury pain may be little or sometimes an athlete does not experience any pain and can easily place pressure on the injured site. Which will cause a further problem and also prevents to heal the site? Finally, the damage accrues and the site of injury become swollen and painful. When the schedule or any type of change comes in training practices like increase the intensity or frequency of training then the symptoms of overuse injury occurs then at that time body is not able to deal the change or any new stresses. Poorly planned training programs are the main cause results in overuse injury because in this proper time should not be given to the athlete to recover between the intense sessions. The other causes of this injury are using of poor equipment and techniques because it can cause extra stress to their body such as from wear inappropriate footwear and an inappropriate running style can cause the ankle or knee pain as same as in tennis use of heavy racquet can cause elbow injury. (Bhardwaj, 2013)

Common sports injuries:

- Sprains: Sprains are possibly one of the most common injuries occurred by participating in sports. A sprain is a stretch, twist, torn or tear of a muscle, which is the tissue that connects the bones together in a body. It is mainly caused due to twist, torn or fall of the body. This injury can cause to any part of the body but some areas at more risk due to depending upon the particular part. Such as in the case of tennis and gymnastic sprains in hands and elbow is the most common and in case of basketball players suffers sprains in leg or ankle. Ankle sprains are one of the most common types of sprains and generally occurred because of running in an uneven surface. (www.ntu.edu.sg)
- The main symptoms of sprains are:
 - Inflammation
 - Pain
 - Swelling
- Strain: Sports which involves jumping, running or sudden change in direction can generally cause strain. When muscle fibers or tissues are torn or stretched it refers to muscle strain. It is also known as pulling a muscle. The tendon that connects the bones can also be strained. When the muscle is overstretched or over contracts can cause strain. Therefore, it is important to wear proper footwear and warms up properly. (Elmagd, 2016)
- The main symptoms of strain are
 - Loss of strength in the muscle
 - Muscle contraction
 - Pain
- Dislocation and Fracture of bones: when the bones are forced from their original position, known as a dislocation. It usually occurs on the larger joints of the body. The main cause of dislocation is collision during high sports speed, an auto accident, etc. the most common site for this injury in an adult is the shoulder and in the children elbow are the most common. This injury will temporarily immobilize and distort the joints which further causes swelling and pain. On the other side, fractures are common in all the ages. Diagnosis of fracture is difficult but it depends upon the position of fractured bone. An X-ray is used to determine the shape of fracture. (Elmagd, 2016)
- Anterior Cruciate Ligament (ACL) Injury: it is one of the most disturbing injuries for players. This injury occurs when the ligament is torn. It can be seen in the players who play the sports that require frequent starts and stops like football, basketball, soccer, etc. it is one the four main tendons which are dangerous to the knee joint stability. The main symptoms of ACL are a sudden and quick injury with buckling, swelling, pain, popping sound near the knee, etc. (www.ncbi.nlm.nih.gov, www.ntu.edu.sg)

- **Traumatic brain injury (TBI):** It is the most common injury in boxing and other contact sports. This injury occurs when a knock, blow, trauma or other head injury causes damage to the brain. As most of the brain injuries are limited with the resolution symptoms within one week. The effects of this injury are determined by examination of injury. It can lead to permanent brain damage to the dead. The main symptoms of TBI are a loss of consciousness, dizziness, amnesia, nausea, reduced attention, headache, etc. (medlineplus.gov)
- **Low back pain:** A lot of problems can cause lower back pain which can be a result of a condition that will affect the ligaments around the discs and spine, lower back muscles, nerves and spinal cord, etc. lower back pain treatment is focused toward detected and specific cause. Initially, homemade remedy is also useful for the treatment of acute lumbar strain. Exercise is also very helpful to cure the lower back pain.
- **Shoulder impingement syndrome:** the common cause of shoulder pain is Shoulder impingement syndrome. An impingement of muscles from bones of the shoulder can cause shoulder impingement syndrome. All the overhead activity of shoulder like lifting, tennis, swimming, painting, etc. are one of the major risk factor causing shoulder impingement syndrome. The abnormalities of joint and bone are also a risk factor. The treatment of impingement syndrome is usually conventional but in some cases, surgery is also recommended. (Elmagd, 2016)
- **Concussions:** The definition of sports concussion is unclear. It can occur in any sports or activity. But in sports like football, soccer and ice hockey the chance of concussion is high. The functioning of the brain and the process of information can be temporarily weakened by the concussion, which can cause the person or patient to struggle with speech and memory. The symptoms of concussion include nausea, vomiting, headache, drowsiness, etc. the recovery time of concussion is within 7 to 10 days. In concussion tests, imaging test does not spot the damage of the brain. (online.csp.edu)
- **Heat Injuries:** Heat injury is a large concern within the starting of training camp. In the height of summer, the long training sessions with extreme physical exercise the heat injury is caused. The body of salts and water can be exhausted by sweating which causes this problem. Cramping is the most common symptom of heat injury which can further cause heat stroke and if it is untreated can also cause death. (orthop.washington.edu)
- **Tennis elbow:** The term tennis elbow refers to the condition in which the overuse of arm, muscles of hand and forearm can cause the pain in the elbow. It is not compulsory that if the person does not play tennis then this will not occur to that person. But it is very significant and common problem to the players of tennis that's the reason for this term tennis elbow. The reason behind the cause of tennis elbow is an indirect or sudden injury of muscle. The area where the muscles of forearm attached to the outside area of bony (lateral epicondyle) of elbow come under the tennis elbow. People can mostly affect with tennis elbow in the dominant arm, which is not compulsory it can also occur in both arms. (Elmagd, 2016)
- **Ulnar Collateral Ligament (UCL) Tear:** For throwing athletes it is one of the most common injured ligament. According to Houston Methodist athletes of javelin throwers, football, baseball pitchers, water polo players, ice hockey, etc. experience this injury. Because of the repetitive motion of throwing ulnar collateral ligament become stretched, worn or torn. The tendon which weakens can completely break and create an immediate pain and "pop" sound. The surgery of Ulnar Collateral Ligament is according to the severity of the tear. (online.csp.edu)
- **Runner's Knee:** As the name suggests Runner's knee, it is the most common injury found in runners which is very unfortunate and obvious. But the person or athlete who does the activity of knee bending like biking, jumping and even walking can also be a strike by this injury. Aching pain is normally caused around the

kneecap in this injury. Irritation can be caused by the stress of running on the other side patella rests on the thighbone which causes the sudden and sharp pain. While you're running it is possible that the pain may disappear and return again. With the combination of RICE (rest, ice, compression, and elevation), physiotherapy and anti-inflammatory medications the pain should be cured. (Elmagd, 2016)

Prevention

Sports is one of the main and key components of fresh and healthy lifestyle. Physical activities and involvement in sports can help the person to make his/her body fit and diseases free. Not only physical health but it can also improve the mental state of a person by refreshing the mind. In adults and children, the physical activities also carry the potential for injury. Proper precautions must be necessary to prevent the injuries. The most common preventions are:

- Warming-Up: before participating in any type of sports aerobic exercise is quietly important. The flow of blood and oxygen to muscle will increase with a proper warm-up which will further heats the tissue of muscles. The session of warm-up can be done in a very proper by knowing the steps:
 - Start slowly: slowly walking and a little move in the arm is one of the best ways to start the warm-up session. If the person is more advanced than a sharp walk before running is good. Some jumping jacks are also good before playing any game.
 - Allow enough time: The time given to warming up session is at least five to fifteen minutes. A person can do anything which is good for the body and which can increase the blood flow and rate of the heart.
 - Follow with stretching: after the increase of flow of blood to your muscles, it must be sure that stretch the muscles sufficiently and follow the next steps.
- Stretching: after completing the warm-up session the stretching of muscle is also very important. Stretching can lengthen the muscles and make the muscles less disposed to injury. Some tips and steps for stretching includes:
 - The painful stretch should never be held always stretch the muscle just below the particular point of where you get the pain.
 - Stretches must be held for 30sec to 1 min, which will take time to safely lengthen the muscle safely.
 - The muscles which are going to be used during your sports should be stretched properly. But it is good to stretch all the muscles as much as possible.
 - There is no need for any bounce while you are stretching. It is enough to hold your stretch in one place for a minimum 30 seconds.
- Muscles Strengthen: To increase the strength and mass strengthen of muscles is very important. When you are participating in aerobic sports activities it will help the body to protect the tendons, joints, and ligaments.
 - Cooling Down: During aerobic exercise, muscles have the tendency to tighten. Therefore after exercise, the stretching makes your muscles limber, more flexible and the danger of injury is also very less.
 - Sports and exercise can be healthy and entertain but it does not mean that you repeat it in pain. You have to listen to your body and need to stop otherwise slowly increase in timing is also a good idea.
 - Proper guidelines of sports and exercise must be followed to prevent any major or minor injuries.
 - Protective equipment should always be wear which will help the person to protect from injuries.
 - It is important to know about the equipment which is used in the sports or while exercise. The functioning, preventions all must be known before using.
 - The instructions of experts or coach should listen properly. (www.ntu.edu.sg)

Conclusion

In the development of active and healthy communities, sports gave a dynamic contribution. During the activity of sports and exercise, many sports injuries can occur which is the result of poor management, improper training, wrong position and many other factors. But in the modern era, the injuries should be prevented by using various techniques and preventions. But for an athlete or even for all persons it is important to know the symptoms and cause of injuries. It is reported that most of the sports injuries are minor types of injuries which can be easily cured. Sports fascinate not only

the youth but all type of age people in the world. Now the sports are not limited to any country or group it is worldwide so the protection and prevention programs and strategies are needed which will not be helpful only for players but also promote

the healthy lifestyle which is good for all. The more investment must be needed in this field and the government needs to take some serious steps to prevent the sports injuries.



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