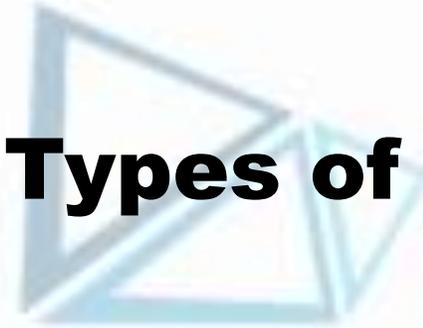


# 10 Common Types of Bone Fractures



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# Bone Fracture Basics

- There are several types of bone fractures, and each type can have slight variations. Many of the types of fractures we'll talk about later may also be described by one of the following terms:
- **Open Fracture:** A fracture in which the bone breaks through the skin and can be seen outside the leg. Or there is a deep wound that exposes the bone through the skin. This is also called a compound fracture.
- **Closed Fracture:** A fracture that does not break the skin. This is also called a simple fracture.
- **Partial Fracture:** An incomplete break of the bone
- **Complete Fracture:** A complete break of the bone causing it to be separated into two or more pieces
- **Stable Fracture:** The broken ends of the bone line up and have not moved out of place.
- **Displaced Fracture:** There is a gap between the broken ends of the bone. Repairing a displaced fracture may require surgery.

# Types of Bone Fractures

- Different types of bone fractures can be open, closed, stable, displaced, partial, or complete.
- **1. Transverse Fracture**
  - Transverse fractures are breaks that are in a straight line across the bone. This type of fracture may be caused by traumatic events like falls or automobile accidents.
- **2. Spiral Fracture**
  - As the name suggests, this is a kind of fracture that spirals around the bone. Spiral fractures occur in long bones in the body, usually in the femur, tibia, or fibula in the legs. However, they can occur in the long bones of the arms. Spiral fractures are caused by twisting injuries sustained during sports, during a physical attack, or in an accident.
- **3. Greenstick Fracture**
  - This is a partial fracture that occurs mostly in children. The bone bends and breaks but does not separate into two separate pieces. Children are most likely to experience this type of fracture because their bones are softer and more flexible.

- **4. Stress Fracture**

- Stress fractures are also called hairline fractures. This type of fracture looks like a crack and can be difficult to diagnose with a regular X-rays. Stress fractures are often caused by repetitive motions such as running.

- **5. Compression Fracture**

- When bones are crushed it is called a compression fracture. The broken bone will be wider and flatter in appearance than it was before the injury. Compression fractures occur most often in the spine and can cause your vertebrae to collapse. A type of bone loss called osteoporosis is the most common cause of compression fractures.

- **6. Oblique Fracture**

- An oblique fracture is when the break is diagonal across the bone. This kind of fracture occurs most often in long bones. Oblique fractures may be the result of a sharp blow that comes from an angle due to a fall or other trauma.

- **7. Impacted Fracture**

- An impacted fracture occurs when the broken ends of the bone are driven together. The pieces are jammed together by the force of the injury that caused the fracture.

- **8. Segmental Fracture**

- The same bone is fractured in two places, leaving a “floating” segment of bone between the two breaks. These fractures usually occur in long bones such as those in the legs. This type of bone fracture may take longer to heal or cause complications.

- **9. Comminuted Fracture**

- A comminuted fracture is one in which the bone is broken into 3 or more pieces. There are also bone fragments present at the fracture site. These types of bone fractures occur when there is a high-impact trauma, such as an automobile accident.

- **10. Avulsion Fracture**

- An avulsion fracture occurs when a fragment is pulled off the bone by a tendon or ligament. These types of bone fractures are more common in children than adults. Sometimes a child’s ligaments can pull hard enough to cause a growth plate to fracture.

# **The Role of Occupational Therapy for Rehabilitation of the Upper Extremity**



A major focus of occupational therapy is rehabilitation related to impairments of the upper extremity (i.e., shoulder, elbow, forearm, wrist, hand), and 85% of certified hand therapists are occupational therapy professionals (Dimick et al., 2009). But whether in a specialized hand clinic, general rehabilitation clinic, or acute care setting, the role of occupational therapy in upper extremity rehabilitation is to return the client to meaningful participation in his or her daily activities.

## Benefits of Occupational Therapy

- Upper extremity disability can result in disruption of many if not all activities of daily living and instrumental activities of daily living.
- Occupational therapy professionals receive a strong educational component in psychosocial development and pathology. This provides the basis for understanding the impact of upper extremity dysfunction on key daily activities and roles.
- Course work in mental health gives OTs the skills to:
  - evaluate clients' psychosocial and emotional needs,
  - modify the treatment approach to facilitate compliance with the rehabilitation program,
  - and promote the best outcome possible.

- **What makes the role of the OT in this situation so valuable?**
- Because of the holistic, client centred approach of occupational therapy, clients are met at their current level of function. Through activity analysis, the occupational therapist is able to address each client's priorities, along with his or her pathologies, with activity modifications and compensatory techniques to facilitate performing at his or her greatest level of independence from the start, and at every step of the rehabilitation process. This independence encourages integration of the affected upper extremity as soon as possible, thereby making the journey to maximal function seamless.

# Occupational Therapy Assessments and Evaluations

- Occupational therapy assessments and evaluations reflect a client-centered, comprehensive approach. They include not only musculoskeletal (e.g., muscle strength, range of motion); sensory; cognitive or perceptual (if indicated); and vascular, skin, or connective tissue assessment, but also relevant medical, vocational, and/or avocational history.
- As part of the evaluation process, occupational therapists identify psychosocial, environmental, and other factors that may influence rehabilitation outcomes. In addition, they evaluate the demands of the client's workplace and home, including caregiving roles and leisure activities, in order to ensure that interventions are designed to meet tangible, realistic outcomes like returning to work or living safely at home.

The following are examples of conditions and injuries of the upper extremity (i.e., hand, wrist, elbow, shoulder girdle, rotator cuff, multiple joints) that are treated by occupational therapy practitioners:

- Fractures
- Amputations
- Arthritis and rheumatic diseases
- Congenital anomalies
- Crush injuries or trauma
- Cumulative trauma
- Dislocations and subluxations
- Ligament injury and instability
- Muscle strains, tears, and avulsions
- Tendon injuries and conditions (e.g., lacerations, tendonitis, ruptures)
- Nerve injuries and conditions (e.g., neuropathies, palsies, nerve repair)
- Pain (e.g., complex regional pain syndrome, fibromyalgia)
- Replantation and revascularization
- Wounds and scars
- Thermal and electrical injuries
- Neuromuscular pathologies



- Occupational therapy interventions are designed to meet individual client needs and may include the following as part of a comprehensive plan of care:
  - Therapeutic activities
  - Therapeutic exercise
  - Orthosis design, fabrication, fitting, and training
  - Joint protection and/or energy modification in home, work, school, or leisure activities
  - Sensory re-education
  - Mirror therapy
  - Scar management
  - Pain management
  - Work conditioning or work hardening
  - Training in activities of daily living and adaptive or assistive devices
  - Education for post-surgical or post-injury safety, including sensory loss



- From a practical perspective, occupational therapy practitioners working in the area of upper-extremity rehabilitation achieve competency in adjunct areas of intervention, which may include:
  - Design and fabrication of selected orthoses for post-surgical, post-injury, or long-term use
  - Ergonomic principles
  - Diagnostic and post-surgical protocols
  - Wound care
  - Application of physical agent modalities
  - Manual therapy
  - Biofeedback techniques
  - Taping techniques
  - Compression therapy



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