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Increased Ligament Injury and FCL Reconstruction in Polytrauma Multiligamentous Knee Injuries

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Disclosures

Presenter:

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Background and Objectives

- Multiligamentous knee injuries (MLKIs) resulting from high energy (HE) or polytraumatic (PT) result in worse patient-reported outcomes.
- There remains a paucity of information on how these distinct mechanism types - HE and PT - directly relate to MLKIs injury patterns.

- Objectives were to describe:
    - Mechanisms of injury
    - Ligament injury patterns
    - Surgical interventions for ligaments

Materials and Methods

Inclusion Criteria

- Patient's with MLKI
- Documentation of mechanism
- Availability of MRI reports
- Availability of operative reports

Exclusion Criteria

- Revision MLKI surgery
- Treated nonoperatively
- Treated with arthroplasty
- Chronic MLKIs

- Single institution, retrospective chart review
- April 2008 through October 2022
- Minimum 2-ligaments surgical treated

Materials and Methods: Classification of Mechanisms

High Energy MLKI

Resulting from mechanisms caused as a result of significant external forces such as motor vehicle accidents or falls greater than 1.5 meters in height.

Low Energy MLKI

Resulting from less severe mechanisms like ground-level falls or sports injuries.

Polytraumatic MLKI

Involving additional traumatic injuries to the head, spine, extremities, abdomen, and/or pelvis

Non-Polytraumatic MLKI

Do not involve additional traumatic injuries outside of the knee joint

Results: Demographics

High Energy MLKI

62 patients
Age: 31
BMI: 30
Male/Female: 49/13

MVC	68%
Other	32%

Low Energy MLKI

114 patients
Age: 26
BMI: 28
Male/Female: 73/41

Sports	68%
GLF	12%
Other	20%

Polytraumatic MLKI

41 patients
Age: 31
BMI: 30
Male/Female: 32/9

MVC	85%
Sports	5%
Other	10%

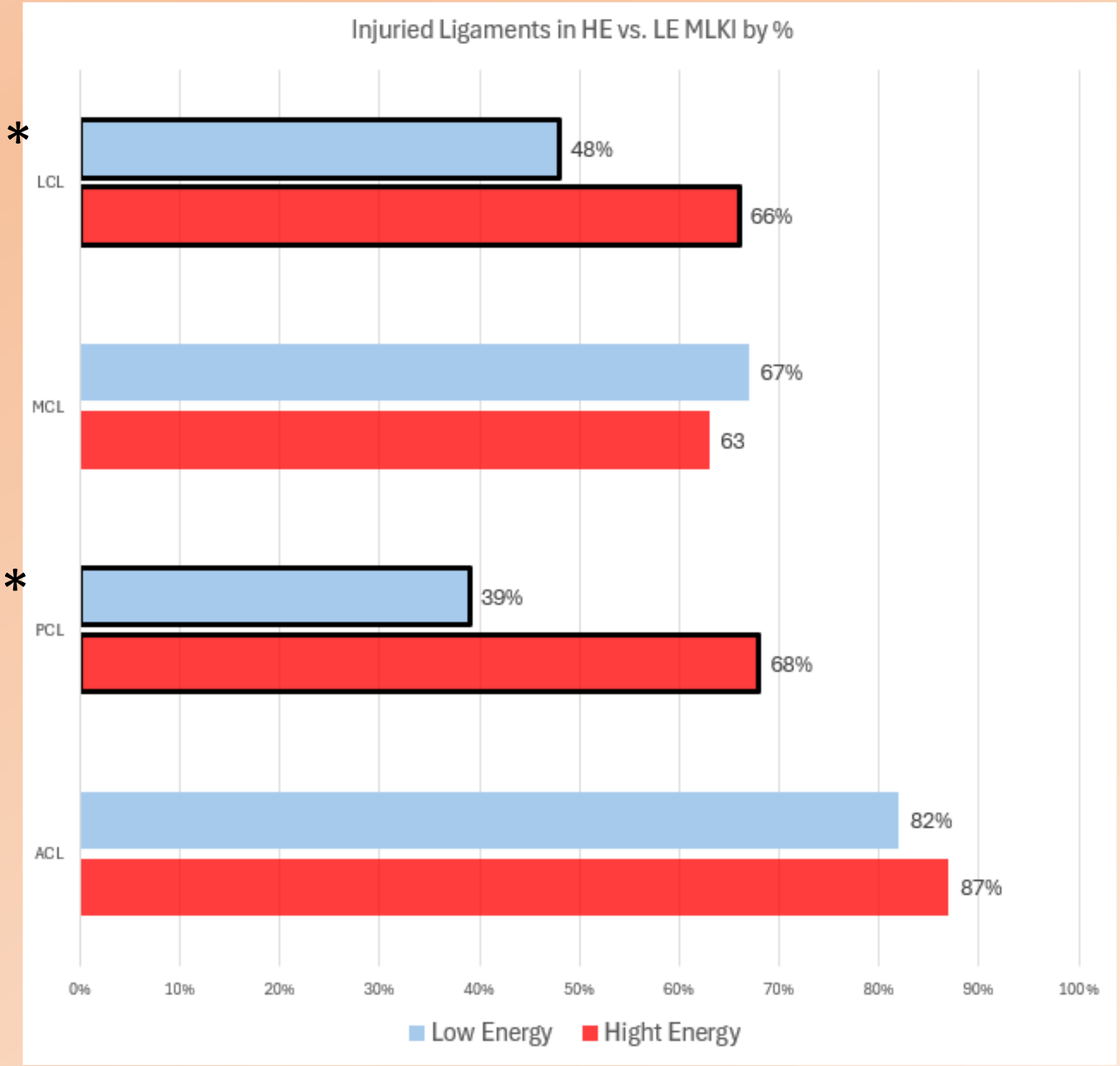
Non-Polytraumatic MLKI

135 patients
Age: 27
BMI: 28
Male/Female: 91/46

MVC	11%
Sports	56%
Other	31%

Results: High Energy vs. Low Energy MLKI *Injuries*

* = p-value < 0.05



Low Energy MLKI Injuries

114 patients

LCL	55*
MCL	77
PCL	44*
ACL	93
Avg # of Ligaments	2.4*

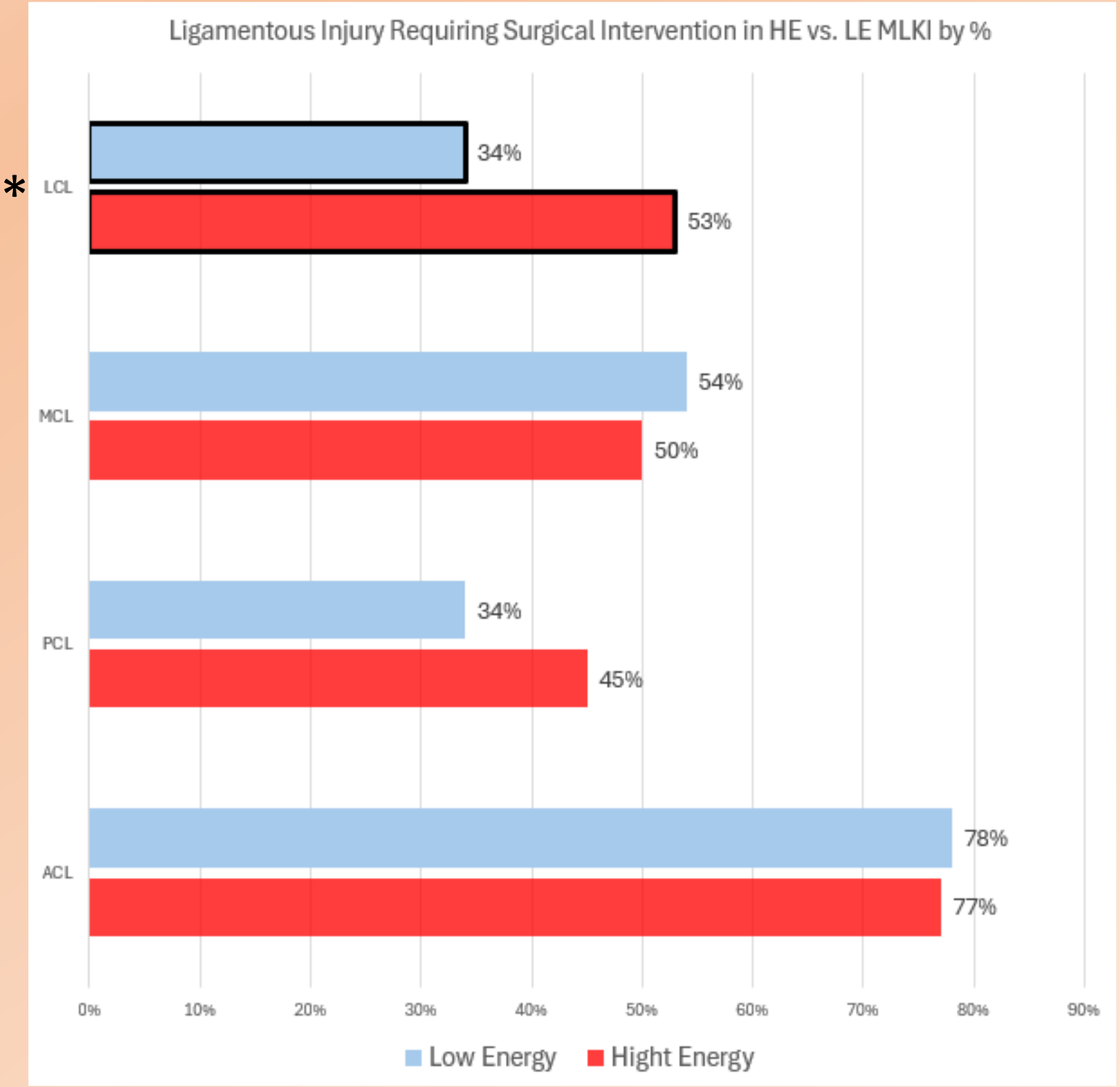
High Energy MLKI Injuries

62 patients

LCL	41*
MCL	39
PCL	42*
ACL	54
Avg # of Ligaments	2.8*

Results: High Energy vs. Low Energy ***Surgeries***

* = p-value < 0.05



Low Energy MLKI Surgeries

114 patients

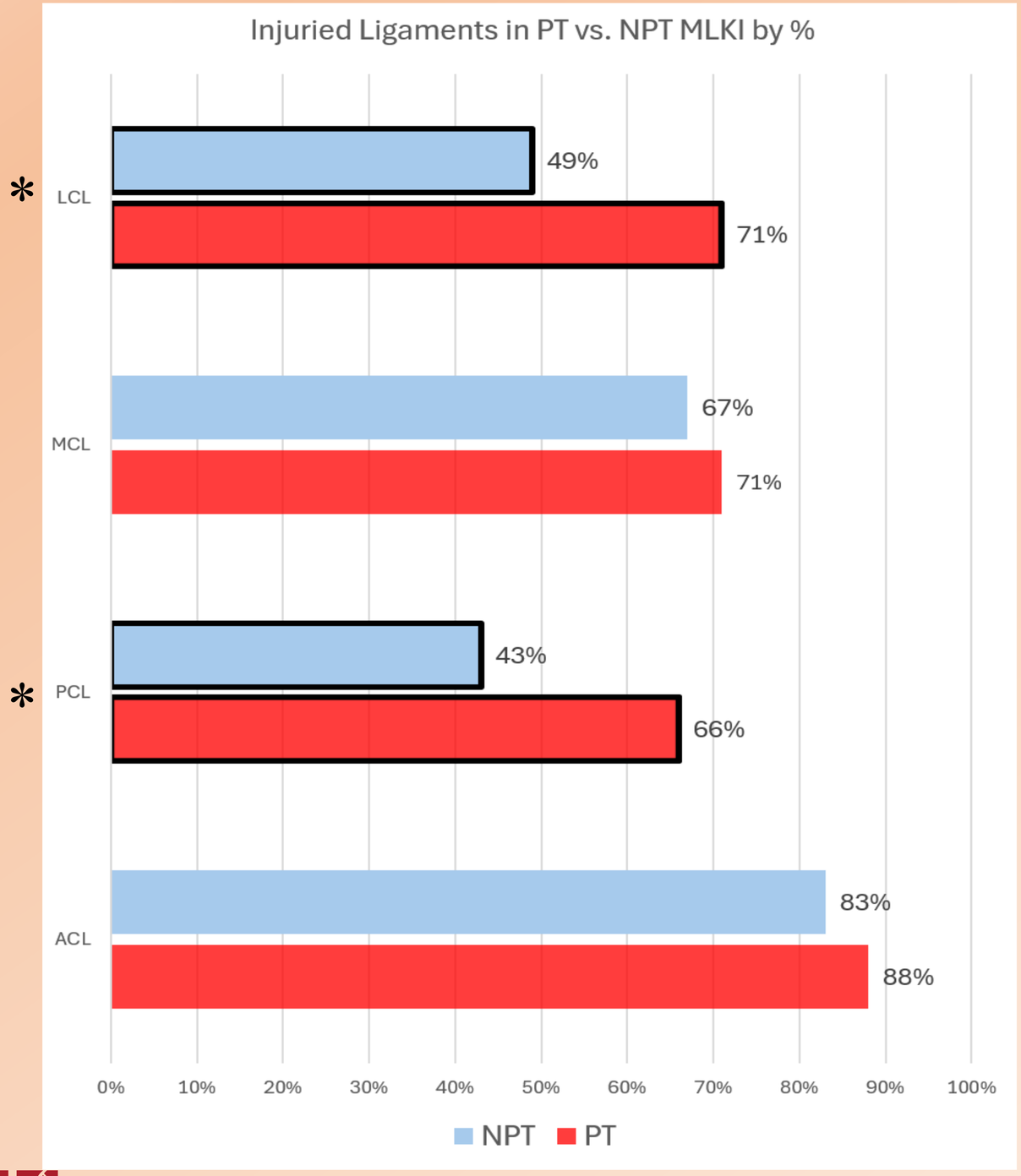
LCL	39*
MCL	62
PCL	39
ACL	89

High Energy MLKI Surgeries

62 patients

LCL	33*
MCL	31
PCL	28
ACL	48

Results: Polytrauma vs. Non-Polytrauma ***Injuries***



* = p-value < 0.05

Non-polytraumatic MLKI Injuries

135 patients

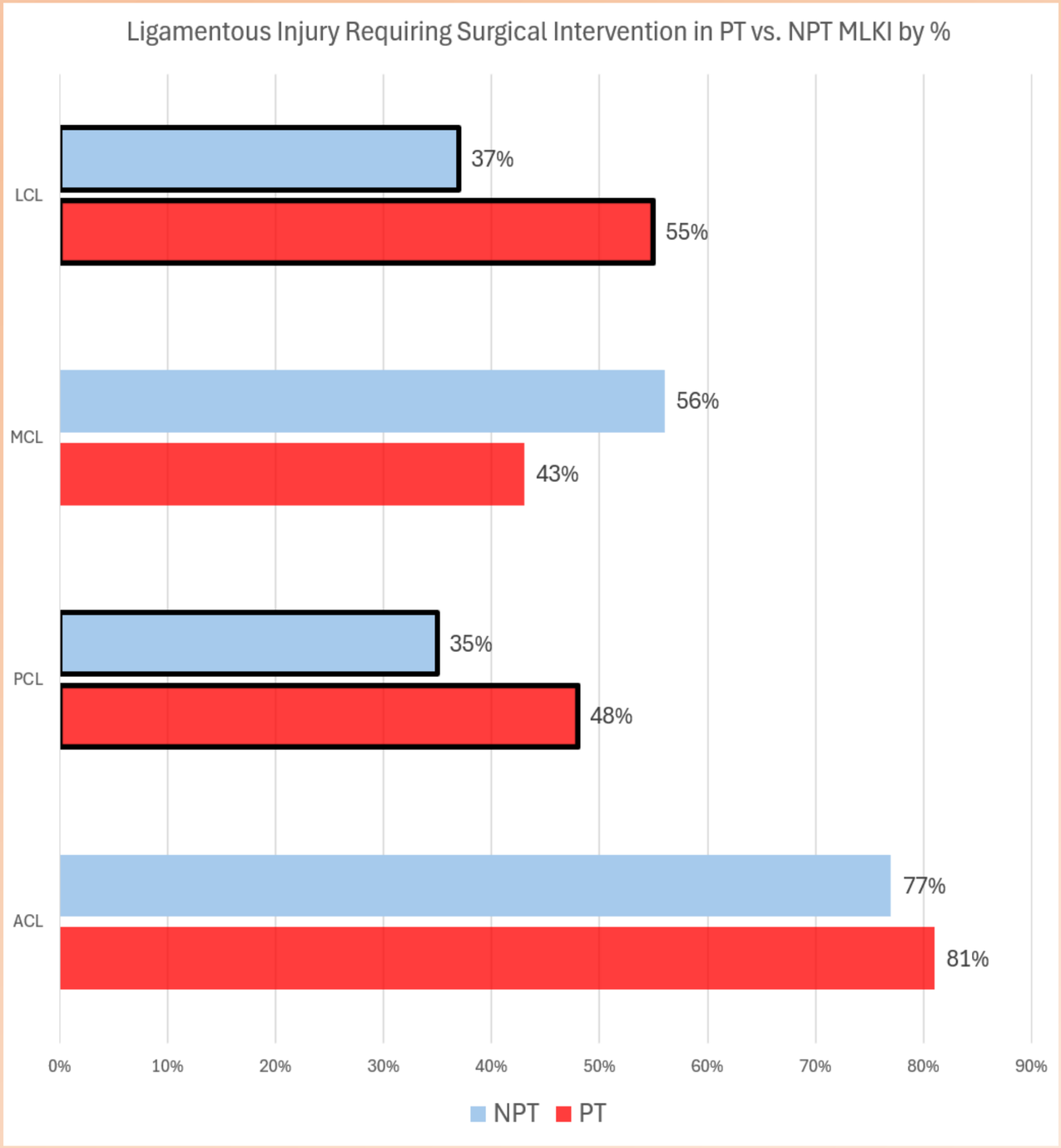
LCL	66*
MCL	91
PCL	58*
ACL	112
Avg # of ligaments	2.4*

Polytraumatic MLKI Injuries

41 patients

LCL	29*
MCL	29
PCL	27*
ACL	36
Avg # of ligaments	2.9*

Results: Polytrauma vs. Non-Polytrauma ***Surgeries***



* = p-value < 0.05

Non-polytraumatic MLKI Surgeries

135 patients

LCL	49*
MCL	75
PCL	47*
ACL	103

Polytraumatic MLKI Surgeries

41 patients

LCL	23*
MCL	18
PCL	20*
ACL	34

Conclusions

- Our study elucidates an association between the mechanism of MLKIs and their severity, with HE and PT mechanisms more frequently involving PCL and LCL injuries and necessitating higher rates of LCL surgical intervention. Additionally, the average number of ligaments injured in MLKIs resulting from HE and PT mechanisms is higher compared to those from LE and NPT mechanisms.

Significance of Findings

- The present study adds to the existing literature by demonstrating the differences in both injury patterns and surgical intervention for patients with MLKIs in the setting of HE, LE, PT, and NPT.
- These findings highlight the importance of considering the injury severity and the mechanism of injury for clinical decision-making in patients with MLKIs.

THANK YOU!