Comparative Biomechanical Assessment of Surgical Approaches for Lateral Elbow Exposure and Their Effect on Iatrogenic Instability

Common approaches to the lateral elbow following trauma include the modified Kocher and extensor digitorum communis (EDC)-splitting intervals.

These approaches are widely used for lateral elbow access, but have not been extensively compared to assess their impact on elbow stability.

Posterolateral rotatory instability (PLRI) developed in:

- All in Kocher group (10 of 10)
- None in EDC-splitting group (0 of 10)

Compared to EDC-splitting approach, the modified Kocher approach for lateral elbow exposure produced PLRI, which was not detected using the hanging arm test, and did not resolve following repair of the surgical interval.

Radiographic radiocapitellar displacement at 0 and 30 degrees of elbow flexion

Higher in Kocher group in the lateral elbow 30° flexion radiographs

Remained greater than pre-dissection following Kocher interval repair

Clinical evaluation of lateral elbow stability with pivot-shift testing

Radiographic radiocapitellar displacement at 0 and 30 degrees of elbow flexion

Ten matched-pair cadaveric upper-extremity specimens (n = 20)

Surgical approach

- Modified Kocher
- EDC-splitting

Posterolateral Rotatory Instability Develops Following the Modified Kocher Approach and Does Not Resolve Following Interval Repair

Daniels et al. (2023) DOI: 10.2106/JBJS.23.00199

www.jbjs.org | theJBJS | @JBJS