J.S. University, Shikohabad

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Act-1956

Value Added Course

(Sports Injury)

Faculty of Nursing

	J.S. University, Shikohabad Faculty of Nursing	**Value Added Course** AY: 2021-22

Sport Injury

Learning Outcome:
This Course will provide knowledge of sport injury.

Duration: 30 Hours. (Theory and Practical)

Perquisites:

Assessment Criteria/ Award of certification:
Participants who secured 90% attendance and secured 80% marks in final quiz shall be awarded the completion of certificate

	J.S. University, Shikohabad Faculty of Nursing	**Value Added Course** AY: 2021-22

COURSE OBJECTIVE

- Identify how to recognize the many common sports injuries.
- Explain an overview of the top ten most frequent sports injuries.
- Recognize the treatment options for a ruptured Achilles tendon.
- Evaluate the effectiveness of several treatments for frostbite and arch pain.
- Identify the damage to the internal organs and the appropriate remedies.
- Indicate details on what sports medicine entails and recommended procedures.
- Define sport injury
- Enlist the risk factor of sport injury
- Explain the symptom of sports injury
- Describe the treatment of sports injury
- How to reduce the risk of sports injury

Course Outcome

1. Demonstrate and practice steps in Hand washing and appropriate use of different types of PPE
2. Apply the knowledge of sports academy .
3. Apply the knowledge in ground.
4. Apply the knowledge in sport college.
5. Apply the principles of sport injury in performing the player role
6. Apply the knowledge of International sport and national sports ground.
7. To understand the specialized technique used to recover from specific sports related injury.

Sports Injury

COURSE OVERVIEW

Sports injuries are common and can occur throughout your body to bones, muscles, tendons, ligaments and other structures. You can treat many minor injuries at home with rest, ice, compression, elevation and over-the-counter pain medications. But some injuries require medical treatment, such as immobilization, physical therapy and surgery.

SPORTS INJURY

NO OF UNIT	CONTENT	THEORY HOURS	PRACTICAL HOURS
UNIT-1	Introduction, The Risk Factors For Sports Injuries Include	3 hr	
UNIT -2	Types of sport injuries, What are the most common parts of the body injured. - Acute injuries - Chronic injuries	6 hr	8hr
UNIT-3	What Causes Sports Injuries? Sports Injuries Have Many Causes, Including: What Are The Symptoms Of A Sports Injury?	3 hr	1hr
UNIT -4	Treatment Of Sports Injuries	2hr	4hr
UNIT-5	How Can I Reduce My Risk Of Sports Injuries?	1hr	2hr

UNIT -1

INTRODUCTION

A sports injury involves damage to part of your body due to sports, exercise or athletic activities. A sports injury can be acute (sudden) or chronic (develop over time). Sports injuries are common and can occur throughout your body to bones, muscles, tendons, ligaments and other structures. You can treat many minor injuries at home with rest, ice, compression, elevation and over-the-counter pain medications. But some injuries require medical treatment, such as immobilization, physical therapy and surgery.

THE RISK FACTORS FOR SPORTS INJURIES INCLUDE

- Not using the correct exercise techniques.
- Overtraining, either by training too often, too frequently, or for too long.
- Changing the intensity of physical activity too quickly.
- Playing the same sport year-round.
- Running or jumping on hard surfaces.
- Wearing shoes that do not have enough support.
- Not wearing the proper equipment.
- Having had a prior injury.
- Having certain anatomical features specific to each joint or poor flexibility.
- Taking certain medications, such as fluoroquinolones, a class of antibiotics linked to tendinitis and tendon rupture.

UNIT-2

TYPES OF SPORTS INJURY

➢ Sports injuries are broadly categorized into two kinds:

- Acute injuries, which happen suddenly.
- Chronic injuries, which are usually related to overuse and develop gradually over time.

TYPES OF MUSCULOSKELETAL INJURIES

- Injuries to the musculoskeletal system that are common in athletes include fractures, dislocations, sprains, strains, tendinitis, or bursitis. These terms are defined below.
- **BONE FRACTURE**. A fracture is a break in a bone that occurs from either a quick, one-time injury, known as an acute fracture, or from repeated stress, known as a stress fracture. Growth plate fractures are unique to children who are still growing.
- **ACUTE FRACTURES.** A fall, car accident, or blow can cause a fracture, and the severity depends on the force that caused the break. The bone may crack, break all the way through, or shatter. Injuries that break through the skin to the bone, which are known as compound fractures, are especially serious because there is an increased risk of infection. Most acute fractures are emergencies.
    - **STRESS FRACTURES.** Stress fractures occur largely in the weight-bearing bones of the lower extremity. These include the femur, tibia and fibula, and foot bones. They are common in sports where there is repetitive impact, primarily running or jumping sports such as gymnastics, tennis, basketball, or track and field. Running creates forces two to three times a person's body weight on the lower limbs.
    - **GROWTH PLATE FRACTURES.** The growth plate is an area of cartilage near the ends of long bones, and they enable the bones to lengthen until children reach their full height. Growth plates are especially vulnerable to injury until they are converted to bone, typically by the time a child reaches the age of 20. Growth plate fractures can result from a single traumatic event, such as a fall or car accident, or from chronic stress and overuse.
- **DISLOCATION.** When the two bones that come together to form a joint become separated, the joint is described as dislocated. Contact sports such as football and basketball, as well as high-impact sports and sports that involve significant stretching or falling, cause most dislocations. A dislocated joint typically requires immediate medical treatment, but sometimes the bones move back into place on their own. A dislocation is a painful injury and is most common in shoulders, elbows, fingers, kneecap, and femur-tibia or knee.
- **SPRAIN.** Sprains are stretches or tears of ligaments, the bands of connective tissue that join the end of one bone with another. Sprains are caused by trauma such as a fall or blow that knocks a joint out of position. Sprains can range from first degree (minimally stretched ligament) to third degree (a complete tear). Areas of the body most vulnerable to sprains are ankles, knees, and wrists.
- **STRAIN.** A strain is a twist, pull, or tear of a muscle or tendon, a cord of tissue connecting muscle to bone. Athletes who play contact sports can get strains, but they can also happen from repeating the same motion again and again, as in tennis or golf. Like sprains, strains can range from a minor stretch to a partial or complete tear of a muscle or tendon. This is most common in muscle or tendons between two joints.

- **TENDINITIS.** Tendinitis is inflammation of a tendon, a flexible band of fibrous tissue that connects muscles to bones. It often affects the shoulder, elbow, wrist, hip, knee, or ankle. Tendinitis can be caused by a sudden injury, but it usually results from carrying out the same motion over and over. People such as carpenters, gardeners, musicians, and certain types of athletes, such as golfers and tennis players, have a higher risk of tendinitis. Tendons become less flexible as you age, so you are more likely to get tendinitis as you get older.
- **BURSITIS.** Bursitis is inflammation of the bursae (plural of "bursa"), small, fluid-filled sacs that act as cushions between a bone and other moving parts, such as muscles, tendons, or skin. Bursitis can be caused by a one-time event like a blow or fall. It can also result from repeating the same motion many times, like throwing a ball, or from prolonged pressure, such as from kneeling on a hard surface or leaning on the elbows. It usually affects the shoulders, elbows, hips, or knees.

What are the most common parts of the body injured?
Common Sports Injuries

Most sports injuries involve one or more of the types of musculoskeletal injuries described above. The joints are particularly susceptible because a person's body places significant demands on them. Joints must provide both stability and flexibility, and they are complex structures that include several interconnected parts.

Some of the common injuries experienced by athletes and people who have jobs or hobbies that involve doing a repetitive motion include:

- **SHOULDER INJURIES**
  - **Rotator cuff injury.** These are the most common shoulder injuries. The rotator cuff is a group of four muscles and tendons that stabilize the shoulder joint. Rotator cuff injuries happen when the tendons or bursae near the joint become inflamed from overuse or a sudden injury. They are common in people with jobs that involve overhead motions, like painters, or athletes who repeatedly reach upward, such as tennis players and swimmers.
  - **Impingement.** This happens when the top of the shoulder blade puts pressure on the soft tissues beneath it when the arm is lifted. Tendinitis and bursitis can develop, limiting movement and causing pain. Repeated overhead movements, such as those used by swimmers, increase the risk of impingement.
  - **Instability.** Shoulder instability happens when the round end of the upper arm bone is forced out of its shallow socket, either partially or completely. Once the tendons, ligaments, and muscles of the shoulder become stretched or torn, the shoulder becomes "loose" and dislocations can occur repeatedly.

- **ELBOW INJURIES**
  - **Tennis elbow (lateral epicondylitis).** When you play tennis or other racket sports, the tendons in the elbow can develop small tears and become inflamed, causing pain on the outside of the elbow. Painters, plumbers, carpenters, and others who repetitively use their forearms are also at higher risk of getting tennis elbow.
  - **Golfer's elbow (medial epicondylitis).** This is a form of tendinitis that causes pain in the inner part of the elbow. Pain may spread to the forearm and wrist. Golfers and others who repeatedly use their wrists or clench their fingers can develop it.
  - **Little league elbow.** This is a growth plate injury to the elbow caused by repetitive throwing in youths. It is most common in pitchers, but any young athlete who throws repeatedly can get it. The pain is in the inner part of the elbow.
  - **Ulnar collateral ligament injury.** Repeated throwing can cause tears to this ligament on the inner part of the elbow, causing pain and decreased throwing effectiveness.
- **KNEE INJURIES**
  - **Runner's knee.** Also called jumper's knee or patellofemoral pain syndrome, this condition causes pain or tenderness close to or under the kneecap (patella) at the front of the knee. It is common in runners, but it also affects people who are active in other ways, such as those who hike or cycle.
  - **Fracture.** Fractures can happen in any bone around the knee, but the kneecap (patella) is the most common, usually as a result of an event like a bad fall or a blow to the knee.
  - **Dislocation.** A large impact to the knee can cause the kneecap to be forced from the groove in the thigh bone (femur) and pushed out of alignment, causing the kneecap to slip out of position.
  - **Torn ligament.** When the knee is over-extended or twisted, the ligaments within it can tear. Anterior cruciate ligament (ACL) injuries are especially common in athletes. They often happen when the person changes direction suddenly or lands from a jump.
  - **Meniscal tear.** Meniscal cartilage serves as a shock absorber in the knee. An awkward twist or pivot can cause a tear. They are commonly torn when the knee suffers a sprain or complete tear of the knee ligaments.
  - **Tendon tear.** Tendon tears tend to be more common in middle-aged people who play sports that involve running and jumping. They often happen because of a forceful landing and sometimes from an awkward jump.
- **LEG INJURIES**
  - **Groin pull.** Quick side-to-side motions can strain the muscles of the inner thighs and lead to a groin pull. People who play sports such as hockey, soccer, football, and baseball have a higher risk of groin pulls.

- **Hamstring strain.** Three muscles run along the back of the thigh and form the hamstring. Activities that involve a lot of running, jumping, and sudden starts and stops place you at risk of a hamstring strain. Basketball, football, and soccer players commonly get them.
- **Shin splints.** Shin splints refers to the pain caused by inflammation of the muscles, tendons, and bone tissue along the inside length of the shinbone (tibia), the large bone in the front of the lower leg. The pain is usually on the inner side of the lower leg. Shin splints are primarily seen in runners, particularly those just starting a running program.

• ANKLE INJURIES

- **Ankle sprain.** You can sprain your ankle when you roll, twist, or turn your ankle in an awkward way, stretching or tearing the ligaments in the joint. It can happen when you land awkwardly when jumping or pivoting, when walking on an uneven surface, or when someone else lands on your foot. People who play sports in which there is a lot of pivoting, such as volleyball and basketball, are at risk of an ankle sprain.
- **Achilles tendinitis.** An Achilles tendon injury results from a stretch, tear, or irritation to the tendon connecting the calf muscle to the back of the heel. The Achilles is the largest tendon in the body and you use it when you walk, run, climb stairs, jump, and stand on the tips of your toes. People with Achilles tendinitis usually feel pain and stiffness at the back of the heel, especially in the morning. Achilles tendinitis is usually a chronic condition caused by overuse, but serious cases can lead to a tear that may require surgery.

UNIT-3

WHAT CAUSES SPORTS INJURIES?

Sports injuries have many causes, including:

- Accidents, such as a fall.
- Bad habits with exercise, such as not warming up or stretching enough.
- Lack of safety equipment, or gear that's damaged or worn incorrectly.
- Shoes that don't fit well or provide enough support.
- Sudden start to an exercise program or significant increase in physical activity that your body isn't used to.

WHAT ARE THE SYMPTOMS OF A SPORTS INJURY?

The signs and symptoms of a sports injury depend on the type of injury. Common symptoms include:

- Aches, pain or tenderness.

- Bruising.
- Deformity, such as a bone or joint looking out of place.
- Decreased range of motion.
- Grinding, cracking, clicking or popping noise.
- Inability to bear weight on your hip, leg or foot.
- Skin that's warm to the touch.
- Wound
- Fracture
- Dehydration
- Dizziness
- Stiffness or weakness.
- Swelling.
- Trouble moving a body part normally (for example, you can't move it as far or it locks up when you try to move).

HOW IS A SPORTS INJURY DIAGNOSED?

To diagnose a sports injury, your healthcare provider performs a physical exam. They'll ask questions about what happened and what symptoms you've had. They'll also look at the injured area, possibly testing how it moves.

Depending on the type of injury you have and how severe it is, your healthcare provider also may recommend imaging tests. An X-ray, CT scan or MRI can create pictures of the structures inside your body. The images will help your healthcare provider understand, diagnose and treat your specific injury.

UNIT-4

TREATMENT OF SPORTS INJURIES

You should not try to "work through" the pain of an injury, regardless of whether it is an acute or overuse injury. When you have pain from a particular movement or activity, you should stop right away.Continuing the activity may cause further harm.

The goals of treatment for a sports injury are recovery of the injured part of the body and prevention of future injuries.

Treatment for Serious Injuries

You should see a health care provider if you have symptoms of a serious injury. These symptoms include:

- Severe pain, swelling, or bruising.
- Pain and swelling that do not go away after a few days.
- Being unable to tolerate any weight on the area.
- An obvious deformity.

TREATMENT FOR SERIOUS INJURIES MAY INCLUDE:

Immobilization. Immediate immobilization is a common treatment for musculoskeletal sports injuries, and it can be done right away by an athletic trainer or paramedic. Immobilization limits movement in the area and enables the blood to flow more directly to the injury (or the site of surgical repair to an injury). Immobilization reduces pain, swelling, and muscle spasms and helps the healing process begin. Most people only need immobilization for a limited time. Following are some devices used for immobilization:

Slings, to immobilize the upper body, including the arms and shoulders.

Splints, braces, and casts, to support and protect injured bones and soft tissue. Splints and braces generally offer less support and protection than a cast, so they are not always a treatment option.

Surgery. Surgery is needed in some cases to repair torn connective tissues or to realign fractured bones. The vast majority of musculoskeletal sports injuries do not require surgery.

TREATMENT OF MINOR INJURIES.

If you do not have any symptoms of a serious injury, it is probably safe to treat the injury at home—at least at first. If pain or other symptoms persist or worsen, you should check with a health care provider. Use the R-I-C-E method to relieve pain and inflammation and to speed healing:

Rest. Limit activities that involve using the injured area for at least a day or two. Try to avoid putting weight on or using the injured joint or limb.

Ice. Apply an ice pack to the injured area for 20 minutes at a time, four to eight times a day. Use a cold pack, ice bag, or plastic bag filled with crushed ice and wrapped in a towel. To avoid cold injury and frostbite, do not apply the ice for more than 20 minutes. (Note: Do not use heat immediately after an injury. This tends to increase internal bleeding or swelling. Heat can be used later to relieve muscle tension and promote relaxation.)

Compression. Keeping pressure on the injured area may help reduce swelling. An elastic bandage works well, but do not wrap it so tightly that it cuts off the circulation.

Elevation. If possible, keep the injured ankle, knee, elbow, or wrist elevated on a pillow, above the level of the heart, to help decrease swelling.

Other treatments may include over-the-counter anti-inflammatory and, rarely, medications, which can help treat pain and swelling.

REHABILITATION

After the injury has healed, you may need to complete a rehabilitation program before returning to the activity that caused the injury. A physical therapist or physiatrist will make a plan aimed at rebuilding

strength and range of motion of the injured part of the body, and easing any residual pain. Most rehabilitation plans include exercises that you do at home, in addition to those you do in the therapist's office. The therapist may also treat the injured area with cold, heat, ultrasound, aquatic, or massage therapy. A rehabilitation program can help you return to your previous level of activity and reduce the chance of reinjury.

UNIT-5

HOW CAN I REDUCE MY RISK OF SPORTS INJURIES?

There are many ways you can help prevent sports injuries.

- Choose sports and activities that are less dangerous (for example, avoid sports that involve collisions and tackles).
- Don't play the same sport or do the same activity year-round. This is especially important for children.
- Mix up your routine. Your body needs a combination of cardiovascular (aerobic) exercise, strength training with weights or resistance, and flexibility.
- Drink plenty of water before, during and after any exercise.
- Learn proper technique and use it all the time.
- Listen to your body and don't push too far. Rest when you're tired. Stop any activity that doesn't feel right.
- Start slowly and build gradually. For example, start with walking and build up to jogging before you enter a race.
- Stretch before and after every workout. Warm up before and cool down afterward.
- Wear proper shoes and safety equipment, and make sure they're always in good condition.

WHAT CAN I EXPECT IF I HAVE A SPORTS INJURY?

The outlook after a sports injury varies, depending on the type and severity. Most sports injuries are minor and heal in a few days or weeks with rest and simple recovery strategies. Other injuries, such as broken bones and concussions, need medical intervention and can take several months to heal.

HOW DO I TAKE CARE OF MYSELF AFTER A SPORTS INJURY?

If you get hurt during physical activity, stop playing or exercising immediately. You can cause more harm if you keep going.

Most minor sports injuries get better in a few days with the RICE method:

- **Rest:** Don't use the injured area for a few days. If you injured your lower body, consider using crutches so you don't put your weight on the injured area.

- **Ice:** Put ice or cold packs on the injured area to reduce pain and swelling (for example, 15 to 20 minutes every four hours).
- **Compression:** Wrap the injured area in an elastic bandage to provide support and reduce swelling. Make sure it's snug, but not so tight that it hurts or cuts off blood circulation.
- **Elevation:** Prop up your injured body part, if possible above the level of your heart, to rest it and reduce swelling. Use a pillow or something similar to keep the injury above your heart.

You also might consider taking nonsteroidal anti-inflammatory drugs, such as ibuprofen or naproxen.

As you start to feel better, go back to sports and other activities slowly. Make sure you can move the area without pain or stiffness. This will help ensure that you don't injure yourself again or make the injury worse.

WHEN SHOULD I SEEK MEDICAL ATTENTION FOR A SPORTS INJURY?

Even though many sports injuries can be treated at home, you should seek medical attention for:

- Pain that interferes with movement and doesn't get better over time.
- Massive swelling that doesn't slowly decrease.
- Extreme bruising or bleeding.
- Inability to use the injured area.
- Obvious deformity, such as your leg bending in the wrong direction.

Assessment of Training: -

Exit Examination :- As per the Institutional guidelines The certificate is awarded after a final exit examination, at the end of the 6 weeks training period.

References:

1.Fullagar HH, McCunn R, Murray A. An updated review of the applied physiology of American collegiate football: The physical demands, strength/Conditioning, nutritional considerations and injury characteristics of America's favourite game. *Int J Sports Physiol Perform.* 2017;24,:1–27.

2. Ardern CL, Glasgow P, Schneiders A, Witvrouw E, Clarsen B, Cools A, et al. Consensus statement on return to sport from the First World Congress in Sports Physical Therapy, Berne. *Br J Sports Med.* 2016;50:853–64.

3. Hootman JM, Dick R, Agel J. Epidemiology of collegiate injuries for 15 sports: Summary and recommendations for injury prevention initiatives. *J Athl Train.* 2007;42:311–9

4. Dhillon MS, Garg B, Soni RK, Dhillon H, Prabhakar S. Nature and incidence of upper limb injuries in professional cricket players a prospective observation. *Sports Med Arthrosc Rehabil Ther Technol.* 2012;4:42–46.

3. Journals:

ACG Case Reports Journal

- **ACR Open Rheumatology**

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