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Review Article

Understanding Clinical Problems Encountered in Sports - Review

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Abstract

Sports influence the lives of majority of the population. Pleasure, relaxation, competition, improvement in fitness and health are main reasons for involvement. Sports-related injuries are the common cause of emergency room visits for children, teens, and also in adolescents. Injury occur due to trauma or overuse. We review the common sports-related injuries. Health care professionals has a responsibility to recognise the clinical problems encountered in sports and pass that information on to the society.

Keywords: *Sports Injuries; Protective Equipment's; Athlete*

Introduction

Sports are gaining the desired recognition all over the world, including India. Children and adults are actively involved in sports activities due to increase concerned about the health and fitness. It is usually common for anyone to get hurt during sports. Sports-related injuries are the common cause of emergency unit visits in children, teens and also in adolescents. Injuries generally happen for two different reasons: trauma and overuse [1].

Sports medicine and sports dentistry is a relatively new subspecialty evolving in recent years. There have been many recent advances in the understanding clinical problems encountered in sports injuries. The clinician interested in these areas should be familiar with various sports-related Injuries.

Concussion

Concussion is defined as temporary impairment of brain activity from an external force to the body. It is caused by rotational injury resulting leading to shaking of the brain. It is specified by nausea, headache, dizziness, temporary damage of brain function including cognitive dysfunction, emotional, sleep and balances disturbances. CT and MRI does not show any changes [1]. Young brains are more prone to concussions and recurrent injuries lead to longer recovery times [2].

Cerebral haemorrhages

Severe sports-related head injuries include acute subdural hematoma (ASDH), traumatic cerebrovascular accidents, acute epidural hematoma, cerebral contusion, diffuse axonal injury, diffuse brain swelling and skull fractures. Among them, ASDH is a common cause of mortality and severe morbidity in general and in American football [3], judo [4], boxing [5] and snow-boarding [6] in particular.

Facial injuries

Orofacial sports-related injuries includes both soft-tissue injury and hard-tissue injuries. Involvement varies from abrasions, contusions, lacerations, displacements, intrusions, luxation, crown, root fractures, avulsions and facial fractures [7]. Intrusion causes severe form of displacement injury when compared to avulsion, crown and root fractures [8].

Zygomatic bone is the most persistent injury site among the maxillofacial fractures [9]. Prominent shape of mandible subjects it to fracture very frequently. Condylar fracture cause temporomandibular joint dislocation and acute malocclusion [10].

Cervical spine injuries

Collisions between players in high speed, causing improper force distribution to the thorax. When the impact energy is greater than the yield power of the vertebrae, a fracture is possible with or without dislocation. Neurologic impairment occur from fracture or bone fragments or herniated disc contents that impinge the spinal cord [11].

Shoulder injuries

Shoulder injuries cover a large number of sports injuries from dislocations, misalignment, strains on muscles and sprains of ligaments.

Rotator cuff tendonitis/tendinosis/bursitis

Tendonitis is inflammation of the tendon. Bursitis is an inflammation of the subacromial bursa. Tendinosis suggest intratendinous disease. It include intrasubstance degeneration or tearing. Tendonitis and tendinosis is most constant overuse injury among the overhead athletes. It usually represent chronic injury process [12].

Traumatic dislocations

Shoulder dislocations repeated arise from a person falling or receiving a crash while his arm is outstretched. It almost always dislocates to anterior and inferior region [13]. The diagnosis is arrived based on the physical appearance of the shoulder; incapability of the athlete to rotate the shoulder internally and externally with elbow at his side. Use of a simple traction method during first 15 minutes after injury will result in a successful reduction in the most dislocations [14].

Rotator cuff injuries

Sports involving overhead athletics cause stress to rotator cuff [15]. Symptoms include pain in deltoid region during overhead activity and loss of active range of motion of the shoulder [16].

Acromioclavicular joint sprain

Impact on the top of the shoulder caused in sports like hockey, rugby, bicycles and falling. Features include swelling, displacement and increased coracoclavicular distance [17].

Clavicular fracture

Sports were a factor in 45% of all clavicle fractures. Bicycling injuries contribute the most common reason of clavicle fracture, in addition to contact sports. Features include pain, decreased ability to move the affected arm [18].

Tennis elbow/lateral epicondylitis

Found in athletes with activities that involve loaded and repeated gripping and/or wrist extension like squash and badminton [19].

Golfer's elbow/medial epicondylitis/pitcher's elbow

It is a usual cause of medial elbow pain. It is associated with activities involving throwing, racquet sports, golf, archery, bowling, weightlifting, and javelin throwing [20].

Gamekeeper's/skier's thumb

Injury of the thumbs is common among skiers. Findings reveals tenderness at the base of thumb, bruising and swelling [21].

Piriformis syndrome

An unusual condition with hip and buttock pain, caused from compression of the sciatic nerve by piriformis muscle [22].

Athletic pubalgia/sports hernia/sportsperson's hernia/osteitis pubis

Clinical syndrome with chronic lower pelvic and groin pain. It is most often the result of repeated microtrauma [23].

Sports-related proteinuria and hematuria

Sports requiring great exercise intensity showed higher incidence of proteinuria, but decreases after prolonged training. Elevated body temperature, hemolysis, lactic acidosis, increased production of free radicals, excessive release of catecholamines, produced during anaerobic conditions, causes the passage of red blood cells into the urine [24]. Repeated red blood cell loss through the urine promotes anemic conditions in athletes [25].

Weightlifting injuries

Power sports in which the athlete lifts a maximal load with one repetition leads to shoulder, lumbar spine, knee, elbow, hand, and wrist injuries. Shoulder (36%) followed by lumbar spine (24%), elbow (11%), and knee (9%) are the percentage of injuries contributed based on location [26].

Low backache

Musculoligamentous strain, spondylolysis, herniated nucleus pulposus and spondylolisthesis contribute injury causing back pain [27]. Sports that involve hyperextension of the lumbar spine includes gymnastics, football, pole vaulting and weightlifters [28].

Retrolisthesis

Backwards slippage of one vertebral body on another, causing back pain [29].

Sciatica

Pain and/or paraesthesia is felt along the sciatic nerve distribution or a related lumbosacral nerve root. Strenuous physical activity is a risk factors for acute sciatica [30].

Hamstring strains

Hamstring injuries are usual in athletes. Acute hamstring strains can occur with high-speed running sports such as soccer, football, basketball and tennis [31].

Anterior cruciate ligament tears

Activity that involves sudden changes in the direction of movement, rapid stopping, jumping and landing abnormally causes anterior cruciate ligament tear [32].

Patellofemoral pain syndrome/runners knee

Possible cause for anterior knee pain, in athletes, characterized by pain behind and around the knee cap. Common in sports that involve running [33].

Patellar tendinopathy/jumper's knee

Sports requiring strenuous jumping leading to small tears in the patellar tendon and causing painful condition of the knee [34].

Shin splints

Athletes who fail to warm up or stretch, use of shoes that lack proper support, improper running techniques showed pain in front outside part of the lower legs [35].

Strain

Injury to a muscle and or tendons commonly occur in foot, leg or back. Symptoms include pain, muscle weakness, muscle spasm and swelling. Gymnastics, tennis, rowing, golf involve strains in hand, racquet/throwing sports involve elbow strains and in hockey, boxing, wrestling put athletes at risk for leg strains [36].

Sprains

Ankles, knees, and wrist are commonly involved. It is caused by stretch and or tear of a ligament that connects the end of one bone with another. Sprains are classified by severity: Grade 1 sprain (mild), Grade 2 sprain (moderate), Grade 3 sprain (severe) [37].

Achilles tendinitis

Common among athletes involved in lunging and jumping [38].

Plantar fasciitis tendinitis

Tendinitis in the shoulder and arms are noticed in baseball players, tennis players, swimmers, golfers whereas soccer, basketball players, runners and aerobic dancers are prone to tendon inflammation in their legs and feet [39].

Discussion

Sports participation is assumed to be beneficial to health. Inevitably, injury is a potential outcome of participation and an important public health problem [40]. Injuries vary based on sports involved, gender, and player position [41]. Young athletes are vulnerable than

adults [42]. Growth plate fractures, overuse injuries, wounds, epiphyseal injuries, stress fractures and dislocations are common seen among in adolescent athletes [40]. The injury rates among the athletes in the age group 11 to 19 in the various countries have been studied [40,42-45]. It is estimated that 8% of youth stopped sporting activities annually [46].

Trauma in sports can be prevented by use of proper protective safety equipment, predicting errors of others and adopting specific riding strategies. Individuals involved in contact sports such as boxing, rugby, football, field hockey, shooting, cycling should wear basic protective devices.

Safety equipments [47]

Helmets

Helmets are patterned to protect injuries such as abrasions, lacerations, contusions and skull fractures. It prevents brain and central nervous system from concussions, haemorrhage and brain damage. Two basic types of soft protective helmet such as suspension helmet and air helmet are available currently.

Eye/face guards

Face guards are designed to protect against facial injuries to the eyes, nose, zygomatic arches and mouth. Older facemask consists of a contoured single bar, whereas newer full - cage facemask provide greatest degree of overall facial protection.

Mouth guards

Appliances designed to reduce oral injuries, particularly to the teeth and surrounding structures. Mouth guards are mandatory in boxing, football, ice hockey, and lacrosse.

Shin pads

Shin pads supports and protect the shins and ankles. It helps to prevent fractures, sprains, bruising and swelling. It is commonly worn in football and ice hockey.

Knee, ankle, wrist and thigh supports

Many athletes wear additional protection to joints which may be weakened by an injury. Supports stabilise the joint and prevent further damage.

Shoulder pads

Shoulder pads are worn in American football. It helps to protect the shoulder during collision with other players and the ground. This protective clothing helps to prevent dislocations and shoulder strains.

Conclusion

Anybody parts may be subjected to injury in sports. Most injuries involving head or neck may cause either permanently disabling or lethal. Even though such injuries are not entirely preventable but taking necessary steps can help to decrease them significantly. However, on the other hand, more and more people recognize the health benefits of exercise and become actively involved in sports. Primary care

and team physicians play a very necessary role in the protection of an athletes and should be better informed regarding these athletic health problems.

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