



# First Aid

Title : musculoskeletal  
injuries

Lec no : 8

Done By : Reem Mezher

وَقُلْ رَبِّ زِدْنِي عِلْمًا

# Musculoskeletal Injuries

↖ Very common injuries

**.1Fractures**

**.2Sprains & Strains**

**.3Head Injuries**

**.4Eye injury**

**.5Spinal Injury**

## Bone & Joint Injuries

Fractures = Discontinuity

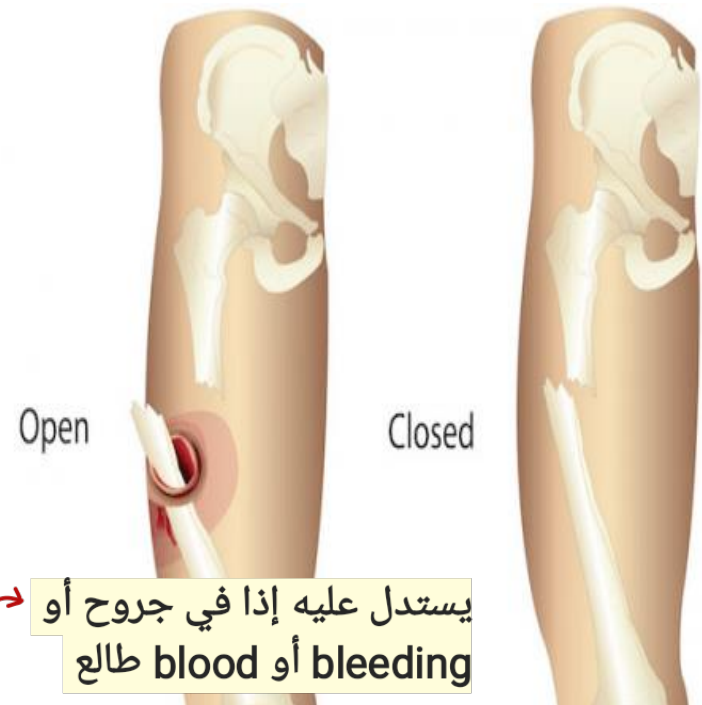


Hard

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

-هاي علامات الكسر ومن  
خلال ال X-ray بتأكد إنه  
مكسور وبنشوف الكسر .

-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. **So inability to move**

\*-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

\*إذا حركنا الكسر ممكن يضرب nerve أو blood vessels أو muscle وح  
يزيد عنا ال complication.

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.

س:كيف نعمل elevate وهو حاكي نعمل immobilize؟؟  
هسا ال elevation بيحي بعد ما نلف الجزء المكسور ونعمله first aid و  
immobilization ،بعدها برفعه فوق مستوى الجسم ، يعني إذا الكسر في  
إيده بنلفها وبنثبت الكسر عشان ما يتحرك و بعدها بنرفع الإيد كاملة .

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ملاحظات السلايد القادم :  
لما يصير عندي كسر ال ribs أو ال sternum فإنها لا تعالج ، وفي المستشفى  
بس بعملوله صور أشعة و بلاقوا عنده كسر فيهم وما بعملوله جبيرة ولاشي  
بس بعطوه مسكنات rophrin voltaren ، ومن علامات هاد النوع من الكسر  
هو ال severe pain عند ال breathing وخطروة هذا الكسر إنه بعمل lung  
. injury

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.

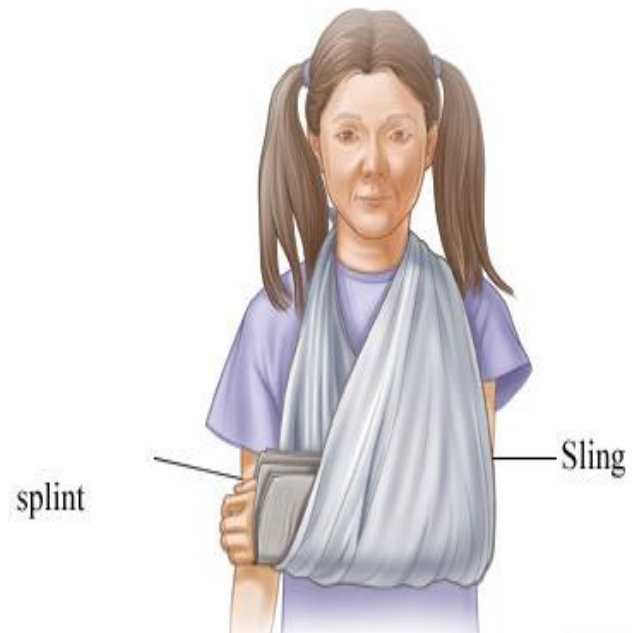
يعني لو كان الكسر في ال forearm ف لازم ال splint تغطي ال hand وال arm .

- 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: ممكن تكون ال splint شادة كثير على الإيد ومانعة وصول الدم الكافي .
- The area becomes cool or turns pale or blue
- Numbness or tingling develops in the injured body part



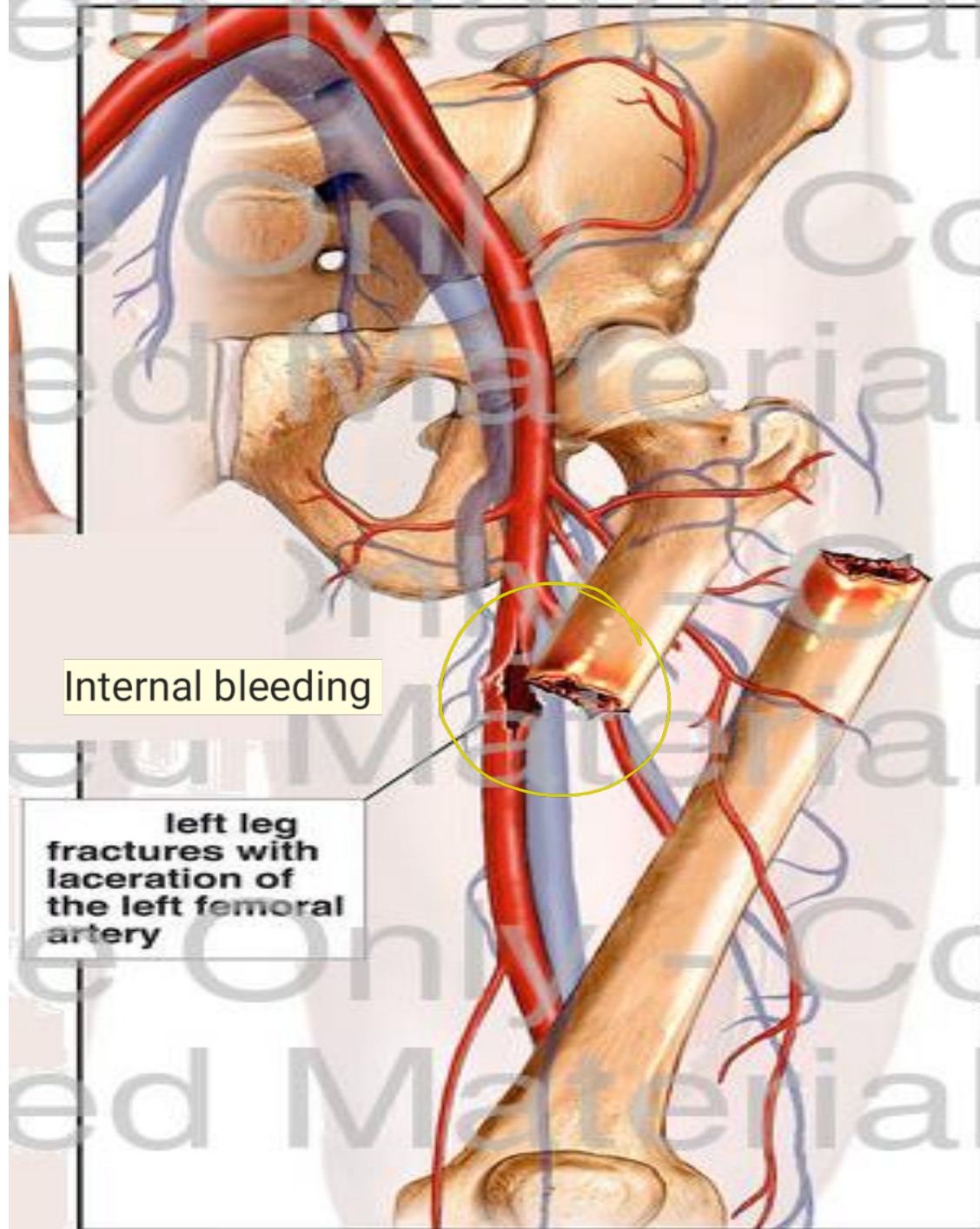
If the injury occurred on the arm,  
you can **apply** a **sling**. **sling** is a used to support  
an injured arm .

ال sling عشان تزيد ال  
وتقلل ال swelling وال pain .



# 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.



Internal bleeding

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

## 2. Sprains & Strains

إلتواء الكاحل وتمزق الأربطة

### SPRAIN



An overextending or tearing of ligaments.



The ankle is the most common location for a sprain.

شدّ عضل

### STRAIN

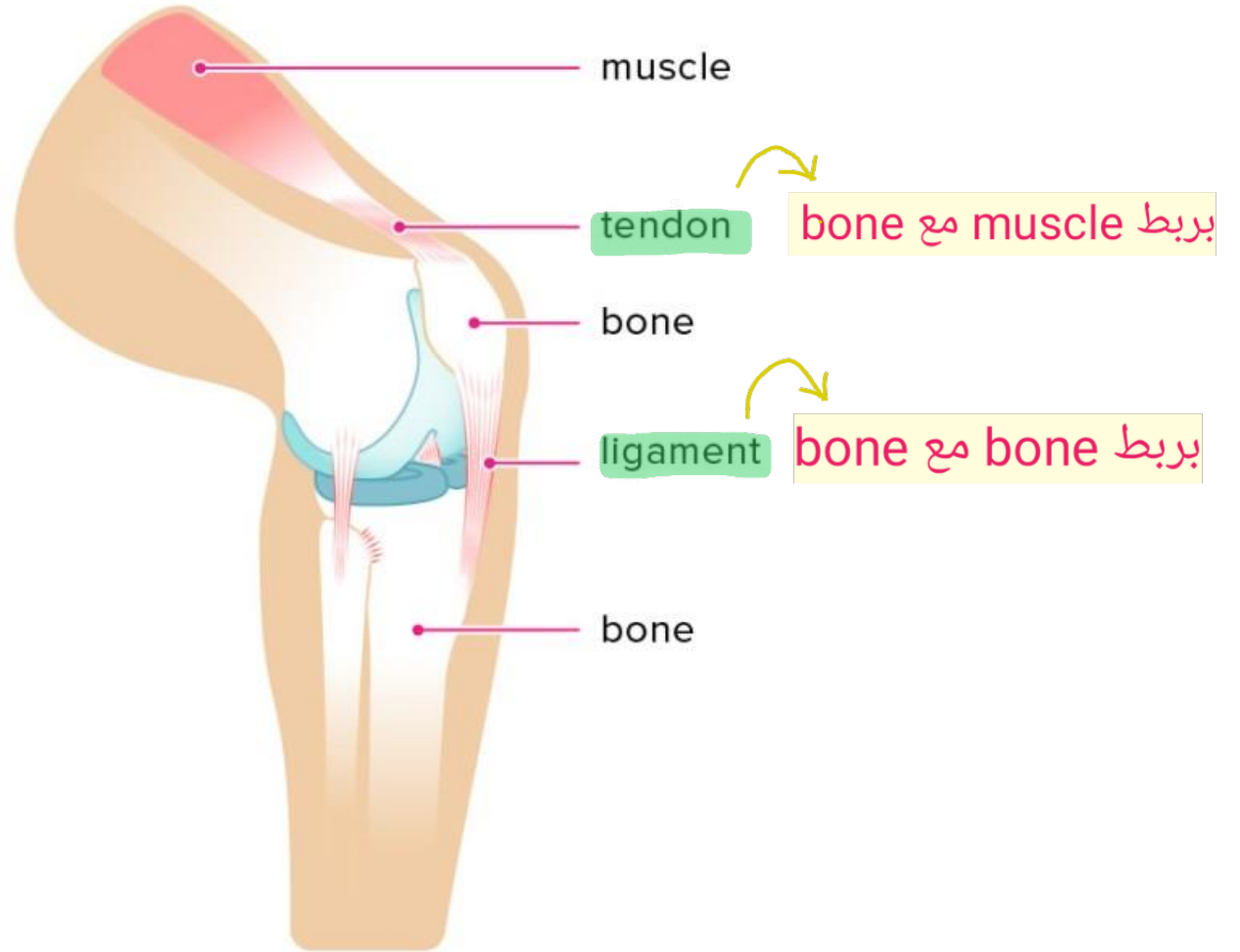


An overextending or tearing of muscles or tendons.



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

غالباً بنشوفها عند الرياضيين



## ***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 .

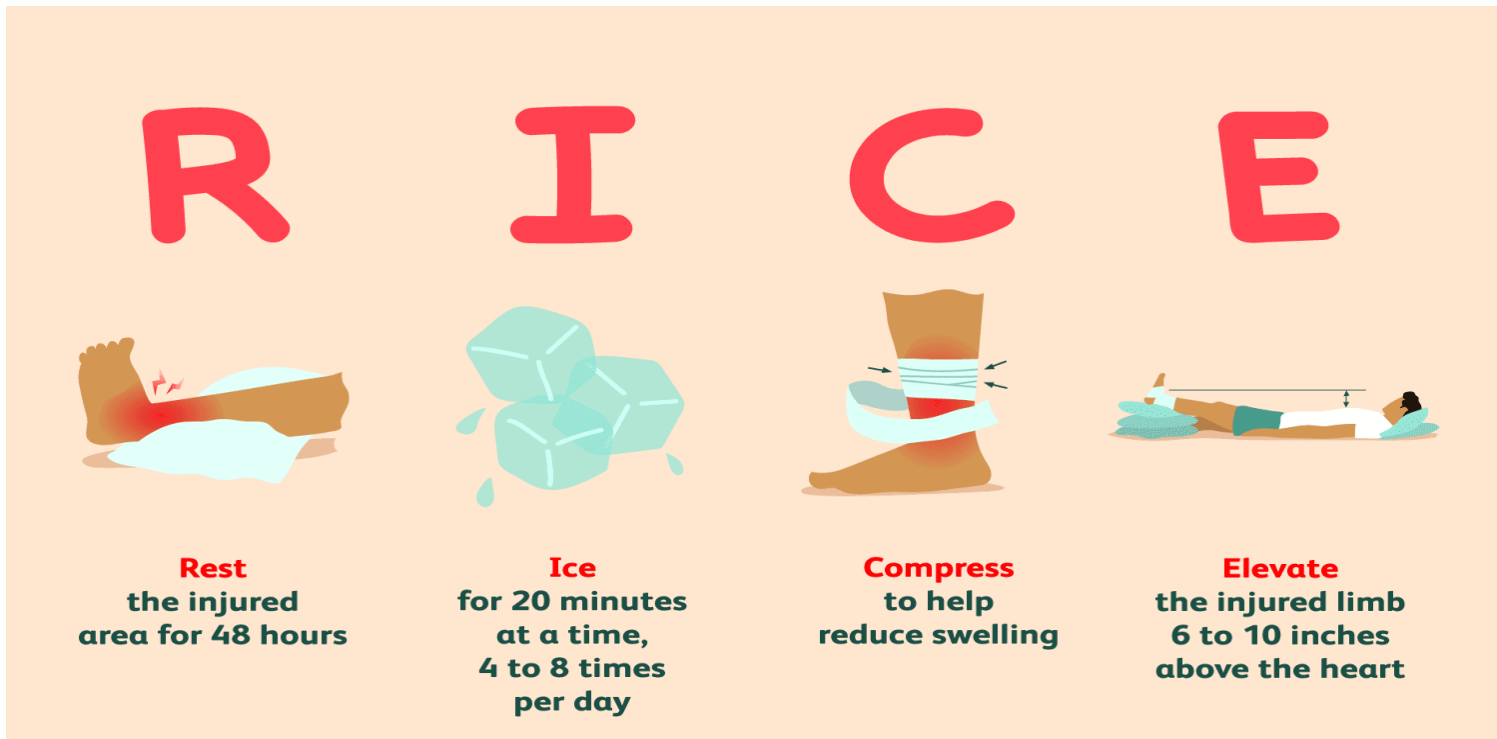
If the patient demonstrates any of the following symptoms, you should treat for a possible fracture :

- **Deformity** in the skeletal structure  
خرقوة
- **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.

\*ما يستخدم جبيرة بس يستخدم مشد.



في ال fracture برضه كانت RICE لكن الفرق إنه في ال Fracture كانت ال immobilization I: وال C: cold



# 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.



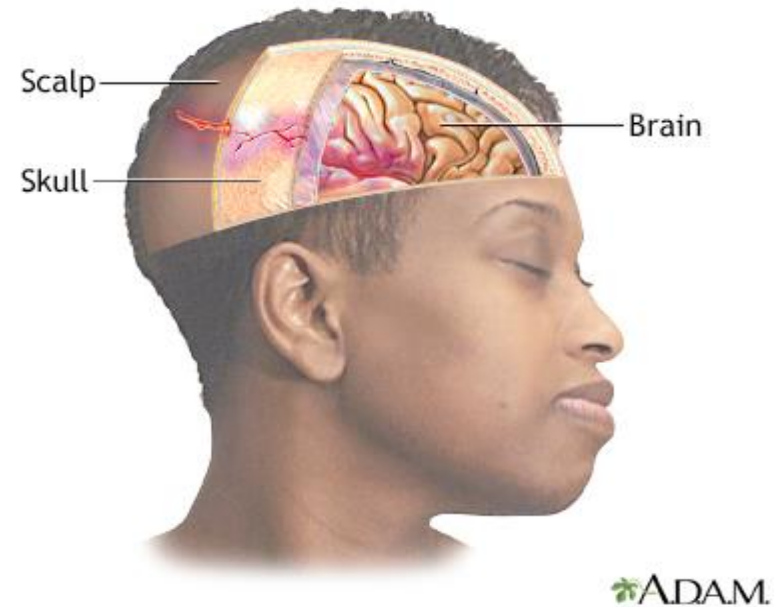
## Elevation

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

\*إحنا بس بنخفف ال  
complications  
لحتى ينشفى أسرع.

\*مش تلج مباشرة  
بنستخدم ice pack

# 3.Head Injuries

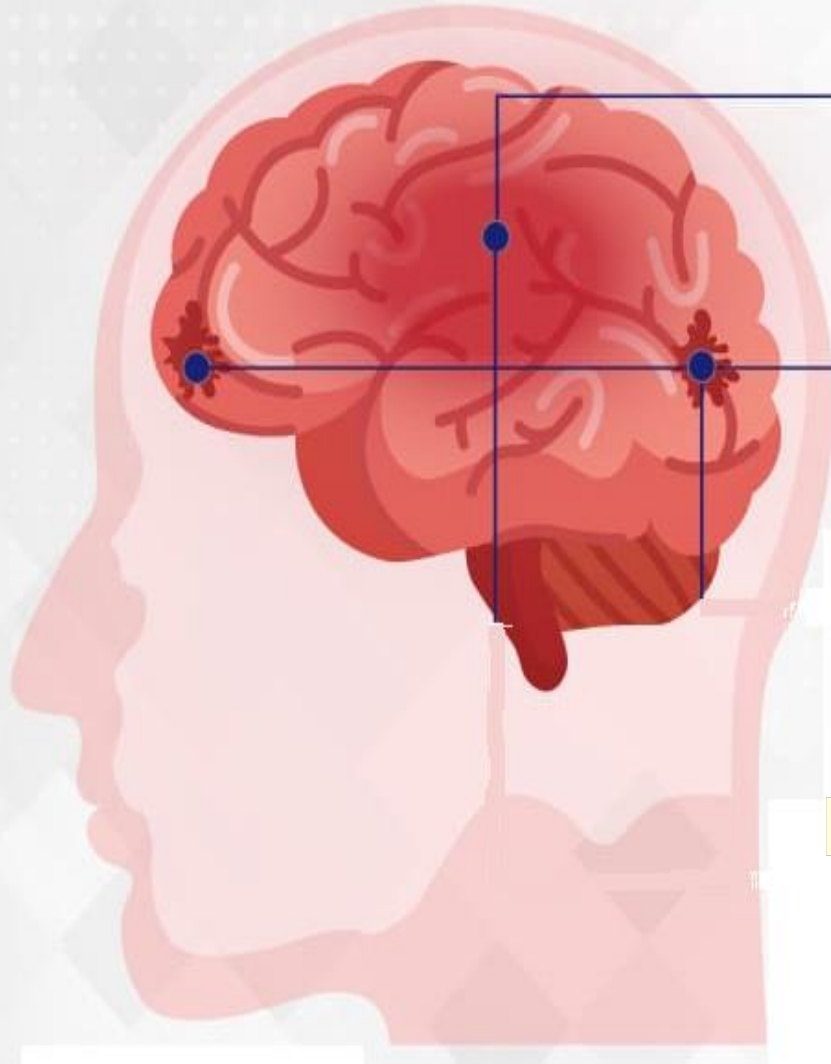


Head wounds must be treated with particular care, since there is always the **possibility of brain damage , Swelling and increased intracranial pressure .**

من خلال ضربة على الدماغ فبكون strong impact في هاي المنطقة ف بنخاف يصير damage of brain أو bleeding ويصير closed compartment فلما يصير bleeding بصير الضغط جوا ال brain عالي وبسقوه increased intercranial pressure وممكن يؤدي للوفاة.

# Traumatic Brain Injuries

\* ممكن تصوير إذا الأهل كانوا يهزوا طفل عمره شهرين مثلاً من دون حتى ما يضرب رأس الطفل ياشي .



## Concussion

ارتجاج الدماغ

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

## Contusion

رضة

Blood underneath the skin due to trauma causing a bruise. (intracranial bleeding)

\*اللي بمارسوا الرياضات القتالية هم أكثر ناس معرضين للإصابات الدماغية .

Less severe

More severe

## 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. **ممکن یدخل فی coma وما بنعرف متی یصحی منها**

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

Levels of response become worse as condition develops.

Mild, general headache.

Intense headache.

Increased intracranial pressure (ICP)

Shallow / normal breathing.

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.

مثلاً واحد صار معاه car accident وشكيت إنه معه concussion بدني أتفحص باقي جسمه وخاصة ال spinal cord.

# Treatment

- EMS

بخلية على الوضعية اللي هو عليها ما بحركه

- 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 **Very sensitive**



- 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.

ما بدنا نضغط عليها ونؤذيها أكثر

- 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. زى شظايا في الحرب أو اللي بشتغلوا في الحدادة أو النجارة .

- 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. لازم نكون كثير حذرين وإحنا بنطلع ال object، لأنه ممكن هاد ال object ما يعمل damage لكن طريقة إخراجة الخاطئة هي اللي تعمل damage للعين .

- 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:

فرك

- 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!

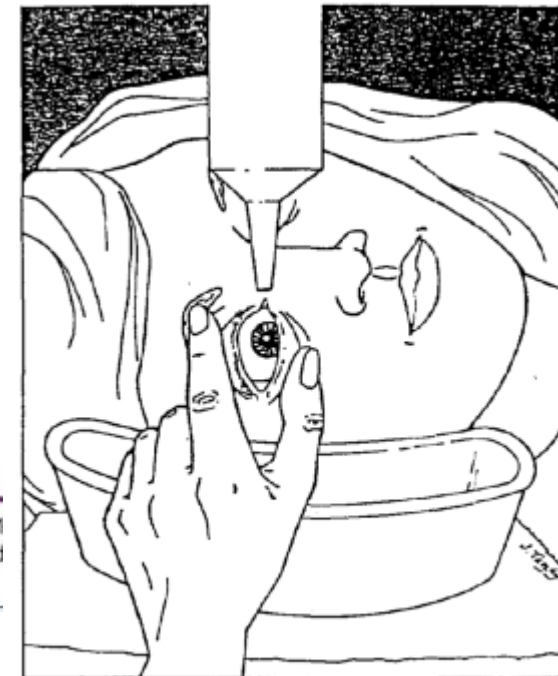
-في هاي الحالة بنوديه على المستشفى زي ما هو وبسرعة.

**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



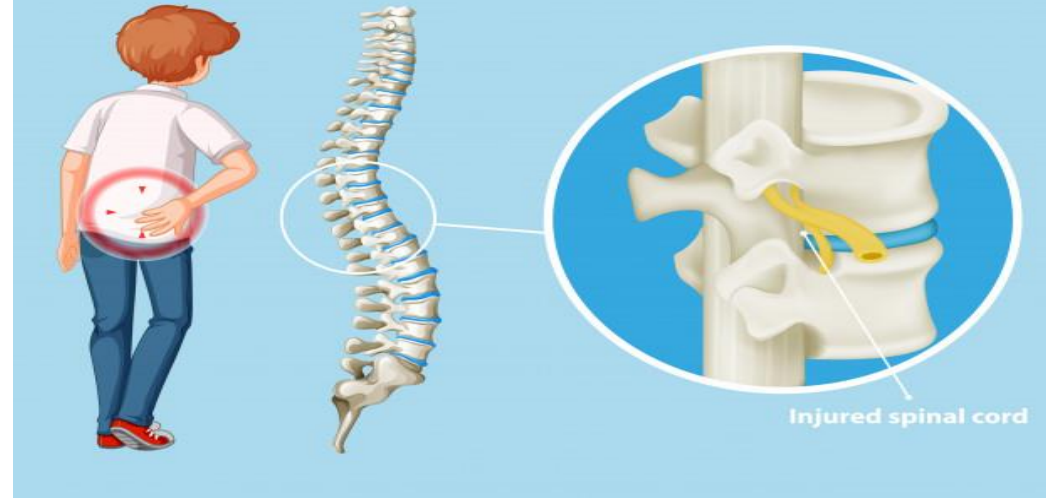
Position of the fingers and syringe for an eye irrigation.

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.**

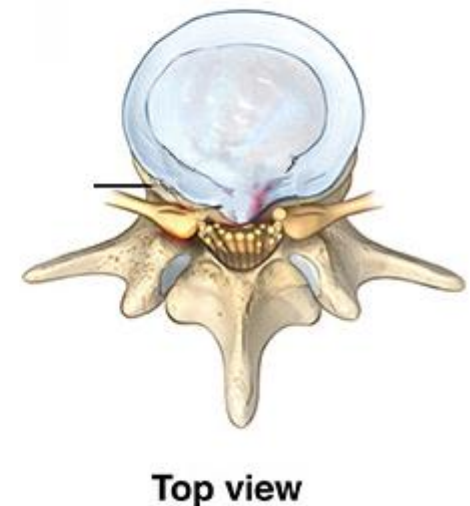
-ممكن عنده كسر في ال vertebrae بس مش واصل لل nerve ولكن خلال نقله للمستشفى صار عنده nerve damage وبالتالي paralysis و loss of sensation.

-لو عندك شك 1% إنه هاد الشخص عنده spinal injury لازم تعامله على إنه مصاب فعلاً.

-أهم شيء في ال spinal injury هو ال immobilization.

# 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

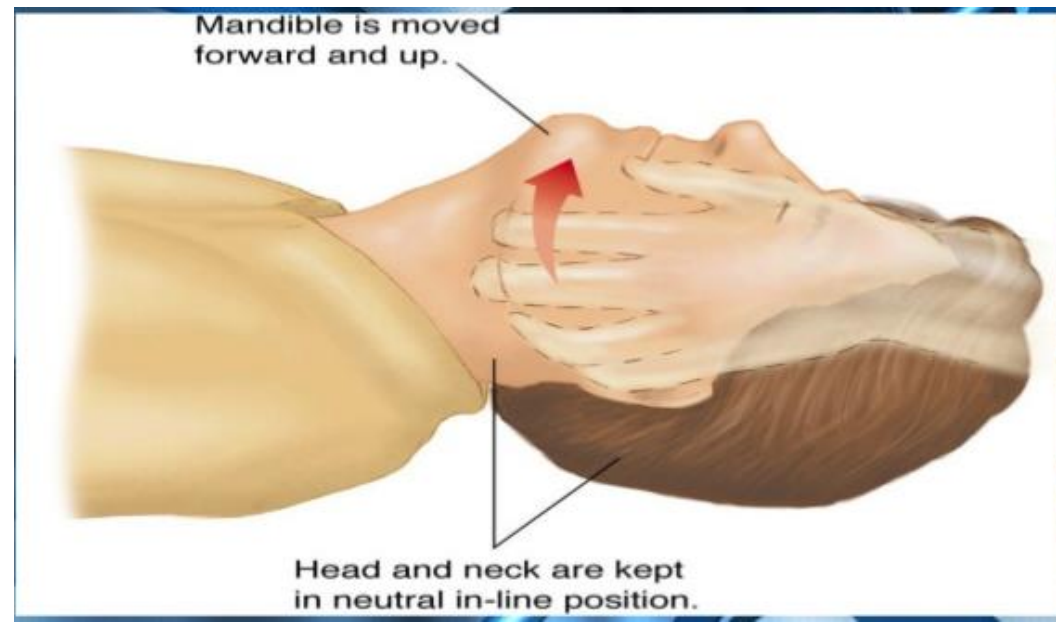
1. Automobile accidents
  2. Diving accidents (Diving into shallow water )
  3. Falls
  4. Shot by a gun
  5. Non-traumatic Conditions like: Tumors , Infection
- .

# 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 ).



بالتوفيق يارب ♥

#النادي\_الطبي  
#معكم\_خطوة\_بخطوة

ممکن ماتنسی  
کل شوی؟

