

The Effect of Laterality on Patient Outcomes in Multiligamentous Knee Injury

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I have no financial conflicts to disclose

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- A multiligament knee injury (MLKI) is defined as a tear of at least two of the four major knee ligament structures: ACL, PCL, MCL, and PLC.
- MLKI's are complex and traditionally have poor longterm health outcomes [1,2,3,4,5].
- 16-40% of MLKI's have associated Common Peroneal Nerve (CPN) injuries [6].
- It stands to reason that variable injury patterns have varying prognoses, but this is not commented on in the literature.

Introduction









Question:

Is there a difference in long term health outcomes between patients with medial-sided MLKI's and those with lateral-sided MLKI's both objectively and subjectively?

Why does this Matter?

- Surgical planning
- Therapy protocols
- Management of patient expectations

Hypothesis: Those with lateral-sided MLKI's will have worse long-term outcomes than those with medial-sided

Rationale: The lateral side of the knee is anatomically more complex. Neurovascular structures, such as the CPN, run adjacent to PLC structures. Injury to this area has a higher propensity for long-term neurovascular complications, such as footdrop.

Hypothesis & Rational

MLKI's.





Methods



1: Patient Selection

Patient pool included all patients who were seen by either Dr. Campbell, Dr. Vetter, or Dr. Douros from 2017 – present and who met all inclusion/exclusion criteria

2: Objective Data

Range of Motion and Laxity Scores from the patient's last visit were collected

3: Subjective Data

IKDC Surveys were administered to all eligible patients over the phone

4: Statistical Analysis

Patients were stratified into cohorts. One-Way Anova tests were run to compare means between groupings in consultation with MCW statistics department

Results (Objective Data)



Medial Vs. Lateral Laxity Scores

■ Medial ■ Lateral 14

 Number of Patients (n = 27)

 0
 8
 0
 5

 0
 9
 8
 0
 5

 0 0 2 3 1

Laxity Score

Results (Subjective Data)



Medial Vs. Lateral IKDC Scores







- There was a significant difference in patient reported outcomes (IKDC scores) between the lateral and medial sided cohorts (p = 0.017).
- There was no significant difference in maximum extension (p = 0.88), flexion (p = 0.27), or laxity (p = 0.61) between cohorts.
- This makes sense, as the lateral corner is anatomically more complex and has a higher likelihood for associated neurovascular complications when disrupted [6]. This would result in worse outcomes for the lateral cohort.
- At a minimum, this data highlights the importance of managing patients' expectations when faced with a new diagnosis for one of these devastating injuries.

Future Work



- Conduct sub-analyses to determine how other variables impact MLKI outcomes including:
 - BMI
 - Operative vs. non-operative treatment
 - Associated neurovascular injuries
 - Age
 - Nicotine use
- Implement a randomized control study assessing more aggressive therapy and/or surgical management protocols, with the understanding that current treatment algorithms result in lateral-sided patients doing subjectively worse.

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