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Sports Injuries

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Abstract – The term injury, in the broadest sense, refers to the kinds of injuries that most commonly occur during exercise, workout, activities or sports.

Some injuries result from accidents; others are due to poor training practices, improper equipment or insufficient warm-up and stretching.

Sports injuries result from acute trauma or repetitive stress associated with athletic activities. Sports injuries can affect bones or soft tissue (ligaments, muscles, tendons). Professional dancers are increasingly recognized as performing athletes and many of the treatments and preventive measures utilized in sports medicine are now applied to dance related injuries.

On a larger scale, sports injuries are becoming a public health concern in America. Prevention efforts include wearing protective devices (such as bicycle helmets and pads when skating or skateboarding), and educating both children and adults about safety. Other preventive efforts include changes in the rules of the game or sport to minimize injuries. For example, wearing goggles will be mandatory in women's lacrosse as of 2005 in order to reverse the rising rate of eye and other facial injuries in that sport. Research also continues on improving equipment. For example, thick rubber insoles canhelp prevent against repetitive injuries from running, but scientists recently observed that they can add to injuries insports such as soccer, where athletes need to make quick changes of direction. On the other hand, recent improvements in the design and construction of football helmets have been credited with a significant decline in the frequency and severity of head injuries among football players.

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DEFINITION

Trauma or damage to some part of the body

The term injury, in the broadest sense, refers to the kinds of injuries that most commonly occur during exercise, workout, activities or sports.

Some injuries result from accidents; others are due to poor training practices, improper equipment or insufficient warm-up and stretching.

Sports injuries result from acute trauma or repetitive stress associated with athletic activities. Sports injuries can affect bones or soft tissue (ligaments, muscles, tendons).

Professional dancers are increasingly recognized as performing athletes, and many of the treatments and preventive measures utilized in sports medicine are now applied to dance-related injuries.

It is also important to remember that many types of injuries that affect athletes may also occur in workers in certain occupations; for example, many people in the building trades develop tennis elbow or golfer's elbow. The principles of sports medicine can be applied in the treatment of most common musculoskeletal injuries.

Injury rates are highest for athletes who participate i n contact sports, but the most serious injuries are associated with individual activities. Between one-half and two thirds of childhood sports injuries occur during practice, or in the course of unorganized athletic activity.

CLASSIFICATION

Sports injuries can be broadly classified as either **Traumatic** or **Overuse** injuries. Traumatic injuries account for most injuries in contact sports such as Association football, rugby league, rugby union, Australian rules football, and American football because of the dynamic and high collision nature of these sports. These injuries range from bruises and muscle strains, to fractures and head injuries

TYPES OF SPORTS INJURIES

About 95% of sports injuries are minor soft tissue tra umas.

The most common sports injury is a bruise (contusio n). It is caused when blood collects at the site of an i njury anddiscolors the skin.

Sprains account for one third of all sports injuries. A sprain is a partial or complete tear of a ligament, a strong band of tissue that connects bones to one another and stabilizes joints.

A strain is a partial or complete tear of:

- muscle (tissue composed of cells that enable the body to move)
- tendon (strong connective tissue that links m uscles to bones)

Inflammation of a tendon (**tendinitis**) and inflammati on of one of the fluid-
filled sacs that allow tendons to move easilyover bon es (**bursitis**) usually result from minor stresses that r epeatedly aggravate the same part of the body. Thes econditions often occur at the same time.

SKELETAL INJURIES

Fractures account for 56% of all sports injuries. The bones of the arms and legs are most apt to be broken. Sports activities rarely involve fractures of the spine or skull. The bones of the legs and feet are most susceptible to stress fractures, which occur when muscle strains or contractions make bones bend. Stress fractures areespecially common in ballet dancers, long distance runners, and in people whose bones are thin.

A sprain is a stretch or tear of a ligament, band of connective tissues that joints the end of one bone with another.

Sprains are caused by trauma such as a fall or blow to the body that knocks a joint out of position and in worst case ruptures the supporting ligaments.

Shin

Splints are characterized by soreness and slight swelling of the front, inside, and back of the lower leg, and by sharp pain that develops while exercising and gradually intensifies. Shin splints are caused by overuse or by stress fractures that result from the repeated foot pounding associated with activities such as aerobics, long-distance running, basketball, and volleyball.

A compartment syndrome is a potentially debilitating condition in which the muscles of the lower leg grow too large to be contained within membranes that enclose them. This condition is characterized by numbness and tingling. Untreated compartment syndrome can result in long term loss of function.

A strain is a twist, pull, or tear of a muscle or tendon, a cord of tissue connecting muscle to bone. It is an acute, non-contact injury that results from overstretching or over contraction

- Symptoms of a strain include
- Pain.
- Muscle spasm.
- Loss of strength

Causes and symptoms

Common causes of sports injuries include:

- athletic equipment that malfunctions or is us ed incorrectly
- falls
- forceful high-
  speed collisions between players
- wear and tear on areas of the body that are continually subjected to stress

Symptoms include:

- instability or obvious dislocation of a joint
- pain
- swelling
- weakness

Diagnosis

Symptoms that persist, intensify, or reduce the athlete's ability to play without pain should be evaluated by an orthopaedic surgeon. Prompt diagnosis often can prevent minor injuries from becoming major problems, or causing long-term damage.

An orthopaedic surgeon should examine anyone:

- who is prevented from playing by severe pa in associated with acute injury
- whose ability to play has declined due to ch ronic or long-
  term consequences of an injury

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- whose injury has caused visible deformities i n an arm or leg.

The physician will perform a **physical examination**, ask how the injury occurred, and what symptoms the patient has experienced. X-rays and other imaging studies of bones and soft tissues may be ordered.

Anyone who has suffered a blow to the head should be examined immediately, and at five minute intervals until normal comprehension has returned. The initial examination measures the athlete's:

- Awareness
- Concentration
- Short-term memory

Subsequent evaluations of concussion assess:

- dizziness
- headache
- nausea
- visual disturbances

Treatment

Treatment for minor soft tissue injuries generally con sists of:

- compressing the injured area with an elastic bandage
- elevation
- ice
- rest

Anti-inflammatories', taken by mouth or injected into the swelling, may be used to treat bursitis. Anti-inflammatory medications and exercises to correct muscle imbalances usually are used to treat tendinitis. If the athlete keepsstressing inflamed tendons, they may rupture, and casting or surgery is sometimes necessary to correct this condition.

Orthopaedic surgery may be required to repair serious sprains and strains. Controlling inflammation as well as restoring normal use and mobility are the goals of treatment for overuse injuries.

Athletes who have been injured are usually advised to limit their activities until their injuries are healed. The physicianmay suggest special exercises or behaviour modifications for athletes who have had several injuries. Athletes who have been severely injured may be advised to stop playing altogether.

Prevention

Every child who plans to participate in organized athl etic activity should have a pre-
season sports physical. This specialexamination is p erformed by a pediatrician or family physician who:

- carefully evaluates the site of any previous in jury
- may recommend special stretching and stren gthening exercises to help growing athletes c reate and preserve propermuscle and joint in teraction
- pays special attention to the cardiovascular and skeletal systems.

Telling the physician which sport the athlete plays will help that physician determine which parts of the body will be subjected to the most stress. The physician then will be able to suggest to the athlete steps to take to minimize the chance of getting hurt.

Other injury-reducing game plans include:

- being in shape
- knowing and obeying the rules that regulate the activity
- not playing when tired, ill, or in pain
- not using steroids, which can improve athlet ic performance but cause life-
threatening problems
- taking good care of athletic equipment and using it properly
- wearing appropriate protective equipment

On a larger scale, sports injuries are becoming a public health concern in America. Prevention efforts include wearing protective devices (such as bicycle helmets and pads when skating or skateboarding), and educating both children and adults about safety. Other preventive efforts include changes in the rules of the game or sport to minimize injuries. For example, wearing goggles will be mandatory in women's lacrosse as of 2005 in order to reverse the rising rate of eye and other facial injuries in that sport. Research also continues on improving equipment. For example, thick rubber insoles can help prevent against repetitive injuries from running, but scientists recently observed that they can add to injuries in sports such as soccer, where athletes

need to make quick changes of direction. On the other hand, recent improvements in the design and construction of football helmets have been credited with a significant decline in the frequency and severity of head injuries among football players.

Thank you

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