# Common Orthopedic Fractures

| Type | Bones Involved | History and Physical | Treatment | Clinical Pearls |
|---|---|---|---|---|
| **Boxer** | Fifth-metacarpal neck | Punching hard object or surface with a strong force applied to fifth metacarpal | 1- Closed reduction<br>2- Ulnar gutter splint<br>3- Surgical pinning | Beware the **"fight bite"** :<br>open wounds from teeth will need surgical Scaphoid exploration to rule out tendon involvement |
| **Scaphoid**<br>*most common carpal fracture* | Scaphoid | 1- Fall on **radially deviated outstretched hand with a dorsiflexed wrist >95**<br>**2- "Snuffbox" tenderness** | Second , ttt if suspected :<br>1- **Thumb spica cast for 7-10 d *followed by repeating x-rays***<br>2- Possible surgery | - Increased risk of **proximal fracture fragment AVN**<br>First, confirm by X-ray :<br>- **Not seen on X-ray for 1–2 weeks after injury** |
| **Smith** | Distal radius | Fall on **flexed wrists**<br>**distal radius is anteriorly displaced** | 1- Cast<br>2- Closed reduction<br>3- Possible surgery | ***Much less common than Colles fracture*** |
| **Colles**<br>*Most common wrist fracture* | Distal radius<br>with or without distal ulna | Fall on **outstretched hand**,<br>**distal radius is posteriorly displaced and *angulated* (dinner fork deformity)** | 1- Closed reduction<br>2- Long arm cast<br>3- Possible surgery | **Particularly common in osteoporotic bone** |
| **Galeazzi** | Fracture of **distal radius**<br>and<br>Dislocation of **DRUJ** | Trauma (direct blow or fall) | 1- Surgical repair<br>2- Cast forearm in supination to maintain reduction of DRUJ | |
| **Monteggia** | Fracture of **proximal one third of ulna** with<br>Dislocation of **radial head** | Fall on outstretched arm with arm hyperpronated | 1- Closed reduction of radial head<br>2- Surgical repair of ulna | |
| **Humerus** | Humerus | fall on an **outstretched hand** → ***Supracondylar fracture of humerus***, common in children | 1- Closed reduction splint<br>2- Possible surgery | **Radial nerve injury** :<br>**1- Wrist drop or**<br>**2- Weakened thumb abduction** |
| **Hip** | Femoral head or neck | Frequently occurs from strong axial force (e.g., fall or knee hitting a car dashboard)<br>Injured leg is **1-Shortened**<br>**2- Externally rotated** | ***first***<br>***1- Require stabilization and***<br>***2- Treatment for pain control***<br>***3- DVT prophylaxis.***<br>- Surgical repair<br>- Joint Replacement | **Increased risk for:**<br>**1- AVN**<br>**2- DVT**<br>*AVN= avascular necrosis* |
| **Femur** | Femoral diaphysis | - Trauma | - Surgical repair | **Increased risk of :**<br>**Fat Embolization** |
| **Tibial** | Tibia | Trauma | - Cast<br>- Surgical repair | **Increased risk for**<br>**Compartment Syndrome** |
| **Ankle** | Medial, lateral, and/or posterior malleoli | Trauma, excessive twist of ankle:<br>**Supination and External rotation** | - Cast<br>- Possible surgical repair | |
| **Pelvic** | Pelvis | Major trauma | - Pain control<br>- surgical repair, if in weightbearing portion | **High risk of :**<br>**Major blood loss** |

## Stress Fractures

*The fractures occur due to a sudden increase in repeated tension or compression without adequate rest that eventually breaks the bone.*

- It most commonly occurs in athletes (up to 15% incidence in runners) or nonathletes who ***suddenly increase their activity***.
- **Causes:** are categorized as: 1- **Activity related** (e.g., excessive training and improper footwear) 2- **Biomechanical** (e.g., weak calf muscles, high arched feet) 3- **Metabolic** (e.g., demineralized bone from hormonal or nutritional diseases)

### Metatarsal stress fractures

- Typically occur in **athletes and military recruits, due to the sudden and drastic increase in activity by the latter**.
- **Second metatarsal**, is the most commonly involved → because is subjected to significant loading during gait
- **Symptoms & Signs:**
  1- Complaining of **slow onset foot pain** that initially only occurs with activity but later is present during rest as well.
  2- **Point tenderness over the affected metatarsal** is present on examination.
- **Treatment :**
  ***1- Fractures of the second, third and fourth metatarsals*** are managed conservatively because the surrounding metatarsals act as splints and nonunion is uncommon.
  ***2- Rest and pain control are the most appropriate treatment***.

### Medial tibial stress syndrome

("shin splints" with NO tibial tenderness on palpation)

- Tibia is the major weight-bearing bone in the leg, and patients usually develop ***medial tibial stress syndrome***.
  This can **progress with further activity** to a **complete or incomplete fracture**, resulting in: **pain to palpation of the tibia**.
- **Diagnosis clinically made:** 1- ***pain at a specific area that increases with jumping or running*** and
  2- is associated with **local swelling and point tenderness to palpation.**
- **Investigations: 1- X-rays**: frequently ***normal*** BUT can reveal : **periosteal reaction in the site of the fracture**.
  2- Injury is best defined radiographically using **MRI or bone scan.**
- **Treatment**: involves **rest** and healing of the stress fracture.