

# Definition

A [sports injury](#) is any bodily damage sustained during participation in competitive or non-competitive athletic activity. Sports injuries can affect bones or soft tissue (i.e., muscles, ligaments, tendons)

Sports injuries are caused by overuse, direct impact, or the application of force that is greater than the body part can structurally withstand. Common injuries include bruises, sprains, strains, joint injuries and nose bleeds.

An injury that happens suddenly, such as a sprained ankle caused by an awkward footfall, is known as an acute injury.

Chronic injuries are caused by overusing the same muscle groups or joints. Poor technique and structural abnormalities can also contribute to the development of chronic injuries.

## Common types of sports injuries

- **Ankle sprain** – symptoms include pain, swelling and stiffness.
- **Bruises** – a blow can cause small bleeds into the skin.
- **Concussion** – mild reversible brain injury from a blow to the head, which may be associated with loss of consciousness. Symptoms include headache, dizziness and short term memory loss.
- **Cuts and abrasions** – are usually caused by falls. The knees and hands are particularly prone.
- **Dehydration** – losing too much fluid can lead to heat exhaustion and heat stroke.
- **Dental damage** – a blow to the jaw can crack, break or dislodge teeth.
- **Groin strain** – symptoms include pain and swelling.
- **Hamstring strain** – symptoms include pain, swelling and bruising.
- **Knee joint injuries** – symptoms include pain, swelling and stiffness. The ligaments, tendons or cartilage can be affected.
- **Nose injuries** – either blood nose or broken nose, are caused by a direct blow.
- **Stress fractures** – particularly in the lower limbs. The impact of repeated jumping or running on hard surfaces eventually stresses and cracks the bone.

## Causes and symptoms

**Common causes** of sports injuries include:

- athletic equipment that malfunctions or is used 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

## **FIVE COMMON CAUSES OF SPORTS INJURIES AND HOW TO AVOID THEM**

- Whether you are a top-class, professional athlete or a regular runner to keep fit and stay in shape, there is nothing quite as frustrating and infuriating than being beleaguered by a sports injury.
- Almost as common as sports injuries can be, are the causes that cause them, causes which if sportsmen and women are aware of, can easily be avoided.
- Below are five of the most common causes of sports injuries.
- **Incorrect techniques**
- Regularly performing incorrect techniques when doing sports such as swimming or playing tennis or golf can often result in an injury. These kinds of sports injuries can, unfortunately, often go undetected, and only become known when the injury is at an advanced stage.
- To help avoid injuries caused by incorrect techniques ensure that you get a professional from your field of sport to show you how to perform techniques correctly, as not only will you be less prone to picking up an injury, but it is likely to improve your performance.
- **Overuse injuries**
- Overuse injuries are one of the most common sports injuries to inflict themselves of sportsmen and women. Overuse injuries are particularly common among swimmers and runners or in sports where actions and strokes are practised repetitively, such as tennis and badminton.
- Avoid overuse injuries by allowing your body to recover fully between training sessions and to simply not overdo it.
- **Not stretching and warming up**
- Athletes stretch and warm up for a reason, it supplies blood and oxygen to the muscles and in doing so, helps avoid injuries and enhances performance.
- To lessen your chances of contracting a sports-related injury, always warm up and stretch before you train.

- **Ill-fitting trainers**
- Many ankle and leg strains are caused by athletes, usually runners, turning over on their foot. The tendency for ankle rolling is often caused by trainers that do not fit properly or are simply too old and worn.
- Eradicate this problem by wearing trainers that fit well and are new enough to absorb the impact of the movements.
- **Faulty equipment**
- Gym goers sometime find themselves becoming injured due to training on equipment that is faulty or not checked properly.
- Avoid this possibility by joining a quality gym and checking with the staff that the equipment is safe to use.
- If you really want to give your performance a boost, you should consider the benefits of a [magnetic therapy bracelet](#) from Trion:Z. You can buy one [here](#).
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## **Role of trained personnel in the management of the sports injuries**

In school and youth sports, the nurse is often the first health care provider to evaluate [acute](#) injuries and is often responsible for some **first aid** of **wounds** and injuries until a physician can attend to the athlete. In school settings, since the nurse is in more frequent contact with children, he or she can advise on general measures to prevent injuries such as warm-up and stretching. In clinical settings, the nurse takes a detailed medical and training history that can help the physician diagnose the injury.

The athletic trainer is often on call for [emergency care](#) of acute sports injuries and performs [first aid](#) on the injured athlete. He or she specializes in sports activities and can give more specific advice for overall conditioning, training, and treatment of the athlete. The athletic trainer also serves as a liaison between the athlete and coaches, parents, and physicians.

Prior to student participation in athletic activity, the the preparticipation physical examination is performed by the physician to assess the patient's fitness for the sport. If the athlete is injured, a diagnosis of the injury is made by the physician and a prescription for appropriate treatment is given. Medical and radiological tests are conducted by technologists. The results assist in determination of the physician's diagnosis. For rehabilitation, the patient may be referred to a physical therapist. For serious injuries requiring surgery, the patient may be referred to an orthopedic surgeon.

## **The most common sports injuries are**

- [Sprains and strains](#)

- [Knee injuries](#)
- Swollen muscles
- Achilles tendon injuries
- Pain along the shin bone
- [Fractures](#)
- [Dislocations](#)

If you get hurt, stop playing. Continuing to play or exercise can cause more harm. Treatment often begins with the RICE (Rest, Ice, Compression and Elevation) method to relieve pain, reduce swelling and speed healing. Other possible treatments include pain relievers, keeping the injured area from moving, rehabilitation and sometimes surgery.

## R.I.C.E. Treatment

- **R**est, **I**ce, **C**ompression, **E**levation
- First aid for strains, sprains, contusions, dislocations, or uncomplicated fractures
  - **Rest**
    - Stop using injured part
      - Continued activity could cause further injury, delay healing, increase pain, and stimulate bleeding
    - Use crutches to avoid bearing weight on injuries of the leg, knee, ankle, or foot
    - Use splint for injuries of the arm, elbow, wrist, or hand
  - **Ice**
    - Hastens healing time by reducing swelling around injury
      - Sudden cold contracts blood vessels
      - Helps stop internal bleeding from injured capillaries and blood vessels
    - Keep damp or dry cloth between skin and ice pack
    - Do not apply ice for longer than 15 to 20 minutes at a time
    - For 3 days after injury
      - Apply every hour for 10 to 20 minutes
    - Apply ice after 3 days as long as pain or inflammation persist
      - Apply at least 3 times throughout the day for 15 to 20 minutes
  - **Compression**
    - Hastens healing time by reducing swelling around injury
      - Decreases seeping of fluid into injured area from adjacent tissue
    - Use elasticized bandage, compression sleeve, or cloth
      - Wrap injured part firmly
        - Do not impair blood supply
          - Too tight of compression may cause more swelling
      - Wrap over ice
      - Loosen the bandage if it gets too tight
    - **Elevation**
      - Elevate injured part above level of heart
        - Decreases swelling and pain
        - Use objects and pillows for props

## Sprain

Violent overstretching of ligament in a joint. Pain, tenderness, swelling or bruising at joint.

- Mild strain (Grade I):

- Tearing of some ligament. No loss of function
- Requires self care through rehabilitation after doctor's diagnosis
- Average healing time: 2 to 6 weeks
- Moderate strain (Grade II):
  - Rupture of portion of ligament resulting in some loss of function
  - Requires physical therapy after doctor's diagnosis
  - Average healing time: 6 to 8 weeks
- Severe strain (Grade III)::
  - Complete rupture of ligament or complete separation of ligament from bone. A sprain-fracture occurs when the ligament pulls loose a fragment of bone
    - 1+ Joint surfaces displaced 3-5 mm
    - 2+ Joint surfaces displaced 6-10 mm
    - 1+ Joint surfaces displaced 10+ mm
  - Requires surgical repair and physical therapy after doctor's diagnosis
  - Average healing time: 8 to 10 weeks

## Strain

Injury to the muscle or tendon. Pain with moving or stretching the affected muscle or muscle spasms. Acute strains are caused by over stress or direct injury. Chronic strains are caused by overuse.

- Mild strain (Grade I):
  - Slightly pulled muscle with no tearing of muscle or tendon. No loss of strength
  - Ability to produce strong yet painful muscle contractions
  - Requires self care through rehabilitation after doctor's diagnosis
  - Average healing time: 2 to 10 days
- Moderate strain (Grade II):
  - Tearing of muscle, tendon or at the bone attachment
  - Weak and painful attempts at muscular contraction
  - Requires physical therapy after doctor's diagnosis
  - Average healing time: 10 days to 6 weeks
- Severe strain (Grade III):
  - Rupture of muscle-tendon-bone attachment with separation
  - Extremely weak yet painless attempts at muscular contraction
  - Requires surgical repair and physical therapy after doctor's diagnosis
  - Average healing time: 16 to 10 weeks

## First aid for sprains, strains

Suggestions on immediate treatment for sprains, strains:

- Stop the activity.
- Rest the injured area.
- For the first 24 to 48 hours, apply ice packs for 15 minutes every two hours.
- Bandage the injured area firmly, extending the wrapping above and below the injury.
- Whenever possible, elevate the injured area above the level of your heart.
- Avoid heat, alcohol or massage, which can exacerbate the swelling.
- Seek medical advice.

## Dislocation

A dislocation is an injury in which the ends of your bones are forced from their normal positions. The cause is usually trauma resulting from a fall, an auto accident or a collision during contact or high-speed sports.

In adults, the most common site of dislocation is the shoulder. In children, it's the elbow. Dislocation usually involves the body's larger joints. Because of its position on the hand, however, your thumb is also vulnerable if forcibly bent the wrong way.

The injury will temporarily deform and immobilize your joint and may result in sudden and severe pain and swelling. A dislocation requires prompt medical attention to return your bones to their proper positions.

### First aid for Dislocation

1. **Don't delay medical care.** Get medical help immediately.
2. **Don't move the joint.** Until you receive help, splint the affected joint into its fixed position. Don't try to move a dislocated joint or force it back into place. This can damage the joint and its surrounding muscles, ligaments, nerves or blood vessels.
3. **Put ice on the injured joint.** This can help reduce swelling by controlling internal bleeding and the buildup of fluids in and around the injured joint.

## Fracture,

A **fracture**, also referred to as a **bone fracture**, **FRX**, **FX**, **F<sub>x</sub>** or **#** is a medical condition where the continuity of the bone is broke. A significant percentage of bone fractures occur because of high force impact or stress; however, a fracture may also be the result of some medical conditions which weaken the bones, for example osteoporosis, some cancers or

osteogenesis imperfecta. A fracture caused by a medical condition is known as a *pathological fracture*.

**Some different types of fracture:**

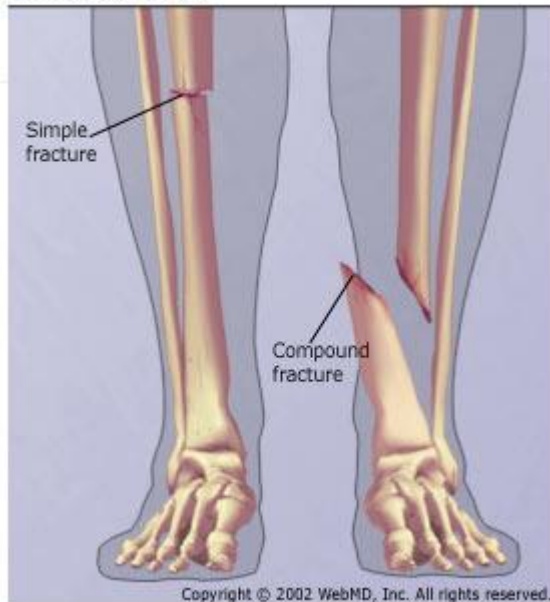
- **Avulsion fracture** - a muscle or ligament pulls on the bone, fracturing it.
- **Comminuted fracture** - the bone is shattered into many pieces.
- **Compression (crush) fracture** - generally occurs in the spongy bone in the spine. For example, the front portion of a vertebra in the spine may collapse due to osteoporosis.
- **Fracture dislocation** - a joint becomes dislocated, and one of the bones of the joint has a fracture.
- **Greenstick fracture** - the bone partly fractures on one side, but does not break completely because the rest of the bone can bend. More common among children, whose bones are softer and more elastic.
- **Hairline fracture** - a partial fracture of the bone. Often this type of fracture is harder to detect.
- **Impacted fracture** - when the bone is fractured, one fragment of bone goes into another.
- **Longitudinal fracture** - the break is along the length of the bone.
- **Oblique fracture** - A fracture that is diagonal to a bone's long axis.
- **Pathological fracture** - when an underlying disease or condition has already weakened the bone, resulting in a fracture (bone fracture caused by an underlying disease/condition that weakened the bone).
- **Spiral fracture** - A fracture where at least one part of the bone has been twisted.
- **Stress fracture** - more common among athletes. A bone breaks because of repeated stresses and strains.
- **Torus (buckle) fracture** - bone deforms but does not crack. More common in children. It is painful but stable.
- **Transverse fracture** - a straight break right across a bone.

There are many **types of fractures**, but the main categories are displaced, non-displaced, open, and closed. Displaced and non-displaced fractures refer to the way the bone breaks.

In a displaced fracture, the bone snaps into two or more parts and moves so that the two ends are not lined up straight. If the bone is in many pieces, it is called a comminuted fracture. In a non-displaced fracture, the bone cracks either part or all of the way through, but does not move and maintains its proper alignment.

A closed fracture is when the bone breaks but there is no puncture or open wound in the skin. An open fracture is one in which the bone breaks through the skin; it may then recede back into the wound and not be visible through the skin. This is an important difference from a closed fracture because with an open fracture there is a risk of a deep bone infection.

## Bone Fractures



## First aid for Fracture

Don't move the person except if necessary to avoid further injury. Take these actions immediately while waiting for medical help:

- **Stop any bleeding.** Apply pressure to the wound with a sterile bandage, a clean cloth or a clean piece of clothing.
- **Immobilize the injured area.** Don't try to realign the bone or push a bone that's sticking out back in. If you've been trained in how to splint and professional help isn't readily available, apply a splint to the area above and below the fracture sites. Padding the splints can help reduce discomfort.
- **Apply ice packs to limit swelling and help relieve pain until emergency personnel arrive.** Don't apply ice directly to the skin — wrap the ice in a towel, piece of cloth or some other material.
- **Treat for shock.** If the person feels faint or is breathing in short, rapid breaths, lay the person down with the head slightly lower than the trunk and, if possible, elevate the legs.



## Injury prevention tips

Tulloh (1995) and Anderson (1995) identified the following tips to help an athlete avoid injury:

1. Avoid training when you are tired
2. Increase your consumption of carbohydrate during periods of heavy training
3. Increase in training should be matched with increases in resting
4. Any increase in training load should be preceded by an increase in strengthening
5. Treat even seemingly minor injuries very carefully to prevent them becoming a big problem
6. If you experience pain when training STOP your training session immediately
7. Never train hard if you are stiff from the previous effort
8. Pay attention to hydration and nutrition
9. Use appropriate training surfaces
10. Check training and competition areas are clear of hazards
11. Check equipment is appropriate and safe to use
12. Introduce new activities very gradually
13. Allow lots of time for warming up and cooling off
14. Check over training and competition courses beforehand
15. Train on different surfaces, using the right footwear
16. Shower and change immediately after the cool down
17. Aim for maximum comfort when travelling
18. Stay away from infectious areas when training or competing very hard
19. Be extremely fussy about hygiene in hot weather
20. Monitor daily for signs of fatigue, if in doubt ease off.
21. Have regular sports massage

**Rehabilitation** means "to restore to useful life, as through therapy and education" or "to restore to good condition, operation, or capacity".

Restoration of an entity to its normal or near-normal functional capabilities after the occurrence of a disabling event.

### scope

1. assessment to determine eligibility and/or need for services;
2. vocational counseling, guidance, and referral services;
3. job placement services;
4. physical and mental restoration services;

5. vocational and training services, including tuition, fees, books, and materials;
6. income maintenance for additional costs incurred (beyond normal living expenses) while participating in the vocational rehabilitation program;
7. transportation, in connection with any vocational rehabilitation service;
8. personal assistance services (including training in managing, supervising, and directing personal assistance services) while an individual is receiving vocational rehabilitation services;
9. interpreter services for individuals who are deaf and reader services for individuals who are blind;
10. orientation and mobility services;
11. occupational licenses, tools, equipment, and initial stocks and supplies;
12. technical assistance and consultation services for individuals pursuing self-employment, telecommuting, or establishing a small business;
13. telecommunications, sensory, and other assistive/rehabilitation technology;
14. services to assist students with disabilities to transition from school to work;
15. supported employment services;
16. services to family members, as needed, to help you get and keep a job; and/or
17. post-employment services to help you retain, regain, or advance in employment.

### **Cold therapy**

Cold therapy or cryotherapy as it is known is applying ice or cold to an injury for a therapeutic effect. Cold therapy is often the immediate first aid applied as soon as possible for many sports injuries. Ice or cold therapy will reduce pain, help stop or decrease bleeding and swelling, reduce muscle spasm and reduce the risk of cells dying by slowing down the metabolic rate.

**Heat therapy**, also called **thermotherapy**, is the application of heat to the body for pain relief and health. It can take the form of a hot cloth, hot water, ultrasound, heating pad, hydrocollator packs, whirlpool baths, cordless FIR heat therapy wrap, and many others. It can be beneficial to

those with arthritis and stiff muscles and injuries to the deep tissue of the skin. Heat may be an effective self-care treatment for conditions like rheumatoid arthritis.

Heat therapy is most commonly used for rehabilitation purposes. The therapeutic effects of heat include increasing the extensibility of collagen tissues; decreasing joint stiffness; reducing pain; relieving muscle spasms; reducing inflammation, edema, and aids in the post acute phase of healing; and increasing blood flow. The increased blood flow to the affected area provides proteins, nutrients, and oxygen for better healing.

**Contrast baths** are the immersion of a body part alternately in cold and hot water. This causes alternate contraction and dilation of blood vessels, which increase blood flow, white blood cell activity, and the oxidation process to speed up healing.

This treatment is based on the principle that by alternate contraction and dilation of the blood vessels, brought about by the contrasting application of heat and cold, the circulation is improved and the removal of waste products is hastened

### **Wax bath**

A wax bath is a treatment that involves the submersion of hands, feet, or elbows into a container with melted paraffin wax to relieve pain, treat or prevent muscle injury, or deep clean and moisturize the skin. It is a natural way for people to relieve pain, a method used for several centuries, and does not use any drugs. Besides treating conditions such as arthritis, muscle injury, and rheumatism, wax bath therapy can also relieve conditions such as inflammation, fibromyalgia, eczema, bursitis, psoriasis, and tendonitis.

### **Infrared lamps**

Infrared heat is a form of energy that radiates heat directly to an object but does not cause the air around the object to get warm. Infrared heat is also called radiant heat. The sun is the primary source of this kind of energy.

Infrared lamps were proven to be effective in warming the body directly. This then allows deep heat that is responsible for good health to be absorbed by the body. Infrared lamps main functions include lessening inflammation, soothing pain, promoting proper metabolism and regulating physiological diseases.

Usually, infrared lamps have round plate that has mineral clay coating that is very crucial to the human body. Once plugged into an electrical outlet, the lamp will heat up and it will emit radiation that would easily be absorbed by the body. These infrared waves usually range from 2 to 25 microns in wavelength.

### **Therapeutic exercises**

Therapeutic exercises refers to a wide range of physical activities that focuses on restoring and maintaining strength, endurance, flexibility, stability, and balance. The goal of therapeutic exercises is to return an injured patient to a fully functioning, pain-free state.

The first objective of therapeutic exercise is to help the body reduce pain and inflammation. Once this is achieved, the exercise program focuses on regaining range of motion and rebuilding muscle strength and endurance. Exercises that may be included in a therapeutic program include:

Strengthening exercises, usually performed with heavy resistance and fewer repetitions.

Endurance exercises that engage large muscle groups over a longer period of time.

Flexibility exercises achieved through stretching and movement.

**Exercise therapy** is a means of accelerating the patient's recovery from injuries and diseases which have altered his normal way of living.

### **The aims of exercise therapy**

1. To promote activity and minimize the effects of inactivity.
2. To increase the normal range of motion.
3. To strength the weak muscles.
4. To improve the performance in daily activities.

### **The techniques of exercise therapy**

Movement used in treatment may be classified as follows.

#### **I. Active movements**

##### **1. Voluntary:**

- (i) assisted
- (ii) Free
- (iii) Assisted-Resisted
- (iv) Resisted

##### **2. Involuntary reflex**

#### **II. Passive movements**

- a. (i) Relaxed Passive Movements and accessory movements
- b. Passive Manual Mobilization Techniques
  - (i) Mobilizations of joints
  - (ii) Manipulations of joints performed by
  - (iii) Controlled sustained stretching of tightened structures

### **Active exercises:**

#### **Definition**

Movement performed or controlled by the voluntary action of muscles, working in opposition to an external force.

#### **Classification:**

**Free exercise:** the working muscles are subject only to forces of gravity acting

upon the part moved or stabilized.

**Assisted exercise:** when muscle strength or co-ordination is inadequate to perform a movement an external force is applied to compensate for deficiency.

**Assisted-resisted exercises:** muscles may be strong enough to work against resistance in part of the range and not in others. External forces applied are adapted in every part of the range to the abilities of the muscles.

**Resisted exercises:** resistance is applied to the working muscles are artificially and systematically increased to develop the power and endurance of muscle.

### **FREE EXERCISE**

Free exercises are those which are performed by the patient's own muscular efforts without the assistance or resistance of any external force, other than that of gravity.

**Advantage:** helps in maintaining range of motion by the patient itself without relying on others for this purpose.

**Disadvantage:** they frequently make insufficient demands on neuromuscular system to elicit the maximal response required for redevelopment of weak muscles.

### **The effect and uses of free exercises**

1. Relaxation: rhythmical swinging movements assist in relaxation of hypertonic muscles.
2. Joint mobility: normal ROM is maintained by exercises performed in full range.
3. Muscle power and tone: it is increased by tension created by the muscles.
4. Neuromuscular coordination: it is improved by repetition of exercises.
5. Improves confidence of patient.

### **Assisted exercises**

When the force exerted on one of the body levers by muscular action is insufficient for the production or control of movement, an external force may be added to augment it. As the power of muscle increases, the assistance given must decrease

### **Effects and uses of assisted exercise**

1. There will be production of movement which they are incapable of achieving.
2. The memory of the pattern of co-coordinated movement is stimulated by the correct performance.
3. Patient's confidence is increased

### **Assisted-resisted exercise**

This type of exercise constitutes a combination of assistance and resistance during a single movement.

### **Resisted exercise**

The external force may be applied to the body levers to oppose the force of muscular contraction and there will be increase in muscle power and hypertrophy.

### **Effects and uses of resisted exercises**

1. Muscle power can only be maintained or increased by contraction.
2. The blood flow to the working muscles is increased.
3. There will be a general rise in blood pressure.
4. Heat, which is produced as the result of strenuous muscular activity.

### **Passive Exercises:**

These movements are produced by an external force during muscular inactivity or when muscular activity is voluntarily reduced as much as possible to permit movement

#### **(i) Relaxed Passive Movements**

These are movements performed accurately and smoothly by the Physiotherapist. A knowledge of the anatomy of joints is required. The movements are performed in the same range and direction as active movements. The joint is moved through the existing free range and within the limits of pain.

#### ***Effects and Uses of Relaxed Passive Movements***

- (i) Adhesion formation is prevented and the present free range of movement maintained. One passive movement, well given and at frequent intervals, is sufficient for this purpose, but the usual practice is to put the joint through two movements twice daily.
- (ii) When active movement is impossible, because of muscular inefficiency, these movements may help to preserve the memory of movement patterns by stimulating the receptors of kinesthetic sense.
- (iii) When full-range active movement is impossible the extensibility of muscle is maintained, and adaptive shortening prevented.
- (iv) The venous and lymphatic return may be assisted slightly by mechanical pressure and by stretching of the thin-walled vessels which pass across the joint moved. Relatively quick rhythmical and continued passive movements are required to produce this effect. They are used in conjunction with elevation of the part to relieve oedema when the patient is unable or unwilling, to perform sufficient active exercise.
- (v) The rhythm of continued passive movements can have a soothing effect and induce further relaxation and sleep. They may be tried in training relaxation and, if successful the movement is made imperceptibly and progressively slower as the patient relaxes.

### **Massage**

**Massage** is the manipulating of superficial and deeper layers of muscle and connective tissue using various techniques, to enhance function, aid in the healing process, decrease muscle reflex activity, inhibit motor-neuron excitability, promote relaxation and well-being, and as a

recreational activity. Massage can have mechanical, neurological, psychological, and reflexive effects. Massage consists primarily of hand movements, some of which may be traction based. Traction is defined as the act of drawing or pulling or as the application of a pulling force. Traction sometimes involves equipment but also can be applied manually.

## General approach to massage manipulation

When you give a massage, start at the head, and work your way down the body. Always start with light, gentle strokes, and gradually work deeper. Pay attention to the person you are giving the massage to, ask them if they want you to work deeper or lighter. Watch your posture - good posture reduces the risk of injuries. Do not do massage on the front of the neck, stomach, or genitals, and work lightly over the kidneys, head and joints.

### **When Not to Do Massage**

Never give massage when you are ill, under the influence of alcohol or drugs, or when you are injured. Never give massage to a person who is ill, under the influence, or injured. Massage is also not a good idea for people with heart or serious back problems, or those who have had recent surgery.

### **Benefits of Massage**

Giving massage regularly is a great way to help someone stay healthy. Here are a few of the benefits of massage:

- Boost the immune system
- Reduce anxiety
- Relieve back and muscle pain
- Lower blood pressure
- Relieve migraines

### **Classification of massage technique:**

#### **I. On the basis of character of technique:**

##### **1. Stroking manipulation**

- i. superficial stroking.
- ii. Deep stroking.

##### **2. Pressure manipulation**

- i. kneading.
  - a. palmar kneading.
  - b. digital kneading.
  - c. ironing.

- ii. Petrissage.
  - a. Picking up.
  - b. Wringing.
  - c. Skin rolling.
- iii. Friction.
  - a. Circular friction.
  - b. Transverse friction.

### **3. Percussion manipulations**

- i. Clapping.
- ii. Hacking.
- iii. Tapping.
- iv. Beating.
- v. Pounding.
- vi. Tenting.
- vii. Contact heel percussion.

### **4. Vibratory manipulations**

- i. Vibrations.
- ii. Shaking.

## **II. On the basis of depth of tissue**

- 1. Light massage.
- 2. Deep massage.

## **III. On the basis of part of body massaged**

- i. General massage.
- ii. Local massage.

## **Techniques of massage**

**I. Stroking:** the uninterrupted linear movement of hand along the whole length of segment is called stroke.

**Superficial stroking:** it is the rhythmic movement of hand or parts thereof over the skin with the lightest amount of pressure in order to obtain sensory stimulation. The strokes can be applied from proximal to the distal or vice versa.

**Effleurage or deep stroking:** it is the movement of the palmar aspect of hand over the external surface of the body with constant moderate pressure, in the direction of the venous and lymphatic drainage.

**II. Pressure manipulations:** in this group of techniques, the hand of the therapist and skin of the patient move together as one and fairly deep localized pressure is applied to the body. It is divided into

- i. Kneading.
- ii. Petrissage.
- iii. Friction.

**I. Kneading:** in this group of techniques, the tissues are pressed down on to the underlying firm structure and intermittent pressure is applied in circular direction, parallel to the long axis of bone.



**a. digital kneading:** pressure is applied with the fingers (finger kneading) or thumb (thumb kneading).

**b. palmar kneading:** pressure is applied with the palm.

**c. reinforced kneading:** both the hands, placed over one another, are used to apply pressure.

**II. Petrissage:** in this the tissues are grasped and lifted away from the underlying structures and intermittent pressure is applied to the tissues in the direction that is perpendicular to the long axis of the bone. It is divided into

**i. Picking up:** tissues are lifted away from underlying structures, squeezed and then released using one or both the hands.

**ii. Wringing:** using both the hands, tissues are lifted away from the underlying structures, squeezed, twisted and then released.

**iii. Skin rolling:** the skin and fascia are lifted up with both the hands and moved over the subcutaneous tissues by keeping a roll of lifted tissue continuously ahead of the moving thumb.

**III. Friction:** in this technique the tissue are subjected to small range of to and fro movement performed with constant deep pressure of the finger or thumb. It is divided in to

**i. Circular friction:** direction of movement is circular.

**ii. Transverse friction:** to and fro movement is performed across the length of structure.

**IV. Vibratory Manipulations:** In this group of techniques, the mechanical energy is transmitted to the body by the vibrations of the distal part of upper limb, i.e. hand and/or fingers, which are in constant contact with the subjects skin, using the body weight and generalized co-contraction of the upper limb muscles. This technique is mainly directed towards the lung and other hollow cavities. Depending upon the direction and frequency of vibration it is divided into two techniques:

**Vibration** In this technique, the fine vibrations are produced, which tend to produce fine movement of hand in upwards and downward direction.

**Shaking** In this technique, coarse vibrations are produced, which tend to produce fine movement of hand in sideways direction.

## **V. Percussion/tapotment manipulations**

In this group of techniques, a succession of soft, gentle blows are applied over the body, which produce a characteristic sound. The striking hands are not in constant contact with the skin and strike the body part at regular interval. This results in the application of an intermittent touch and pressure to the body during these manipulations.

The different parts of hand are used to strike the subject's skin and accordingly the techniques are named:

### **Technique Administered with**

Clapping  
Cupped palm

Hacking Ulnar border of the 5th, 4th and 3rd digits  
Beating Anterior aspect of the clenched fist  
Tapping Pulp of the fingers  
Pounding Medial aspect of the clenched fist

### **On the Basis of Depth of Tissue Approached**

Depending upon the depth of tissue approached during manipulations massage techniques can be classified as:

#### **Light Massage Techniques**

The force applied during the manoeuvre are light, so that the effect of massage is confined to the superficial tissue only, e.g. stroking, tapping, etc.

#### **Deep Massage Techniques**

The forces applied during the massage are moderate to deep so that the effect of massage reaches to the deeper tissues like muscle, e.g. friction, kneading, etc.

### **On the Basis of Region Massaged**

Massage can also be classified as below, according to the region to which it is given.

#### **General massage**

Massage applied to the entire body is usually termed as general massage. However, massage administered to a large body segment like the back, lower limb, etc. can also be included in this category.

It is usually administered in debilitated persons following prolonged recumbency and on athletes after exhaustive physical work to bring a sense of well-being and comfort.

#### **Local Massage**

When massage is administered in a particular area of the body segment it is termed as local massage. This is used in the treatment of the local pathological conditions. For example, massage of wrist in tenosynovitis, friction to lateral ligament of ankle following sprain, etc. can be considered as local massage.

### **On the Basis of Means of Administration of Technique**

On this basis, the massage can be classified into the following two categories.

#### **Manual Massage**

Word manual refers to the 'lying on' of hand over the subject's body. The massage administered with the hand or other body part of the therapist is called manual massage, e.g. technique of classical massage, connective tissue massage, trigger point massage, accupressure massage, etc.

#### **Mechanical Massage**

When the mechanical devices based on the principles of massage, administer the mechanical energy to the patient's body, in order to manipulate soft tissue, it may be termed as mechanical massage, e.g. vibrator, compression devices, pneumatic massage, etc.