

BASIC MANAGEMENT SYSTEM AND TREND CONCEPTS IN SPORTS

INJURIES

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ABSTRACT

Any physical damage to body caused by accident or fracture etc is known as injury. Sports Injury is an injury that a person sustains while taking part in sport. Some sports injuries results from accidents, others are due to poor training practices, improper equipment, lack of conditioning or insufficient warm up and stretching. Sports performance is all about explosive movements, reaction, speed and agility. Sports Training Programme includes wide ranges of agility, power and speed training. There is lot of emphasis on the planes of motion such as moving forward (sagittal), backward twisting(transverse) and sideways(frontal). Exercising is good, but sometimes players injure themselves while playing sports or exercise and if continue being untreated can result in a subsequent lifelong damage.

KEYWORDS: Injury, Sports Performance and Athlete.

INTRODUCTION:

Sports injuries include injuries affecting participation in sports and exercise and affecting athletes of all ages and all levels of performance. Most injuries are specific to the sport and level of participation. For example, 70 percent of keen runners are affected by a lower limb injury during their career, usually through over use, soccer players have a high risk of traumatic ankle or knee injuries from tackles. The incidence of injury in soccer is between 15 and 20 injuries per thousand activity hours, with the highest risk during game. Within any particular sport, different positions and roles carry different risk. For example, in cricket a fast bowler may struggle to perform with a minor knee injury to his stance leg or a fielder may be hampered by a minor shoulder injury, while a batsman can perform well with both these injuries.

CLASSIFICATION OF SPORTS INJURIES :

Sports Injuries can be classified according to either the cause of injury or the type of body tissue damaged.

On the basis of cause, injuries are of three categories: direct injury, indirect injury, and over use injury.

On the basis of body tissue damaged, injuries are of two categories: soft tissue injury and hard tissue injury.

CLASSIFICATION ACCORDING TO THE CAUSE:

Primary covers Direct, Indirect and Overuse type of injuries.

Secondary covers Short term and Long term injuries.

Direct Injury: - A direct injury is caused by sudden external blow or force.

Direct Injuries can result from-

--a collision with another player e.g. during a tackle in rugby

--being struck with an object e.g. hockey stick, cricket ball

Examples of injuries that result from external forces include haematoma or bruises, joint and ligament damage, dislocation and bone fractures.

Indirect Injury: - An indirect injury can occur in two ways:-

--The actual injury can occur some distance from the impact site. E.g. falling on an outstretched hand can result in a dislocated shoulder.

--The injury does not result from physical contact with an object or person, but from internal forces built up by the actions of the athlete, such as may be caused by over stretching, poor technique, ligament sprain and muscle strains and tears are examples of these injuries.

Overuse Injury: - Overuse injury comes on gradually. Overuse injury is caused by repeated overuse of one area of body while playing or exercising over a long period and an excessive and repetitive force is placed on the bones and other connective tissues of the body. Athlete

experience no or little pain in the early stages of overuse injuries and might continue to place pressure on the injured site. Eventually the damage accumulates and the injured site becomes inflamed and therefore painful.

Secondary injury:-

Athletes returning to activity are also at risk of a secondary injury, which is an injury that occurs as a result of a previous injury being poorly treated or not being fully healed. Athletes risk recurrence of injuries if they commence playing before regaining full strength and range of movement. E.g. Pain resulting from a sprained ankle may go away after three or four months, but this does not mean that the ankle has been fully rehabilitated. If complete strength is not restored to the injured joint, a biomechanical habit of favouring it may develop. Even one year later, knee pain may set

CLASSIFICATION ACCORDING TO THE TISSUE TYPE:

Soft-tissue injury

Soft-tissue injuries are the most common injuries resulting from participation in sport. They include the following:

skin injuries—abrasions, lacerations and blisters

muscle injuries—tears or strains of muscle fibres and contusions

tendon injuries—tears or strains of tendon fibres and inflammation (tendonitis)

ligament injuries—sprains and tears of ligament fibres.

Soft-tissue injuries can result in internal bleeding and swelling. Prompt and effective management of this bleeding aids recovery.

Three common soft-tissue injuries are tears, sprains and contusions.

Tears, sprains and contusions

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.

A *sprain* is a tear of ligament fibres, muscles or tendons supporting a joint. This can occur when a joint is extended beyond its normal range of movement. A sprain can involve a small number of fibres through to a complete rupture. In extreme circumstances, the fibres of the ligament, muscle or tendon can remain intact and rip from the bone.

A *contusion* or bruise is bleeding into the soft tissue. It is caused by a direct blow from another person, an implement or an object. A bruise can occur to any soft tissue of the body.

Skin abrasions, lacerations and blisters

Injuries to the skin are very common in sport. They include minor wounds, such as abrasions (grazes), blisters and small lacerations. They also include bone fractures and more serious lacerations that require suturing (stitches). Small skin abrasions, lacerations not requiring sutures and blisters are manageable conditions, and in most cases do not require referral to a doctor.

Skin abrasions occur when the outer layer of skin is removed, usually as a result of a scraping action. The open wound can contain dirt or gravel, which should be removed. More extensive, deeper abrasions require medical attention.

When the skin is lacerated (cut), the depth and location of the *laceration* will determine whether suturing is required. Medical attention is required if the laceration is deep enough to expose tissues, such as fat, tendons or bone. Sometimes a superficial laceration will require suturing

Blisters result from friction (rubbing). One layer of skin separates from another and a small pocket of fluid forms. Blisters can be caused by equipment, shoes, pressure from callus build-up,

increased training loads or simply by the recommencement of training after an extended rest period.

INFLAMMATORY RESPONSE:

The initial stage of repair of body tissue is the **acute inflammatory phase**. It exists during the first 24 to 72 hours after injury. The immediate response of the body to injury is to increase the flow of blood and other fluids to the injured site. If blood vessels at the site are damaged there will also be direct bleeding into the surrounding tissue. The accumulation of fluid in the area causes an increase in tissue pressure, which produces pain.

All these changes produce inflammation. Inflammation consists of redness, heat, swelling, pain and loss of function. If inflammation is left unchecked and persists for a long time, formation of **scar tissue** will be more severe.

The extent to which the formation of inflexible scar tissue can be prevented will, in part, determine the time required for rehabilitation of the injury and the degree to which normal functioning can be returned to pre-injury levels.

MANAGING SOFT-TISSUE INJURIES:

In order to effectively manage soft-tissue injuries the RICER procedure needs to be followed.

RICER

The immediate management of soft-tissue injuries during the acute inflammatory phase is very important for successful rehabilitation after the injury. The aims of immediate treatment are to:

- prevent further tissue damage
- minimise swelling
- ease pain
- reduce the formation of scar tissue
- reduce the time needed for rehabilitation.

These aims are achieved through the application of the RICER procedure.

R • for Rest

I • for Ice

C • for Compression

E • for Elevation

R • for Referral.

Rest

The injured area must remain relatively inactive for the first 48–72 hours. The duration of the rest will depend on the severity of the injury.

Ice

The application of ice causes the blood vessels to constrict, thus decreasing circulation and resulting in less inflammation at the site. Where possible, ice should be applied to the surrounding area, in addition to the direct site. Ice should be applied in a wet towel for periods of 20–30 minutes every two hours for the first 48–72 hours. Do not apply ice, or a plastic bag containing ice, directly onto the skin. Care should also be taken when applying ice in the region of the eye.

Compression

In addition to the application of ice, compression should be applied using a wide elastic bandage over the injured site and surrounding area. This will help to reduce the swelling by limiting fluid build-up (see Figure). It also provides support for the injured site. Care should be taken to ensure that circulation is not constricted by bandaging too tightly.

Referral

Medical assessment should be sought as soon as possible to ascertain the full extent of the injury, and to commence appropriate rehabilitation.

Actions to be avoided

During the first 48–72 hours after an injury there are certain actions that must be avoided. These include the application of heat (for example, use of hot liniments, spas, saunas and hot baths),

drinking alcohol, physical activity and massage. These actions all increase blood flow, and therefore swelling.

Immediate treatment of skin injuries

The aims of the immediate management of skin injuries include prevention of infection, minimisation of blood loss and tissue damage, and promotion of healing in order to reduce recovery time.

For most skin injuries the common management steps that should be followed are:

- 1 Reduce the dangers of infection (for example, by wearing gloves).
- 2 Control bleeding with rest, pressure and elevation.
- 3 Assess the severity of the wound.
- 4 Clean the wound using clean water, saline solution or a diluted antiseptic.
- 5 Apply an antiseptic to the wound (for example, Savlon or Betadine)
- 6 Dress the wound with a sterile pad and bandage.
- 7 If necessary, refer the person to medical attention.

Skin injuries that should be referred to medical attention include wounds that require suturing, wounds that show signs of infection or cannot be properly cleaned of foreign material and wounds to the head. The reason why all head wounds should be referred to medical attention is because even minor injuries to the head might be accompanied by concussion.

Hard-tissue injuries- Hard-tissue injuries are those involving damage to the bones of the skeleton. They range from severe fractures and joint dislocations to bruising of the bone.

Types of hard-tissue injuries- Hard-tissue injuries include fractures and dislocations.

Fractures

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 'compound' or 'open'. 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.

The signs and symptoms of a fracture include:

- pain at the site of the injury
- inability to move the injured part
- deformity of the injured part
- swelling and discolouration
- grating of bones.

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.

Signs and symptoms of dislocation include:

- loss of movement at the joint
- obvious deformity
- swelling and tenderness
- pain at the injured site.

Type of fracture	Definition	Associated factors
Closed	The bone is fractured but there is no cut or wound at the fracture site.	Bleeding remains concealed beneath the skin.
Open	A jagged end of the fractured bone protrudes through the skin or there is a cut near the fracture site.	Visible external bleeding occurs. Infection may enter the body and the bone through the cut. Infection will significantly delay healing and should be prevented.
Complicated	The fractured bone damages the local tissues; i.e. the organ(s) that it protects (e.g. a lung punctured by a fractured rib).	Seek medical assistance quickly as the damage to other structures may cause internal bleeding.

MANAGING HARD-TISSUE INJURIES:

Medical treatment

Because hard-tissue injuries can be accompanied by significant damage to muscle, blood vessels, surrounding organs and nerves, immediate medical treatment is required. For serious hard-tissue injuries, the person should not be moved, and an ambulance should be called. Immediate management in this situation is as follows:

- Immobilise and support the injured site with a splint or sling.
- Check for impaired circulation and other possible complications.
- Arrange for transport to hospital and professional medical assessment.
- Implement the RICER procedure—if it does not cause pain.

Immobilisation

Management of hard-tissue injuries aims to minimise movement of the injured area. This is achieved by immobilising the joints above and below the injury site. If the injury site is the shaft of a long bone (for example, the femur or humerus), the injury can be supported with a sling or splint.

A supporting splint should be long enough to extend beyond the nearest joints of the injured site. A splint can be another limb or another part of the body or a firm, straight object.

The correct application of the splint is essential. When correctly applied, a splint is secured at all these six points:

- above the joint above the fracture
- below the joint below the fracture
- at the joint above the fracture
- at the joint below the fracture
- just above the fracture
- just below the fracture.

In some cases of fracture, a rigid splint is unnecessary. In these cases, a sling or bandaging of the injured limb to the other limb is adequate.

With dislocation, immobilisation is also the immediate aim. Under no circumstances should the first aider attempt to relocate the dislocation. As a result of the dislocation there can be associated damage to the bones and to the ligaments of the joint. In most cases, an X-ray is needed before relocation. Any rushed attempt by the first-aider to relocate the dislocation might result in further damage to the joint.

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