



BAU TIP
BAHÇEŞEHİR ÜNİVERSİTESİ TIP FAKÜLTESİ

Physical Examination Of The Orthopedic Trauma Patient

Dr. Yakup Alpay

Objective

- The purpose of this course is to provide information about the principles of assessment related to various types of orthopedic trauma.
 - Define orthopedic trauma.
 - Identify complications that can arise related to orthopedic trauma
 - Describe the process of assessment used to identify orthopedic injuries.

Orthopedic Trauma

- Orthopedic trauma consists of injuries to the bony skeleton.
- This includes traumatic amputations, fractures, dislocations, injury to connective tissue (such as sprains and strains), and injury to soft tissue (such as hematomas and contusions).
- Patients who sustain orthopedic trauma can also suffer from compartment syndrome, fat embolism, hemorrhage from fractures, osteomyelitis and septic arthritis (ENA, 2014; Mistovich, Limmer, Werman & Batsie, 2011).

Assessment

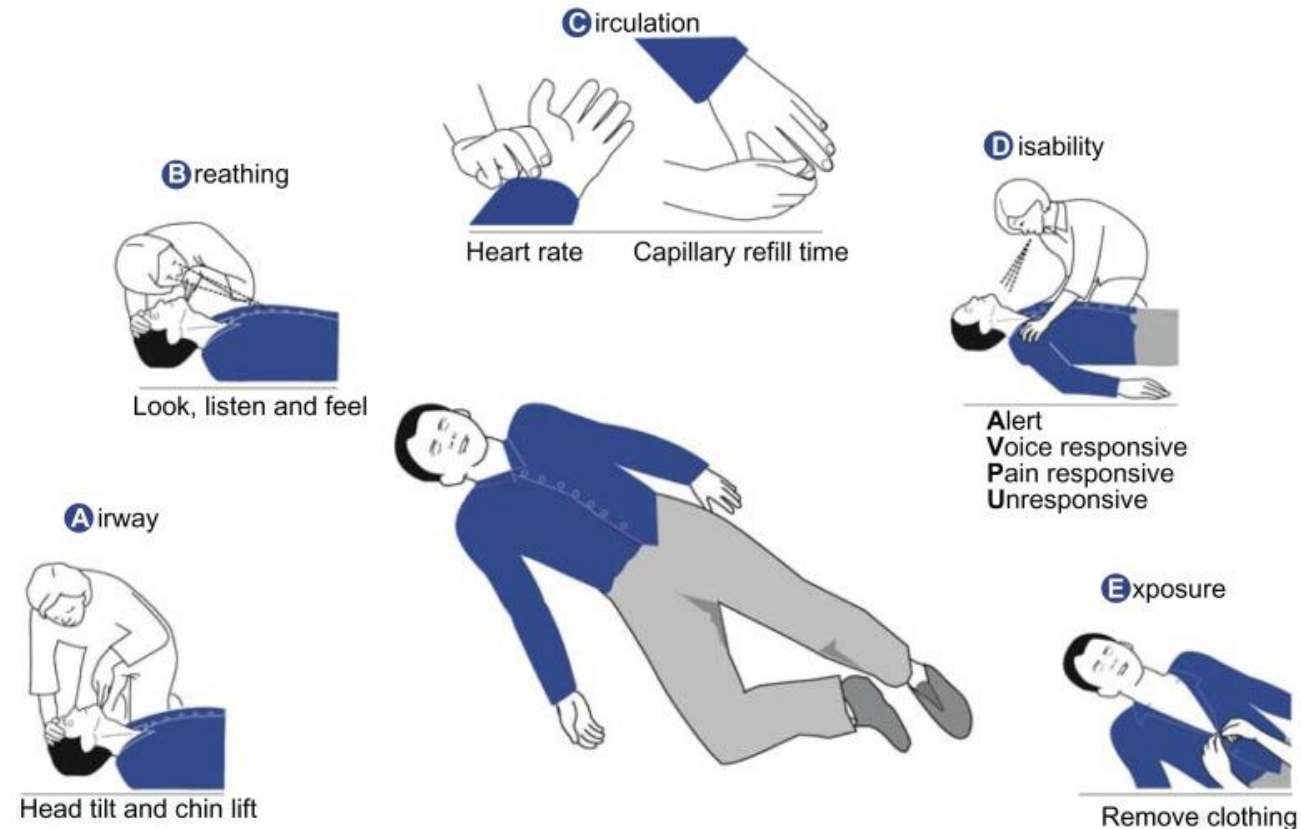
•The primary survey

•The management of trauma patients begins with the primary survey

(also commonly referred to as Advanced Trauma Life Support, or

[ATLS](#). The primary survey consists of 5 steps (ABCDE approach) that are performed in order.

- Airway
- Breathing
- Circulation
- Disability (and neurological evaluation)
- Exposure



A-irway	<ul style="list-style-type: none"> • Check patency of airway and assess for signs of obstruction. Is the airway clear? Is it obstructed? If it is obstructed, is it full or partial? Is air still able to pass through?
B-reathing	<ul style="list-style-type: none"> • Check patient's breathing. Is there a rise and fall of the chest? Is it regular or irregular in pattern? Is the breathing fast or slow? What are the breath sounds?
C-irculation	<ul style="list-style-type: none"> • Check patient's heartbeat or pulse. Is it palpable? Is the pulse regular or irregular? Is the pulse fast or slow? • Check the patient's colour and assess for signs of cyanosis (bluish discoloration). Is the patient's circulation well perfused?
D-isability	<ul style="list-style-type: none"> • Check patient's ability to move. Are all extremities able to move normally? Can the patient speak? Can the patient communicate? Is the patient oriented to person, time and place? What is the patient's Glasgow coma scale score? Are the pupils reactive to light and accommodation when assessed?
E-xposure	<ul style="list-style-type: none"> • Check patient's body to assess wounds, visible fractures, oedema, discolorations, and etc.

- Always assume all major trauma patients have an injured spine and maintain spinal immobilisation until spine is cleared.



Trauma Secondary Survey

- The secondary survey is a rapid but thorough head to toe examination assessment to identify potential injuries.
- It should be performed after the primary survey and the initial stabilization is complete.
- The purpose of the secondary survey is to obtain pertinent historical data about the patient and his or her injury, as well as to evaluate and treat injuries not found during the primary survey.
- It is helpful for prioritizing continued evaluation and management. This activity describes how a secondary survey is performed in a trauma patient and its clinical importance. This activity highlights the role of the interprofessional team in caring for trauma patients.

Fracture

- Fracture
 - soft tissue trauma in which the integrity of the broken bone is impaired



- fracture type

- first thing to mention when describing a fracture
- complete (transverse, oblique, spiral, comminuted)
- incomplete (buckle, greenstick)

- fracture location

- what bone
- part of the bone (epiphysis, metaphysis, diaphysis, apophysis)

-

Fracture Physical Examination

- inspection

• Inspection

- Swelling, bruising, or tenderness at the site of the injury



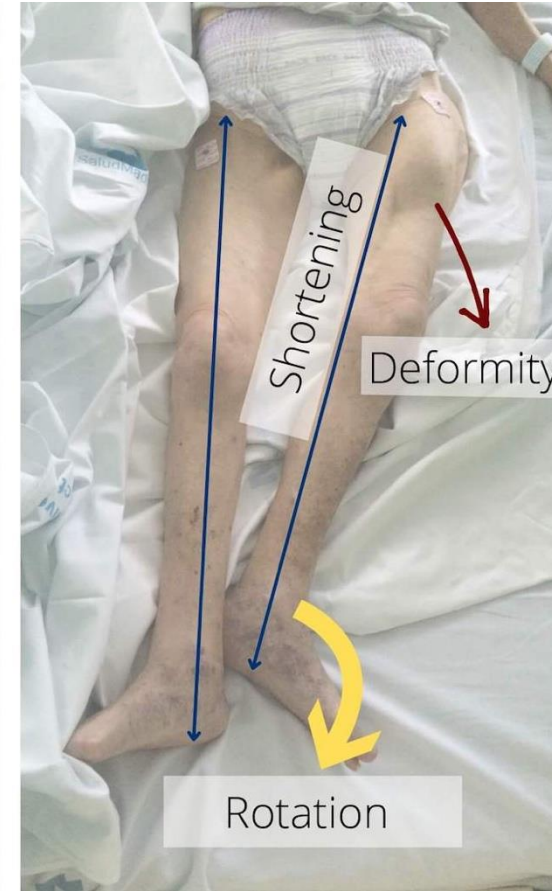
- Inspection

- Deformity, angulation



- Inspection

- Shortening



Inspection

An **open fracture**, also called a compound fracture, is a fracture in which there is an open **wound** or break in the skin near the site of the broken bone.



- Open fractures are fractures with direct communication to the external environment.
- Diagnosis is made clinically by assessing the size and nature of the external wound as well as obtaining radiographs of the bone at the location of the soft tissue injury.
- Treatment depends on location of fracture but generally requires immediate IV antibiotics and urgent irrigation and debridement followed by surgical fixation as needed.

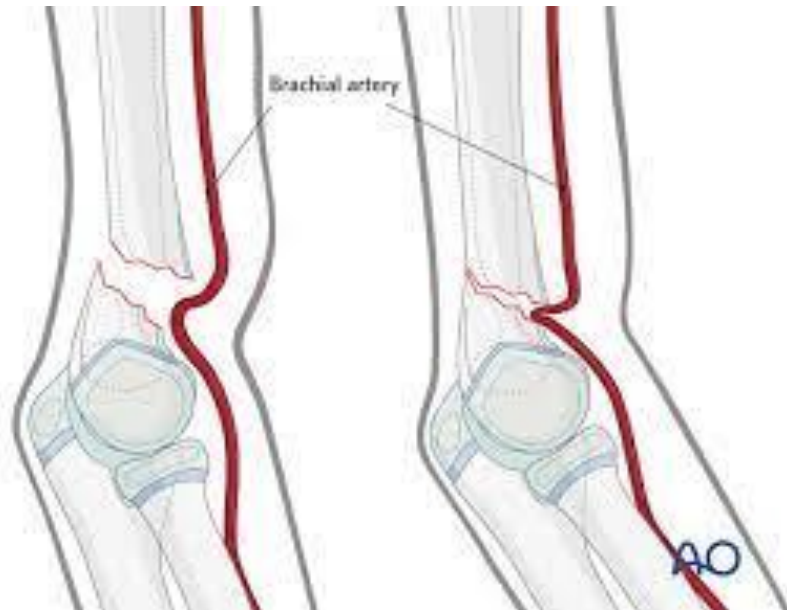
Palpation

- Pain
 - **Sharp, stabbing pain that gets worse with movement or pressure**
 - **Patologic Movement**



Palpation

- Pulse Control; In severe cases, there may be a loss of pulse below the fracture site, accompanied by numbness, tingling, or paralysis below the fracture.

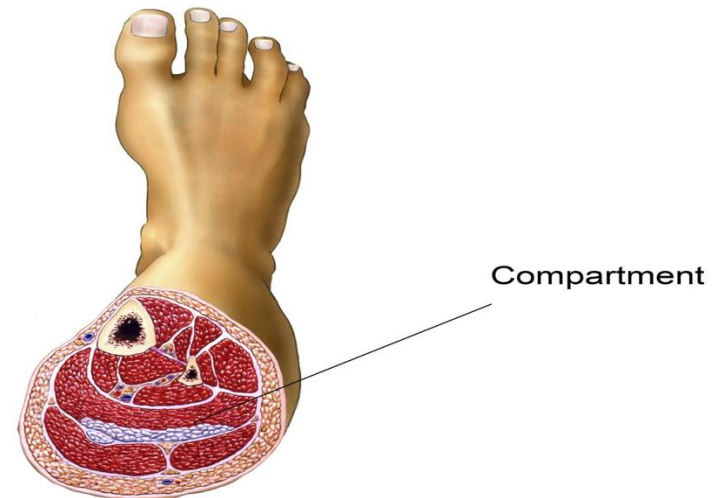


Neurologic Examination

- Motor function
- Sensory Exam

Compartment syndrome

- Compartment syndrome is a true surgical emergency. Failure to diagnose it and to institute urgent treatment by decompression usually results in major limb disability. In compartment syndrome increasing tissue pressure prevents capillary blood flow and produces ischemia in muscle and nerve tissue. The process is progressive and leads to necrosis with permanent loss of function.



Compartment syndrome

- Common Signs and Symptoms:

- The "5 P's" are oftentimes associated with compartment syndrome:

- **pain,**

- **pallor (pale skin tone),**

- paresthesia (numbness feeling),

- pulselessness (faint pulse) and

- paralysis (weakness with movements).

- Numbness, tingling, or pain may be present in the entire lower leg and foot.

- ***The most typical examination finding of compartment syndrome is pain that increases with passive stretching.**