

Fixation recommendations in 2013: Intramedullary nailing?

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Biomechanics

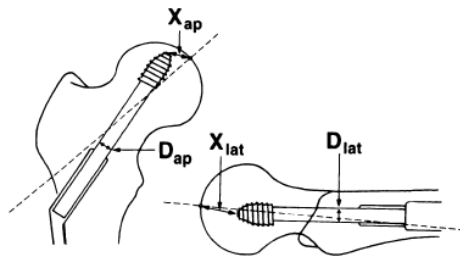
- Proximal femur fractures: A laterally applied screw-side plate device is not as strong as an intramedullary device with medial comminution or bone loss because of its position farther away from the line of joint reaction force
- Biomechanical evidence supports nailing for unstable patterns ie reverse obliquity
- TSP does not seem to negate advantages of nailing

Advantages of modern nails

- Smaller
- High cutout resistance
- Excellent stability of Lag Screw
- Smaller distal screws
- Dynamization capability
- Titanium
- Better instrumentation

Minimizing Tip-Apex Distance (TAD) has been shown to reduce clinical failure of sliding hip screws. Is this true for IM nails?

Baumgaertner et al., JBJS-Am, 1994



$$TAD = \left(X_{ap} \times \frac{D_{true}}{D_{ap}} \right) + \left(X_{lat} \times \frac{D_{true}}{D_{lat}} \right)$$

- Position of the lag screw in the femoral head does affect the biomechanics of cephalomedullary nails
- Inferior position best
- Should be central on lateral
- Static locking better for unstable fractures