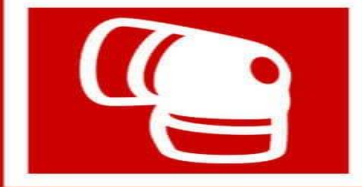




First Aid



Musculoskeletal Injuries

.1Fractures

.2Sprains & Strains

.3Head Injuries

.4Eye injury

.5Spinal Injury

Bone & Joint Injuries

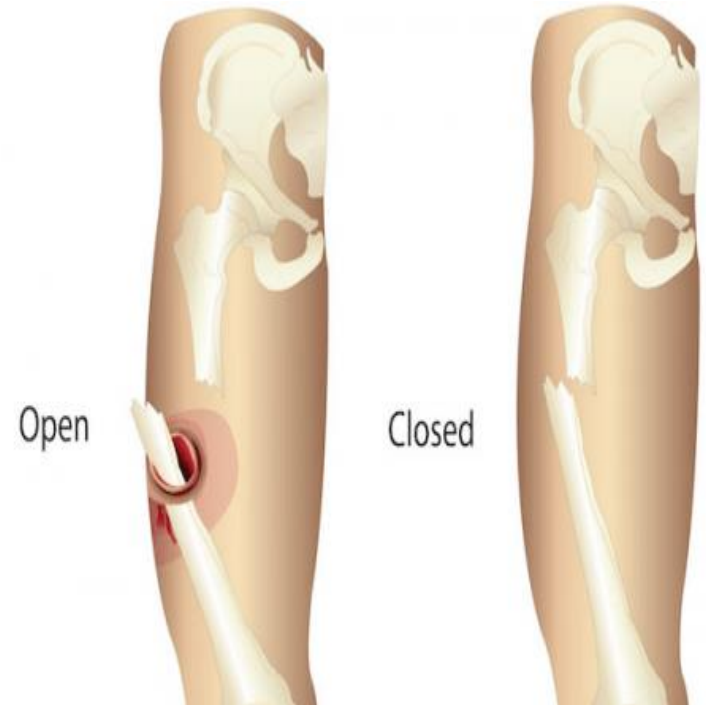
Fractures



Bones are very strong because they provide structure to the human body, but they can be broken by falls or impacts.

Types of Fractures

- Fracture- Break in the structural continuity of a bone
- If the overlying skin remains intact - closed (simple fracture)
- If skin or one of the body cavities is breached- open (compound fracture)



Recognition

- Swelling or bruising over a bone
 - Deformity of an arm or leg
 - Pain in the injured area that gets worse when the area is moved or pressure is applied.
 - An inability to bear weight on the affected foot, ankle, or leg.
 - In open fractures, bone protruding from the skin
 - History of impact or a fall

Deformity in the skeletal structure



Treatment

The treatment can be remembered using the acronym

RICE:

R : Rest

I : Immobilize (**Moving** the broken bones can increase pain and
can damage tissues around the injury)

C : Cold

E: Elevate

Note: this is different from the RICE for sprains and strains .

Remember that immobilization will reduce pain and tissue damage for fractures, but is pointless for sprains and strains.

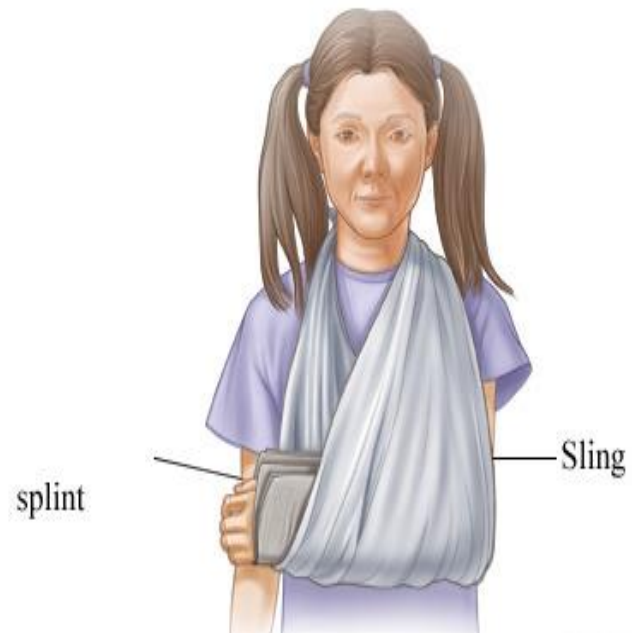
The primary first aid technique for immobilizing fractures is **splinting**.



A splint for a fractured bone should immobilize the joint above and below the fracture.

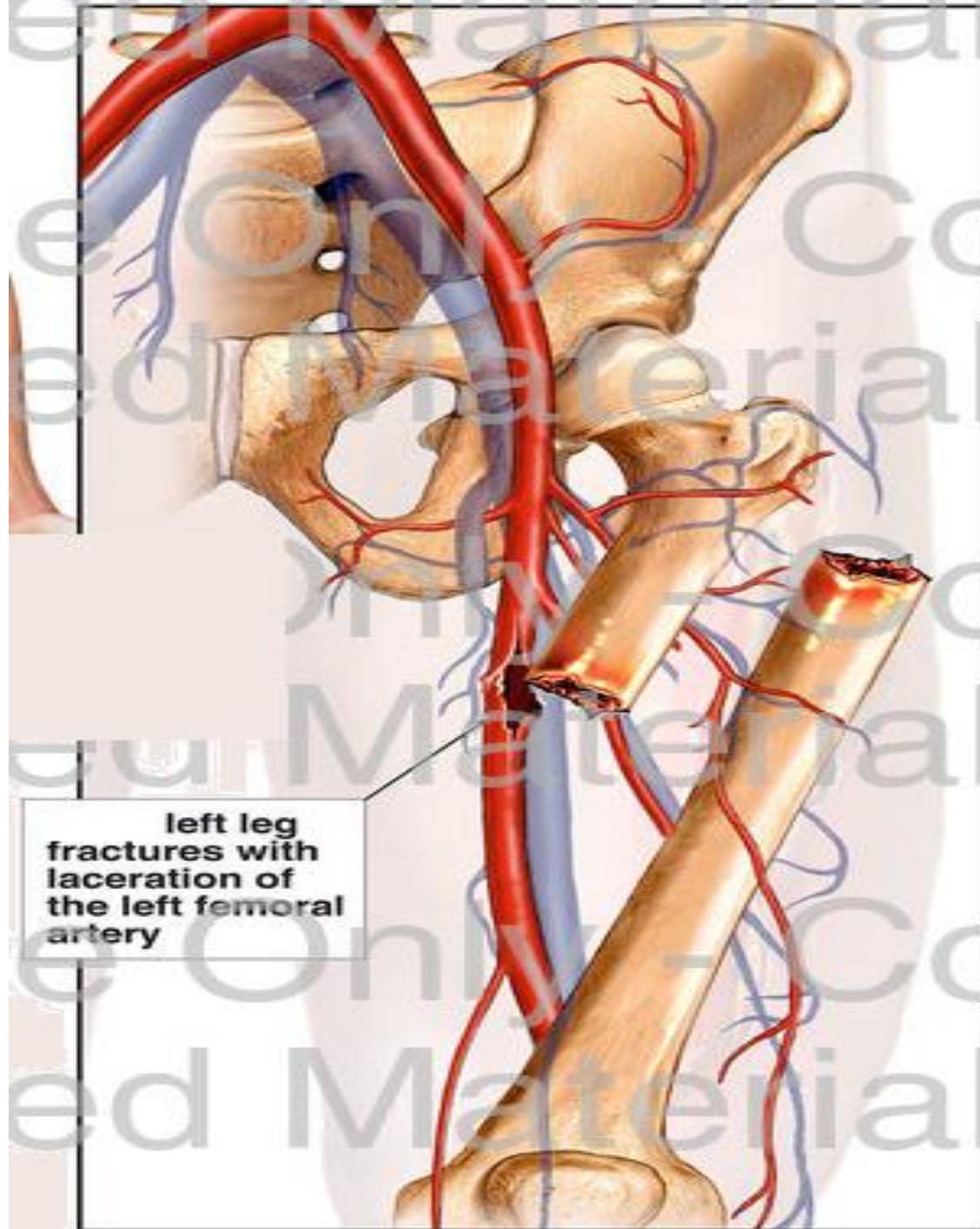
- Always check the person's skin color and pulse (circulation) and sensation after the injured body part has been splinted. Loosen the splint and bandage if:
- The area becomes cool or turns pale or blue
- Numbness or tingling develops in the injured body part

If the injury occurred on the arm,
you can **apply** a **sling**. **sling** is a used to support
an injured arm .



Femoral fractures

-) The femur is the longest, strongest bone in the body , and has a **large artery**, the **femoral artery**, directly beside it.
 -) Fracture of the femur bone is likely to damage the femoral artery. Damage to the femoral artery **causes massive internal bleeding**, so it is a major emergency; Call EMS immediately.
- Be sure to maintain **as much immobilization** as possible and **monitor ABCs** until EMS arrives.



**left leg
fractures with
laceration of
the left femoral
artery**

2. Sprains & Strains

SPRAIN



An overextending or tearing of ligaments.



The ankle is the most common location for a sprain.

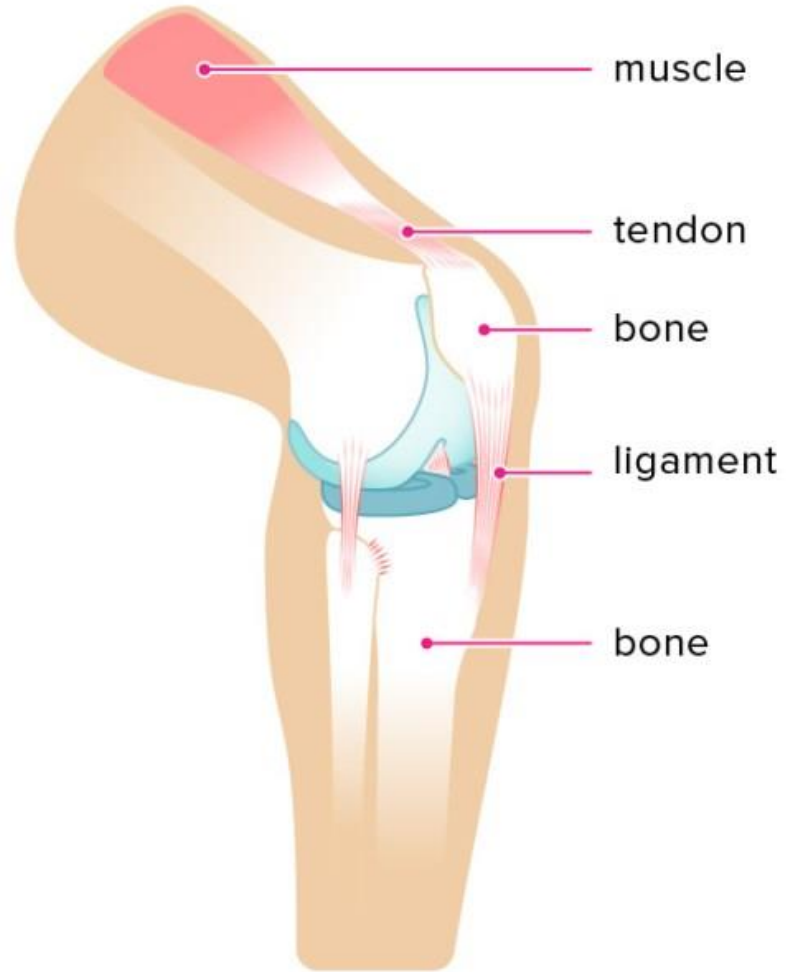
STRAIN



An overextending or tearing of muscles or tendons.



The lower back and the hamstring muscle in the back of our thighs are where strains commonly occur.



Sprains and Strains or Fracture?

One of the most important skills for a first aider to have when dealing with acute pain in joints caused by trauma, is recognition of soft tissue injuries (sprains and strains) from fractures.

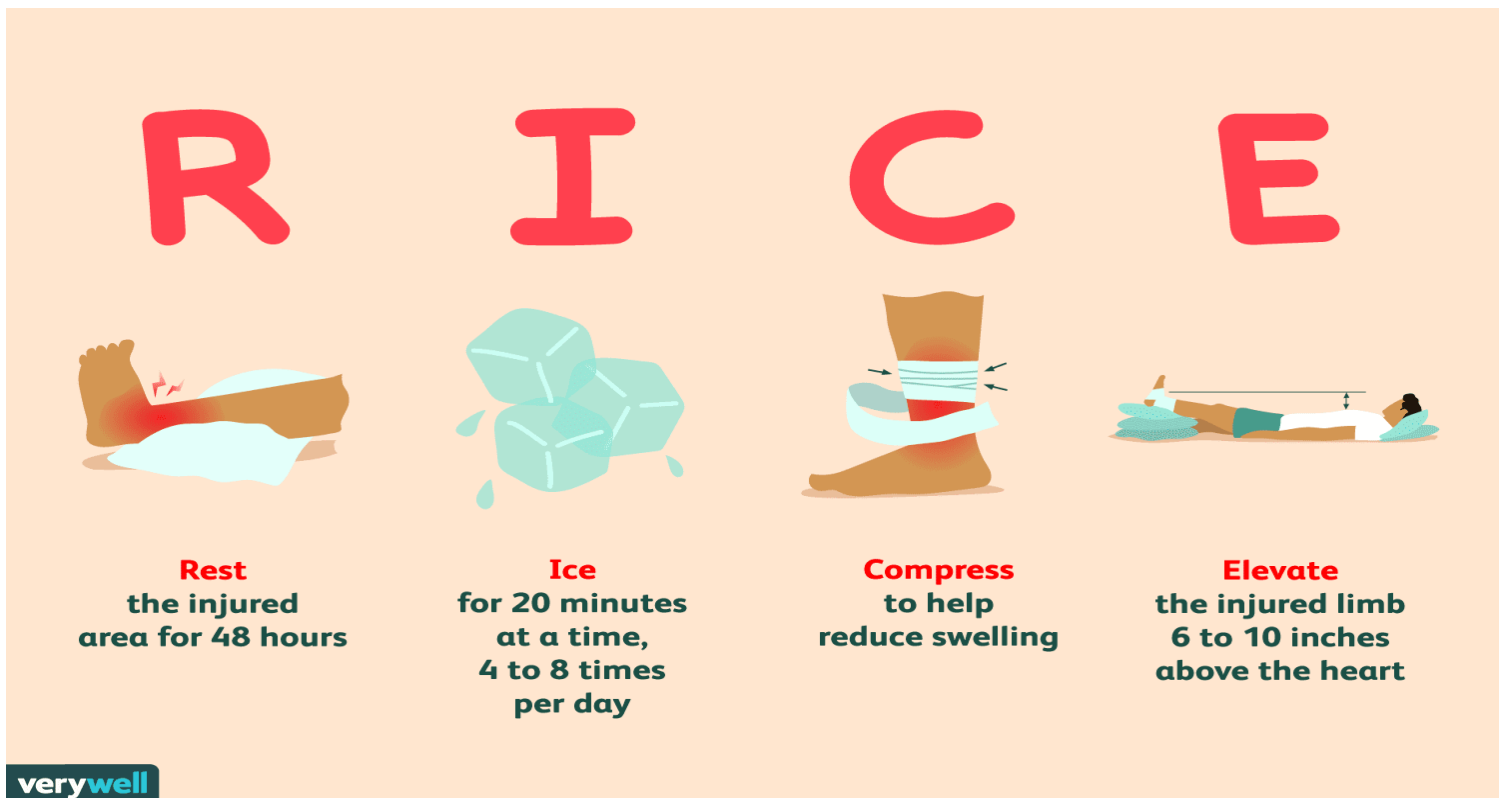
This is "not" an easy skill .

If the patient demonstrates any of the following symptoms, you should treat for a possible fracture :

- Deformity in the skeletal structure
- Crepitus - A grinding or cracking sound as you move the affected area .
- Pain on movement causing the patient to pass out or vomit (extreme pain)
- No pulse or a weak pulse below injury site - This is a serious problem

Treatment

The treatment for sprains and strains follows the simple acronym RICE.



RICE Treatment

RICE stands for rest, ice, compression, and elevation. It is commonly used to speed up healing and reduce pain and swelling.



Rest

Stop using injured body part; continued activity could cause further damage.



Ice

Apply ice pack several times a day for 20 minutes at a time. Do not apply ice directly to the skin. Cold contracts injured capillaries and blood vessels and helps stop internal bleeding.



Compression

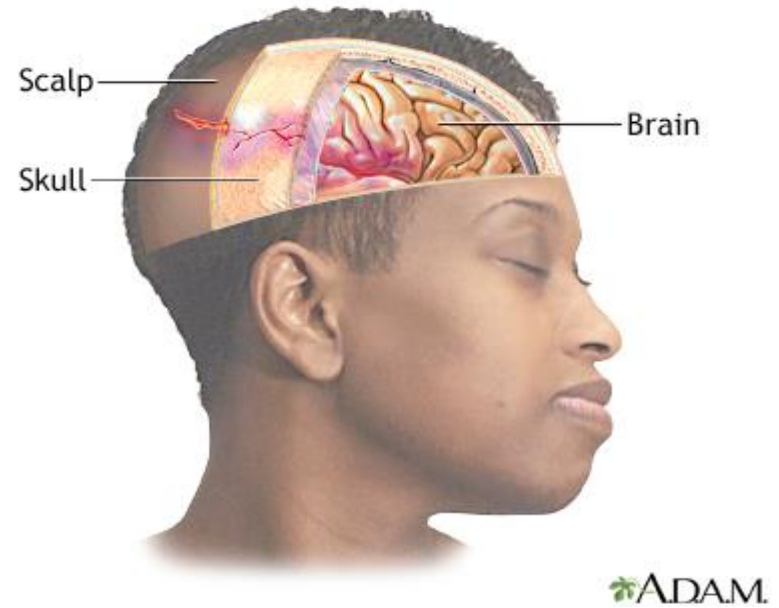
Wrap injured body part firmly with elasticized bandage, compression sleeve, or cloth. This helps speed up healing time by reducing swelling around the injury.



Elevation

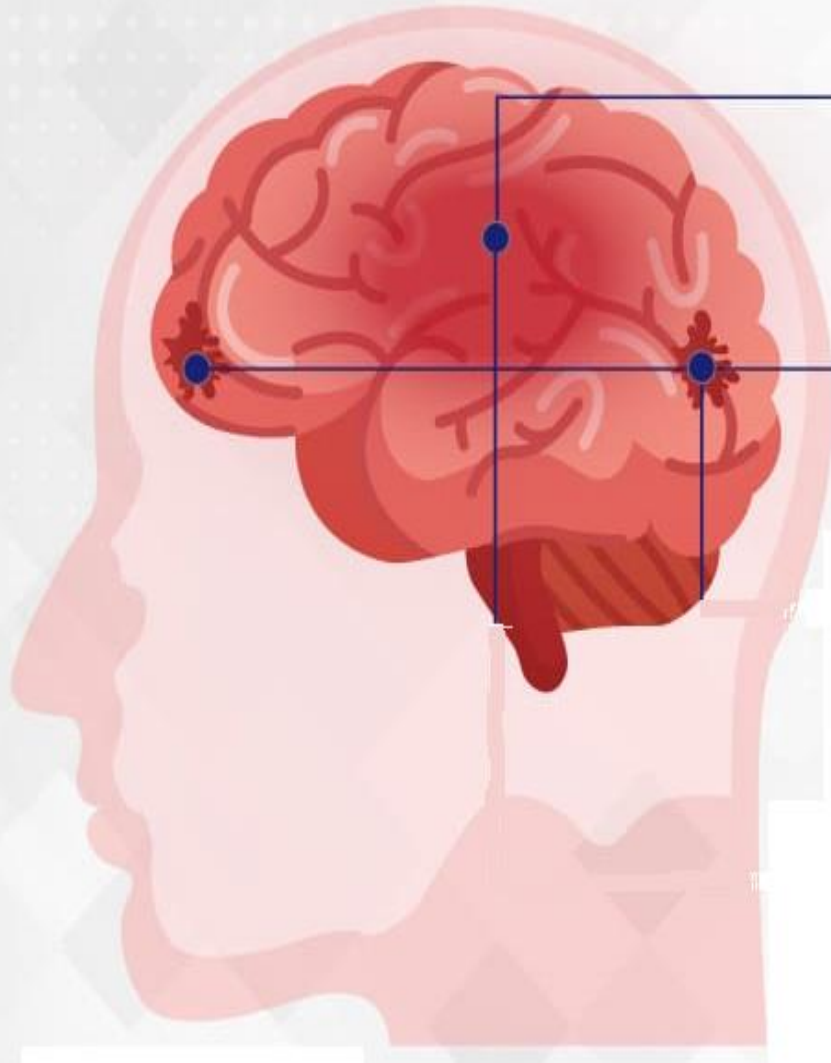
Elevate injured body part above level of the heart to decrease swelling and pain.

3.Head Injuries



Head wounds must be treated with particular care, since there is always the **possibility of brain damage , Swelling and increased intracranial pressure .**

Traumatic Brain Injuries



■ Concussion

A mild traumatic brain injury caused by an impact to the head or whiplash

■ Contusion

Blood underneath the skin due to trauma causing a bruise.

Concussion

Contusion

Unconsciousness for a short period, followed by an increase in levels of response and recovery.

Could have a history of recent head injury with apparent recovery, but then deteriorates.

Short term memory loss (*particularly of the incident*). Confusion, irritability.

Levels of response become worse as condition develops.

Mild, general headache.

Intense headache.

Shallow / normal breathing.

Increased intracranial pressure (ICP)

Deep, noisy, slow breathing.
(*Pressure on the respiratory control area of the brain*)

Rapid, weak pulse.
(*Blood diverts away from the extremities*)

Slow, strong pulse.
(*Caused by raised blood pressure*)

Normal pupils, reacting to light.

One or both pupils dilate as pressure increases on the brain.

Possible nausea or vomiting on recovery.

Condition becomes worse. Fits may occur. No recovery.

- Victim (casualty) with a head injury causing decreased level of consciousness (no matter how brief) **require assessment by a physician.**
- Victims with a head injury also require **assessment** for a **potential spinal injury.**
- Any mechanism of injury that can cause a head injury can also cause a spinal injury.

Treatment

- EMS
- Immobilize spine if required

Do not use direct pressure to control bleeding if the skull is depressed or obviously fractured, as this would cause further injury by compressing the brain .

4. Eye Injuries



- If the injury does not involve the eyeball (eyelids or the soft tissue around the eye), apply a sterile compress and hold it in place with a firm bandage.
- If the eyeball appears to be injured, apply a sterile compress and hold it in place with a loose bandage.

- Many eye wounds contain foreign objects :
Dirt , Dust , eyelashes , a small piece of metal,
and a variety of other objects may become
lodged in the eye.
- Since even a small piece of dirt is intensely
irritating to the eye, the removal of such
objects is important. However, the eye is easily
damaged.
- Impairment of vision (or even total loss of
vision) can result from inexperienced attempts to
remove foreign objects from the eye.

The following precautions must be observed:

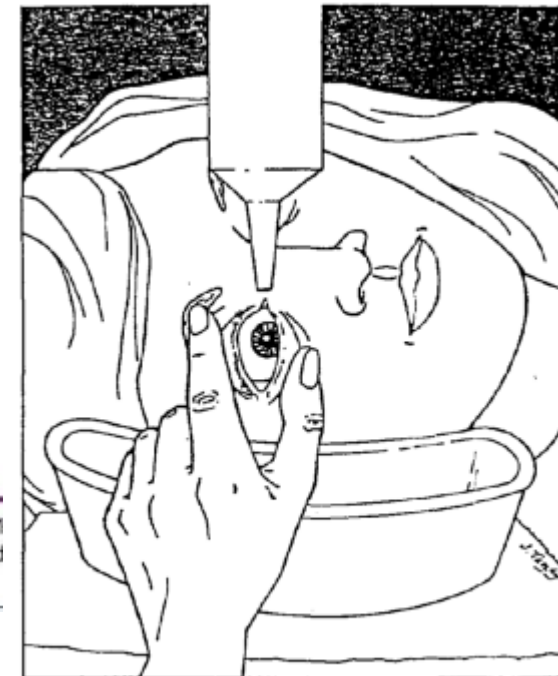
- DO NOT allow the victim to rub the eye.
- DO NOT press against the eye or manipulate it in any way that might cause the object to become embedded in the tissues of the eye. Be very gentle; roughness is almost sure to cause injury to the eye.
- DO NOT use such things as knives, toothpicks, or wires to remove the object.
- DO NOT UNDER ANY CIRCUMSTANCES ATTEMPT TO REMOVE AN OBJECT THAT IS EMBEDDED IN THE EYEBALL OR THAT HAS PENETRATED THE EYE!

Small objects that are lodged on the surface of the eye or on the membrane lining the eyelids can usually be removed by the following procedures:

1. Try to wash the eye gently with warm, sterile water (Saline solution). A sterile medicine dropper or a sterile syringe can be used for this purpose. Have the victim lie down, with the head turned slightly to one side. Hold the eyelids apart. Direct the flow of water to the inside corner of the eye, and let it run down to the outside corner.

Do not let the water fall directly onto the eyeball.

Eye Irrigation



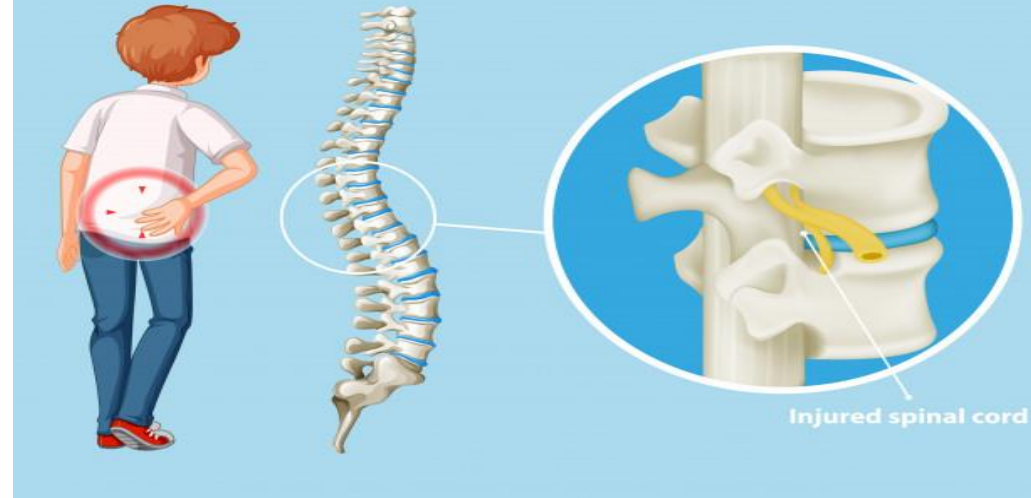
Position of the fingers and syringe for an eye irrigation.

2. Gently pull the lower lid down, and instruct the victim to look up. If you can see the object, try to remove it with a small moist cotton swab.

Note : Never use dry cotton anywhere near the eye. It will stick to the eyeball or to the inside of the lids, and you will have the problem of removing it as well as the original object.

3. If the foreign object cannot be removed by any of the above methods, DO NOT MAKE ANY FURTHER ATTEMPTS TO REMOVE IT.
4. Get medical help for the victim at the earliest opportunity.

5. Spinal Injury

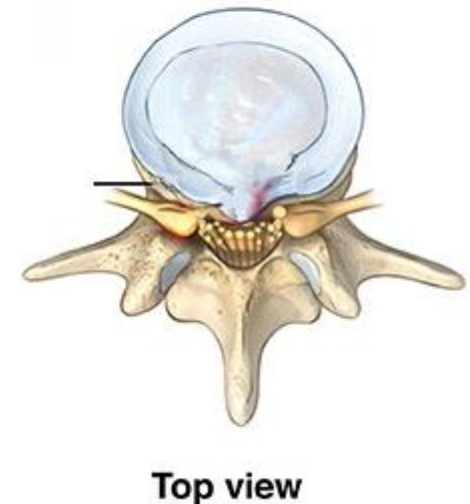
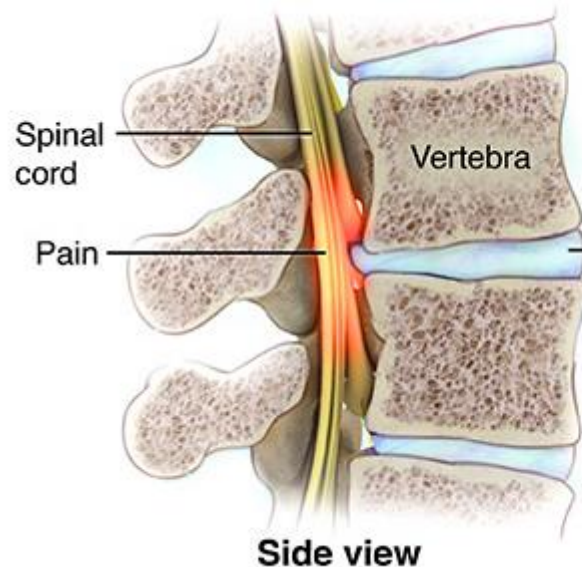


Introduction

The spinal cord is a thick nerve that runs down the neck and back; it is protected by bones called vertebrae. If the spinal cord is injured, this can lead to **paralysis**. Since the vertebrae protect the spinal cord, it is generally difficult to cause such an injury. Note that only an x-ray can conclusively determine if a spinal injury exists. If a spinal injury is suspected, the victim **must be treated as though one does exist.**

Overview

- Spinal cord injury is otherwise called 'myelopathy'
- It results in an injury to the nerve fibers in the cord
- injury can cause no movement/sensation below injury
- Physical therapy, ventilators, wheel chairs often required



Recognition

Signs of spinal injury after an accident may include:



**Pressure in the head,
neck, or back**



Intense back pain



**Paralysis, lack of
coordination, or
weakness in any
part of the body**



**Loss of sensation or
numbness or tingling
in the hands, feet,
fingers, or toes**



**Twisted or oddly
positioned neck
or back**



Impaired breathing



**Loss of control of
bladder or bowels**



**Trouble walking
and balancing**

Causes

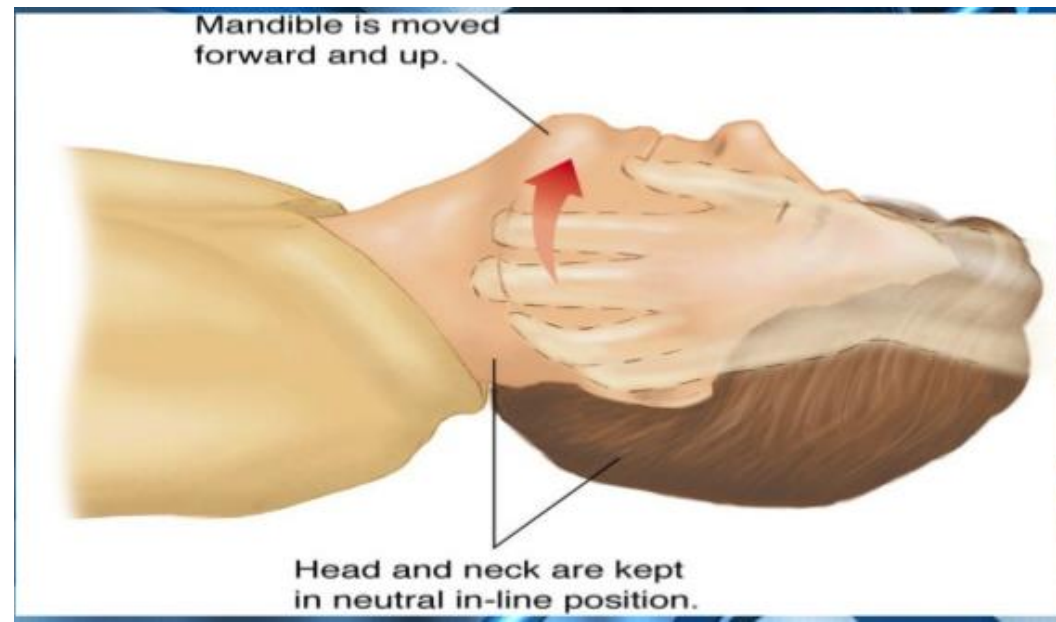
1. Automobile accidents
 2. Diving accidents (Diving into shallow water)
 3. Falls
 4. Shot by a gun
 5. Non-traumatic Conditions like: Tumors , Infection
- .

First Aid For Spinal Injury Immediate Treatment

- The first step to provide first aid for spinal cord injury is to remove them from any imminent risk.
- The next and the most important step is to achieve spinal immobilization ; place patients in cervical collars and on long backboards (LBBs).



- Victim's head or body must not be bent, lifted or moved.
- Do not try to reposition the neck and also avoid bending or twisting of neck.
- Even when attempting to open the airway to breathe, the back of the head must not be tilted ,Instead one can try to lift the jaw (jaw thrust).





Thank you!