Plate Fixation Techniques

- **Neutralization plate**
  - protects lag screws from shear, bending, or torsional forces across the fracture
  - can be a locking or non-locking screw
- **Bridge plate**
  - acts as an internal splint for highly comminuted fractures
  - This technique is best for highly comminuted metaphyseal or diaphyseal fractures or conditions where the overlying soft tissues preclude a direct approach to the fracture
  - The goal is to preserve the fracture biology by "bypassing" the fracture
    - Not anatomic reduction and absolute stability, but indirect reduction and relative stability (internal splint)
- **Anti-glide plate**
  - The antiglide plate prevents the distal oblique fragment from gliding through the proximal fragment when axial forces are applied
- **Buttress plate**
  - applied to metaphyseal fractures to help support intraarticular fragments
  - neutralize vertical shear forces during axial loading
  - prevents sliding or shortening of the fracture fragments
- **Tension band**
  - helps to convert tensile forces into compression forces across a fracture
  - The plate must be applied to the tension (convex) side of the bone
  - With loading, the plate will be under tension, which compresses the fracture
- **Compression plating**
  - The screw holes of the plate have an inclination; as the screw is tightened, the head slides down this inclination, which compresses the fracture
  - This concept is based on eccentric ("away from" fracture) screw placement within the oval plate hole
  - Without pre-bending the plate, there will be compression under the plate and distraction on the opposite cortex
  - Pre-bending the plate results in evenly distributed forces across the fracture site