

Emerging Trends on Sports Medicines and Sports Injuries

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ABSTRACT

The study of the human body in motion is done by the medical specialty known as sports medicine. Your body's numerous functions work harder than usual when you're moving around. A greater energy turnover is required. Sports medicine is a super-specialization that integrates multidisciplinary topics including physical education and physical fitness, as well as the promotion of good health, preventative medicine, and, eventually, proper medicine and rehabilitation after injuries experienced during games. A key component of the discipline of sports medicine is sports injury. People who take part in organised sports, competitions, practice sessions, or fitness activities are more likely to have sports injuries. This article focuses on current trends in sports injuries and medicine.

Keywords: multidisciplinary, science, medicine, physiology, discipline, sports & games.

INTRODUCTION:

Sports medicine is a super specialization that combines multidisciplinary themes such as physical education and bodily fitness, as well as the promotion of positive health, preventative medicine, and, finally, appropriate medicine and rehabilitation following injuries sustained during games. Sports medicine is not a medical speciality in the traditional sense, but it does cover all medical issues that can arise in athletes, both professional and amateur. Sports medicine is not just for elite athletes; it is for everyone who participates in games and sports. The goal must be universal sports medicine. Sports medicine is a huge, complicated, and contentious topic, but its right application can yield greater outcomes. This discipline of research, when used correctly, can improve physical performance, agility, and mental stability. The correct scientific physical culture or training is the most important aspect of sports medicine [1].

Sports medicine encompasses a wide range of disciplines, including Sports Anatomy, Sports Psychology, Sports Traumatology, Sports Philosophy, Sports Sociology, Sports Methodology, Biomechanics, Physical Education, Sports Women, Drugs and Dopes, Nutrition and Diet, Biochemistry, Sports Physiology and Massage, High Altitude and Underwater Sports, Sports for the Disabled and Handicapped, Rehabilitation, Public Health and Sports Medicine, Environment and Sports Medicine [2].

Sports injury is a significant element of the field of sports medicine. Sports injuries are most common when people participate in organized sports, competitions, training sessions, or fitness activities. Some sports injuries are caused by accidents, while others are caused by poor training techniques, insufficient warming-up and stretching. Sports injuries are those that occur as a result of taking part in an athletic event. These types of injuries are frequently caused by overuse of a bodily part while participating in a certain activity. For example, runner's

knee is a painful ailment connected with running, whereas tennis elbow is a type of repetitive stress injury that affects the elbow and is common among tennis players. A hard collision with something can result in other types of injuries. This can result in a shattered bone, a torn ligament, or a torn tendon. Exercising is beneficial, however it is possible to sustain an injury while participating in sports or exercises [3]. So, despite the advancement of modern equipment, safety devices, increased fitness levels, suitable training, and nutrition, a lot of injuries happened at various levels of competition and training seasons.

AREA OF SPORTS MEDICINE [4-5]:

Man as a sportsman:

Williams and Sperry (1976) presented a traditional sports medicine perspective. They separated sports medicine into three categories: a) Man as a Sportsman; b) Man as a Sportswoman; and c) Man as a Sportswoman.

The physiological system will adjust when a man is introduced to sports and engages in a regular systematic training programme. His functional capability will grow and he will be changed into a sportsman as a result. The training programme has an impact on the quality of the modifications. This change from man to sportsman is intimately linked to various disciplines of science. Exercise physiology, biomechanics, psychology, training methods, biochemistry, and a variety of other related sciences are included in this category, which covers the entire field of sports medicine.

Sportsman and his environment:

Temperature and climate, altitude of the competition venue, barometric pressure, jet lag due to long travel, diet and nutrition, and other elements that are extremely personal to the athlete all have an impact on a sportsman's performance (sex life, love affairs etc.). All these environmental factors have the potential to influence performance and hence require the attention of a sports medicine professional.

Sportsman as a patient:

When a sportsman is injured or unwell, he or she requires particular treatment and management, which is obviously different from that of an ordinary or normal man or woman. The goal is different since a sportsman needs immediate recovery in order to return to the field of play as soon as feasible. Sports traumatology encompasses the entire field of treating and managing injured and unwell athletes. The importance of rehabilitation in the treatment of athletes cannot be overstated.

Sports as a therapy:

Sports are employed for rehabilitation of any ill or injured person since athletes require unique attention and treatment procedures. Even after a surgical operation, sports or exercise are utilized as a means of therapy for the challenged population and many other disorders. Sports therapy has been seen to not only meet the needs of physical rehabilitation but also to boost mental wellness.

HISTORICAL PERSPECTIVE OF SPORTS MEDICINE [6-7]:

Sports and games, as well as physical workouts and competitions, have been a part of human life since the dawn of civilization. Physical exercises and sports science or medicine are also mentioned in the Hindu system of medicine, Ayurveda (1800 B.C.). In writings dating back to 3000 years B.C. in Egypt, China, Greece, and Rome, the importance and necessity of exercise was emphasized in the 5th or 6th century B.C.

Since 1971, India's Indian Association of Sports Medicine (I.A.S.M.) has held annual national conferences and seminars. Since its inception in 1972, the I.A.S.M. has had its headquarters at Patiala's Netaji Subhas National Institute of Sports. The Indian Federation of Sports Medicine is a member of the International Federation of Sports Medicine (FIMS). It has also established itself in West Bengal, which was the first state in India to be constituted in 1973.

The fascinating and thought-provoking works of Galen began the recorded history of sports science or medicine, which is currently fashionable (AD 131-201). During the Roman era, Galen was in charge of looking after and training gladiatorial warriors. Many physiotherapists still utilize his therapy method, particularly exercises with a tiny ball. He was regarded as history's first team physician.

In the early twentieth century, references to sports medicine were made in the Western system of medicine. In 1991, the first sports medicine congress was held in Dresden. This is most likely the first mention of a structured sports medicine gathering. The second symposium on sports medicine was held in Paris in 1913. The Federation International of Medicine in Sports (FIMS) was founded in 1928 and is still in existence today. The American College of Sports Medicine was established in 1954. (ACSM). In 1969, the ACSM's official journal in medicine and science in sports and exercise was published.

SPORTS INJURY:

Sports injury is a significant element of the field of sports medicine. Sports injuries are most common when people participate in organized sports, competitions, training sessions, or fitness activities. Some sports injuries are caused by accidents, while others are caused by poor training techniques, insufficient warming-up and stretching. 'Morris' concept of sports injury is the most commonly recognized and widely used (1984). In most circumstances, an athletic injury is defined as physical harm or insult to the body that occurs during sports practice or competition, resulting in a loss of capability or hindering performance, according to him.

Sports injuries are those that occur as a result of taking part in an athletic event. These types of injuries are frequently caused by overuse of a bodily part while participating in a certain activity. For example, runner's knee is a painful ailment connected with running, whereas tennis elbow is a type of repetitive stress injury that affects the elbow and is common among tennis players. A hard collision with something can result in other types of injuries. This can result in a shattered bone, a torn ligament, or a torn tendon.

Exercising is beneficial, however it is possible to sustain an injury while participating in sports or exercises. So, despite the advancement of modern equipment, safety devices, increased fitness levels, suitable training, and nutrition, a lot of injuries happened at various levels of competition and training seasons.

HISTORICAL PERSPECTIVE OF SPORTS INJURY [8-9]:

Musculoskeletal injuries have been around for a long time. Injury is as old as life, according to evidence of lesions/wounds in vertebrate fossils and diseases in prehistoric bones. The kind of injuries can reveal information about a period's history. Some ancient Egyptian bones, for example, have a left ulna fracture, possibly as a consequence of self-defense against a club blow. These kinds of fractures are now known as nightstick fractures. Musculoskeletal problems are frequently depicted in ancient civilization art, particularly in status and wall paintings. In his epic Iliad, the Greek poet Homer wrote extensively about trauma and therapy, describing over 100 distinct wounds and traumas. When the Greek empire fell apart, most of the accumulated Greek knowledge was transferred to Byzantium (Asia Minor), Alexandria, and finally Rome.

Hippocrates (460–377 BC), known as the "Father of Medicine," was a physician who treated a variety of injuries. On a regular basis, he was successful in treating injuries. His explanations of how to cure shoulder dislocations, for example, provided inspiration for many painters. With biomechanical understanding, Hippocrates observed that even an old dislocated shoulder could be reduced (i.e. shoulder bones returned to their original place), "for what could not right leverage move"? Galen, a practitioner of this era, is attributed for his contributions to the nature of muscular contraction, the treatment of spinal deformities such kyphosis, scoliosis, and lordosis, and the use of pressure bandages to control limb hemorrhage for the following 1500 years. Leonerdo da Vinci (1452–1519), the Renaissance's most well-known person. Many references to trauma, particularly those generated by what he called percussion, may be found in his scholarly writings (impact). He also noticed that landing on the heels causes far more pain than landing on the toes. For the treatment of injuries, many techniques, including surgery, have evolved with the growth of medical science. New methodologies in the field of sports injury were widely adopted as and when they became popular. Orthoscopy and orthogram are two innovative procedures that

are frequently utilized in the treatment of knee injuries. Modern strategies have proven to be advantageous for athletes' rapid recovery and rehabilitation.

REASONS BEHIND OCCURRENCE OF INJURIES:

Why do athletes in professional and amateur sports become injured? The majority of authors steer clear of the topic of sports injuries in general. Many sports injuries can be avoided. Many traumatic injuries would be reduced if contact nature in certain sporting activities were eliminated.

The precise reasons for sports injuries are:

- Athletes aspire for greatness in sports.
- Sports involving physical contact.
- Inadequate equipment and apparatus
- Participants who are unprepared
- Ineffective coaching
- Inadequate precautionary measures.
- Excessive training.
- Ineffective technique etc.

SPORTS INJURIES- CLASSIFICATION:

Various writers mention a variety of classification categories for sports injuries. Athletic injuries can be classed based on the sport or the location of the injury on the body. Some doctors and athletic trainers divide athletic injuries into categories based on the type of participant, such as women, youth, children, or elderly players. The labels "acute" and "chronic" are used in yet another classification scheme. Another way to categorize athletic injuries is by the type of tissue damaged, which includes soft tissue and hard tissue.

The have classified sports injuries as:

- By sports - Football, Track and Field, Volleyball etc.
- By participant group - Women, Men, Youth, Children etc.
- By nature of injury - Chronic and acute.
- By type of tissue involved - Soft tissue and hard tissue.
- By anatomical location - Shoulder, Knee, Wrist, Ankle etc.
- According to nature of game - Team game, individual game etc.

SPORTS INJURIES-MANAGEMENT:

➤ Participating in a range of activities is enjoyable and healthy for both children and adults, but proper injury prevention procedures must be taken prior to participating in games and sports. Warming up, stretching, strengthening your muscles, and cooling down after any form of exercise are all great strategies to keep sports injuries at bay. Unfortunately, injuries do occur even when these and other measures are taken. Every year, more than 10 million sports injuries are treated in the United States, not just in the United States, but all around the world (Ministry of Defense, Singapore, 2010)

➤ Soft tissue injuries are common in sports. An injury to the muscle, tendons, ligaments, or joints is known as a soft tissue injury (e.g. - sprained ankle, tom or tear hamstring, bruise etc.). Hard tissue injuries are another type of sports injury. A bone damage is referred to as a hard tissue injury (e.g. - broken finger).

➤ Identifying an injury, treating it, and ultimately returning to the sport are all part of injury management. It is critical that athletes receive proper rehabilitation before returning to play. If they aren't, the injury will only get worse.

Soft tissue and hard tissue injuries are the most prevalent injuries on the playing field, and their treatment is outlined here:

1. *Ligament injury of the knee*

Any form of ligament injury in the knee requires prompt treatment using RICER. Repairing the damage frequently necessitates surgery (Ministry of Defence, 2010).

2. *Cartilage injury of the knee*

The treatment of a cartilage injury in the knee is like the treatment of a ligament injury in the knee. If you have a cartilage injury, RICER is the first thing you should do (Ministry of Defence, 2010).

3. *Ankle sprain*

A more severe sprain may require physical therapy or surgery. Consult a medical professional for proper diagnosis and treatment (Ministry of Defence, Singapore, 2010). RICER and anti-inflammatory medications are the first step to decrease the inflammation.

4. *Bursitis and tendonitis*

The first step in reducing inflammation and swelling is to use RICE and anti-inflammatory drugs. Stretch and massage the affected area gently. Consult a doctor if the pain persists. A doctor can inject a needle into the bursa sac to drain extra fluid and reduce discomfort in severe cases of bursitis (Ministry of Defence, Singapore, 2010).

5. *Shine splints*

Rest; don't overwork leg muscles that are hurting. To reduce inflammation and pain, use ice for at least 20 minutes, 2-3 times a day. Stretch and massage the muscles gently. Consult a doctor if the pain persists (Ministry of Defence, Singapore, 2010).

6. *Tennis elbow*

Any action that causes pain and discomfort should be avoided. For at least 20 minutes, apply ice. To reduce inflammation and pain, take 2-3 times daily and anti-inflammatory drugs. Stretch and strengthen the muscles and tendons surrounding the elbow, forearm, and wrist with gentle stretches. Surgery may be indicated if discomfort persists for 6-12 months (Ministry of Defence, Singapore, 2010).

7. *Hamstring pull*

The most effective treatment for hamstring pull is cold, compression, and relaxation, and the most crucial stage in this condition is rehabilitation. Stretching should be avoided for the first 72 hours .

8. *Low back pain (Disk problem)*

Exercises, muscle relaxant medications, or traction may be used as part of the first treatment. The majority of back treatment should be conservative, beginning with low back exercises, posture adjustment, and possibly traction, wrapping, or back supports and braces.

Muscle cramps

Muscle cramps can be avoided with rest, moderate stretching, excellent nutrition, adequate liquids, minerals, and vitamins. Dislocation of the shoulder.

Immobilizing the wounded portion, applying ice and compression, and transporting the injured individual to the doctor are all options for treatment. The doctor realigned the dislocation and advised rest and therapy,

9. *Fracture of collarbone (clavicle)*

The individual must be taken to a doctor. The doctor will take an X-ray of the affected area and recommend rest and treatment. Finally, for injured tendons and muscles in the area, a period of rehabilitation exercises is indicated.

10. *Head injury*

Any head injury should be treated right away, and the player should be taken to the doctor. Head injuries are serious sports medicine issues that should not be ignored under any circumstances.

11. *Injuries to the neck, face, eye, teeth, ear, nose*

If an injury occurs, medical assistance is provided immediately.

REHABILITATION OF SPORTS INJURIES:

The importance of rehabilitation in treatment cannot be overstated. It entails activities that gradually restore function to the afflicted area. Moving the damaged area promotes healing. The sooner you finish this, the better. The afflicted body part is gently moved through a range of motions to begin the exercises. Stretching is the next stage. The weights can then be utilized to strengthen the affected area.

The phrase "rehabilitation" refers to the overall treatment of an injury. It focuses on the complete person, not just the injury, and strives to restore as much function as possible in the shortest amount of time. Athletic injury rehabilitation tries to reduce tissue damage while allowing a safe return to activity. It is based on tissue healing science, joint biomechanical expertise, and the physiology of muscle strength and endurance. Flexibility and cardiovascular fitness are maintained while muscular strength, endurance, and power are redeveloped.

The rehabilitation goals of an injured athlete are typically different from those of the general population. The precise goals of a rehabilitation procedure are as follows:

- i. As soon as feasible, return to your original sport or exercise regimen.
- ii. During recuperation, avoid extending to injury.
- iii. While resting and conditioning the resting region, keep your conditioning level as high as feasible.
- iv. Improve in a physical part of your game or sport that does not put the injured area under stress.
- v. Take advantage of the rehabilitation period to take a mental break from the training programme.

To help prevent further injury, do the skill training, strengthening, or range of motion exercises.

It's worth noting that rehabilitation begins as the wounded component heals, rather than after it's 'healed.' The goal is not to hasten healing, but rather to do everything possible to avoid it.

Principles of Sports Rehabilitation:

The major principles of sports injury rehabilitation are as follows:

- Avoid aggravation by not exacerbating the injury throughout recovery.
- Timing - Rehabilitation should begin as soon as feasible without causing the injury to worsen.
- Completion - It is critical that you complete the rehabilitation programme completely.
- Individualization: Every athlete is unique. The reaction to rehabilitation will differ from one patient to the next.
- Specific sequencing - As part of your rehabilitation programme, include all aspects of physical fitness.
- Intensity - injury rehab should challenge you and process your fitness without exacerbating the injury.

CONCLUSION:

For the treatment of injuries, many techniques, including surgery, have evolved with the growth of medical science. New methodologies in the field of sports injury were widely adopted as and when they became popular. Orthoscopy and orthogram are two innovative procedures that are frequently utilized in the treatment of knee injuries. Modern strategies have proven to be advantageous for athletes' rapid recovery and rehabilitation [10].

Injury plays a big role in every athlete's life, but what happens after and the process concerned with coming back to sports is important. In this paper review, we try to connect injury and motivation among athletes and the demanding factors important for their return. With the help of scales such as RSSIQ, STAI XI, SIP 15, and SIRBS, we could come to conclusions about the correlations between injury and motivation. These scales also helped us find many important factors to consider, such as anxiety and what state the athlete sees them. Therefore, we can say that injury is dynamic, and the consequences should not be ignored. The people close and involved with the athlete should also be made aware of it and also their roles that could play a major part during recovery.

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