

Δ Does the Choice of Antegrade or Retrograde Approach to Intramedullary Nailing of Diaphyseal Femur Fractures Affect Progression of Knee Range of Motion in Settings that Lack Formal Physiotherapy?

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Purpose: Intramedullary (IM) nailing of femoral shaft fractures can be accomplished via the antegrade or retrograde approach. While both are commonly used, the retrograde approach raises concern for increased knee complications, due to its insertion through the knee joint. One important postoperative outcome related to knee function is range of motion (ROM). The purpose of this study is to determine the impact that approach in IM nailing of femoral fractures has on knee ROM in low-resource settings that do not receive routine postoperative physical therapy.

Methods: Patients receiving IM nailing for femoral diaphyseal fractures were included in this study. Follow-up visits were conducted at 6, 12, 26, and 52 weeks postoperatively. The degree of knee flexion and presence of neutral extension was determined at each time point. Patients failing to reach 90° by 52-week follow-up were analyzed for difference based on approach utilized. Additionally, the population of patients failing to reach 90° of flexion by each time point was assessed.

Results: Antegrade approach had a significantly higher average degree of flexion at 6 weeks (114.21 vs 106.92, $P = 0.030$) and at 52 weeks (136.73 vs 133.25, $P = 0.027$). Flexion was similar between approaches at 12 and 26 weeks. There was a significant difference in proportion of patients achieving neutral extension at 6 weeks (96.3% antegrade vs 85.7% retrograde, $P = 0.010$), but the percentages were similar at all other time points. There was no difference in approach on patients achieving 90° by 52 weeks. At each subsequent time point, fewer patients below 90° of flexion eventually achieved that ROM.

Conclusion: The antegrade approach to IM nailing of femoral shaft fractures appears to have an early postoperative advantage for knee ROM over the retrograde approach, but this difference diminishes over time. Patients failing to achieve 90° early in the recovery period should be considered for intervention to prevent reduced ROM at 1 year.

Δ OTA Grant

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.