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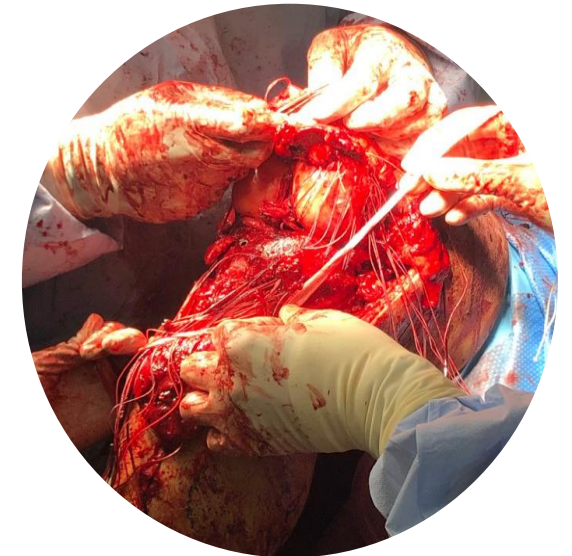


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# Patients Undergoing Reconstruction for Multi-Ligament Knee Injuries caused by Pivoting Sports Restore Function and Return to Sport at a Similar Level to their Isolated ACL Counterparts: A Prospective Matched Cohort Study



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# DISCLOSURES

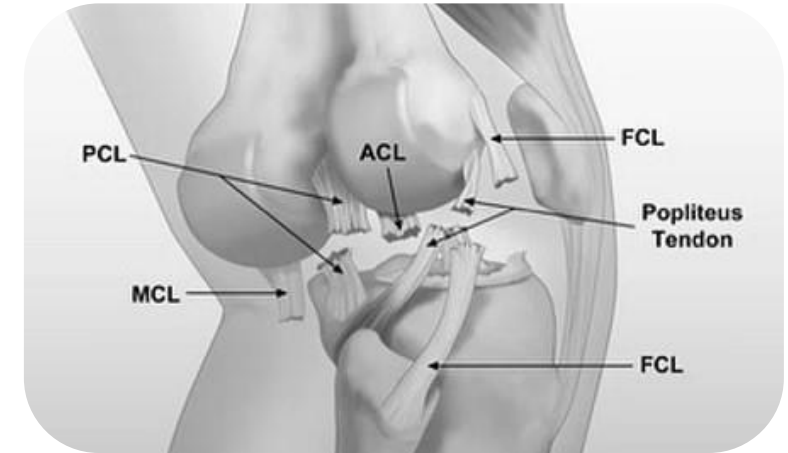
I **DO NOT** have a financial interest or other relationship with a commercial company or institution relating to this study.

# Background

## - M/L Knee Injuries -

### M/L Knee Injuries

- At least 2 of ACL/PCL/PLC/PMC
- Approximately 3:1 male:female ratio



### Current Literature

- No prospective functional outcomes
- Mostly retrospective PROMs
- <60% return to sport at any level – general perception that RTS after M/L knee reconstruction is poor
- Early operative treatment - improves outcomes, however: MUA for stiffness variable in literature, up to 35%



## Study Aims

1. Assess 2-year patient-reported outcomes, as well as the recovery of strength & functional capacity, in a consecutive series of patients undergoing MLKR recruited through a tertiary referral centre.
2. Compare the recovery pathway of patients undergoing MLKR, as well as MLKR due to a specific pivoting sport injury, to a matched cohort undergoing isolated ACLR.

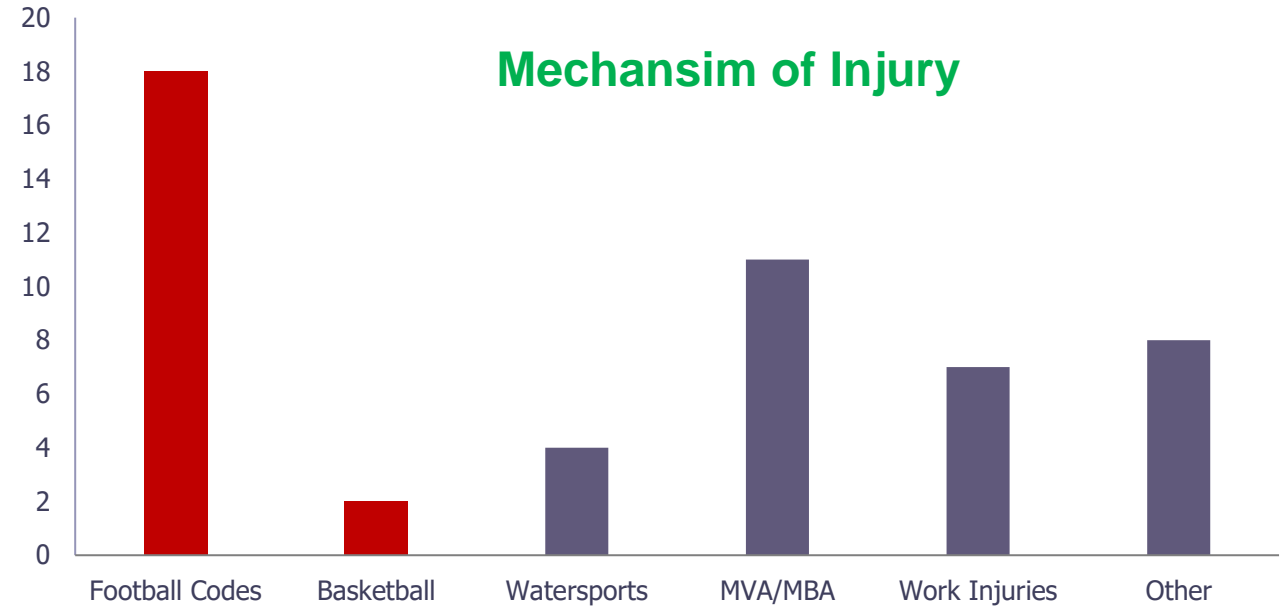
# Patient Sample

## M/L Knee Cohort

- Prospective cohort (n=50)
- Participating in pivoting sports (n=20)
- Median time to surgery – 3 weeks

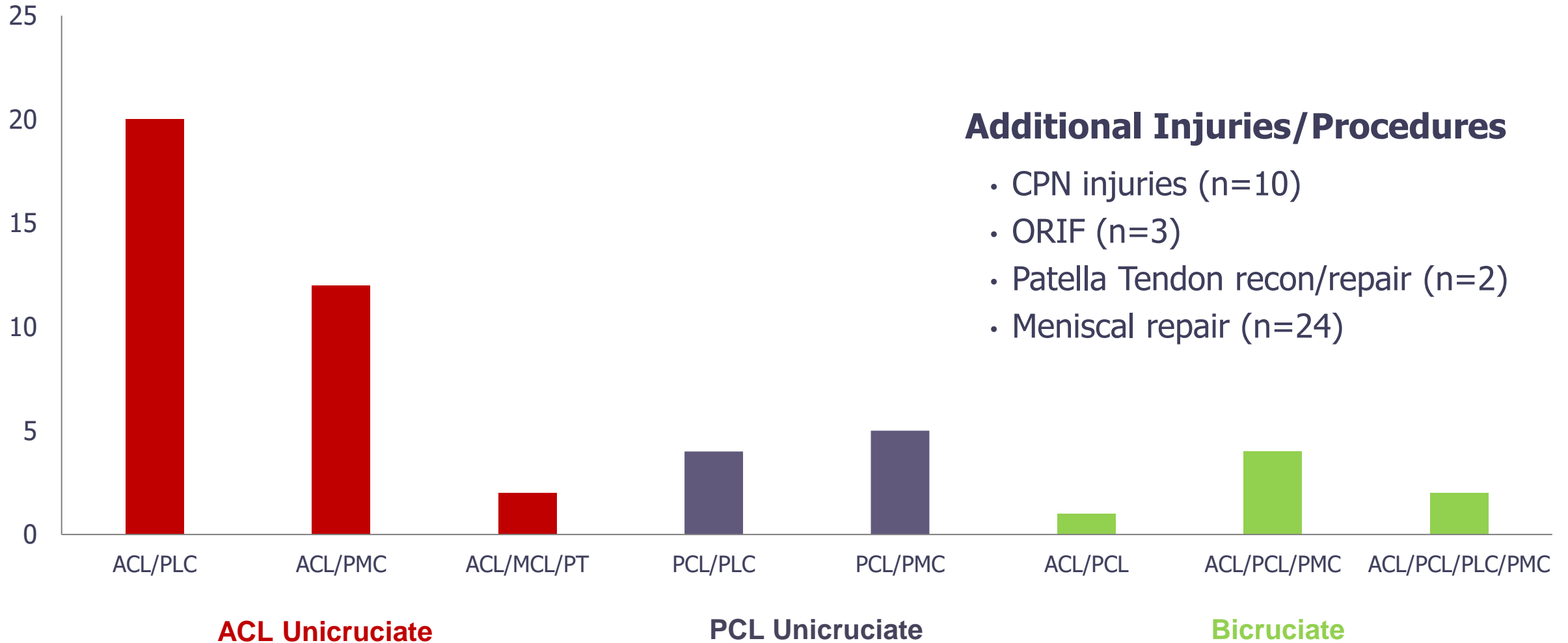
## ACLR Cohort (matched)

- Participating in pivoting sports (n=50)



Variable	M/L (n=50)	M/L Pivoting Sports (n=20)	ACLR (n=50)
Age	30.1 (16-50)	29.3 (16-45)	30.5 (16-50)
BMI	27.2 (16.2-38.2)	26.1 (16.2-33.0)	27.8 (18.5-33.5)
Gender	42 (84%)	17 (85%)	42 (84%)

# Injury Breakdown



## Additional Injuries/Procedures

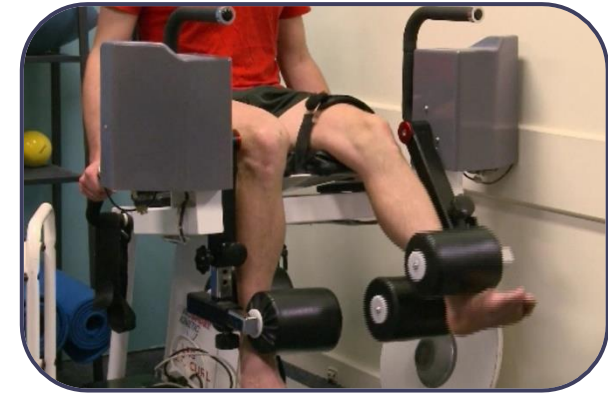
- CPN injuries (n=10)
- ORIF (n=3)
- Patella Tendon recon/repair (n=2)
- Meniscal repair (n=24)

# Patient Assessment

Pre-surgery



**PROMs** (IKDC, Lysholm, Cincinnati, KOS-ADL, Tegner, ACL-RSI)



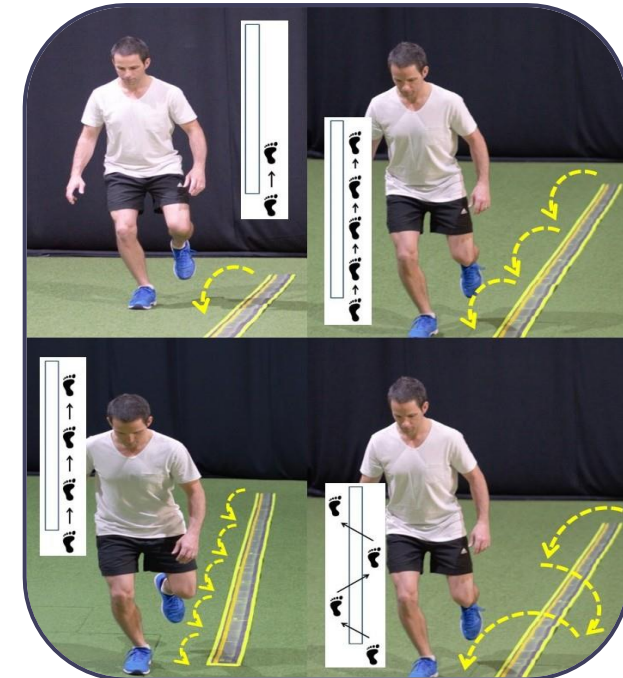
6, 12, 24  
months



**PROMs**  
**GRC & Patient Satisfaction**  
**Knee ROM**  
**SL Hop Capacity**  
**Knee Flexor & Extensor Torque**



**Absolute Scores  
& LSI**

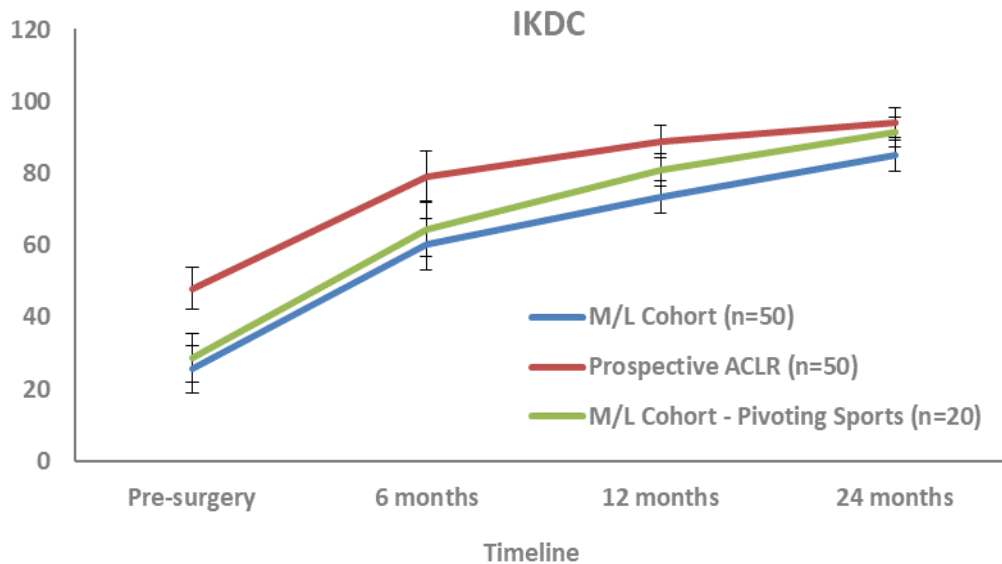


# Results

## - PROMs -

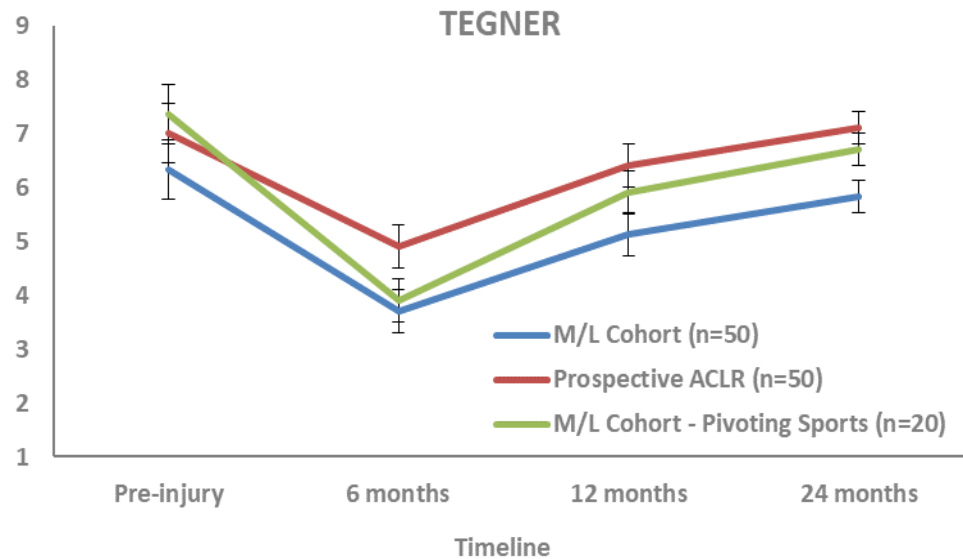
### IKDC

- All groups significantly improved over time
- Full M/L cohort significantly worse than ACLR cohort pre-surgery, 6 & 12 months
- Pivoting-sport M/L cohort only significantly worse than ACLR group pre-surgery (no post-surgery differences)



### Tegner

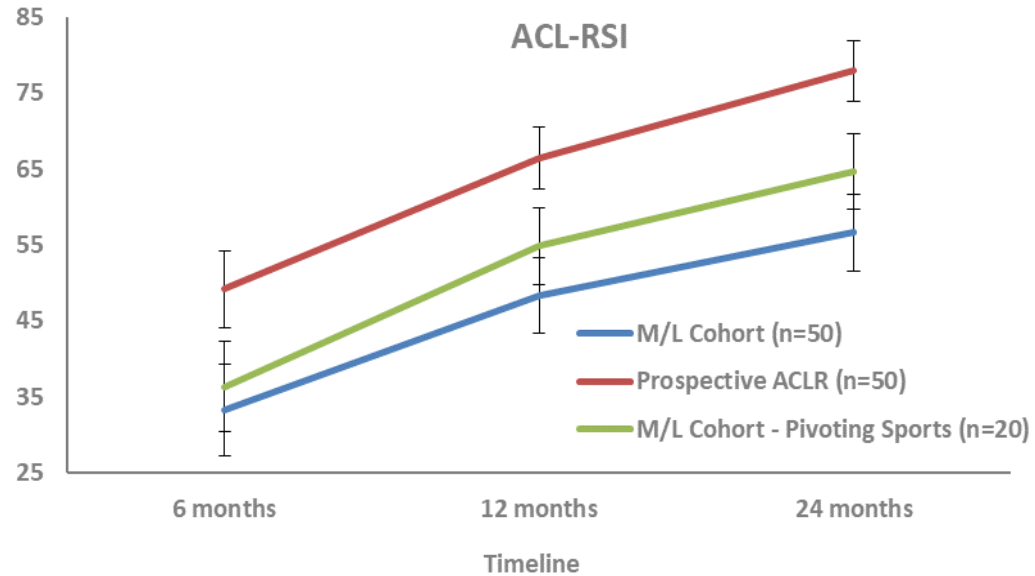
- No pre-injury group differences
- Full M/L cohort significantly worse than ACLR cohort at 6, 12 and 24 months
- Pivoting-sport M/L cohort only significantly worse than ACLR group at 6 months (not 12 or 24 months)





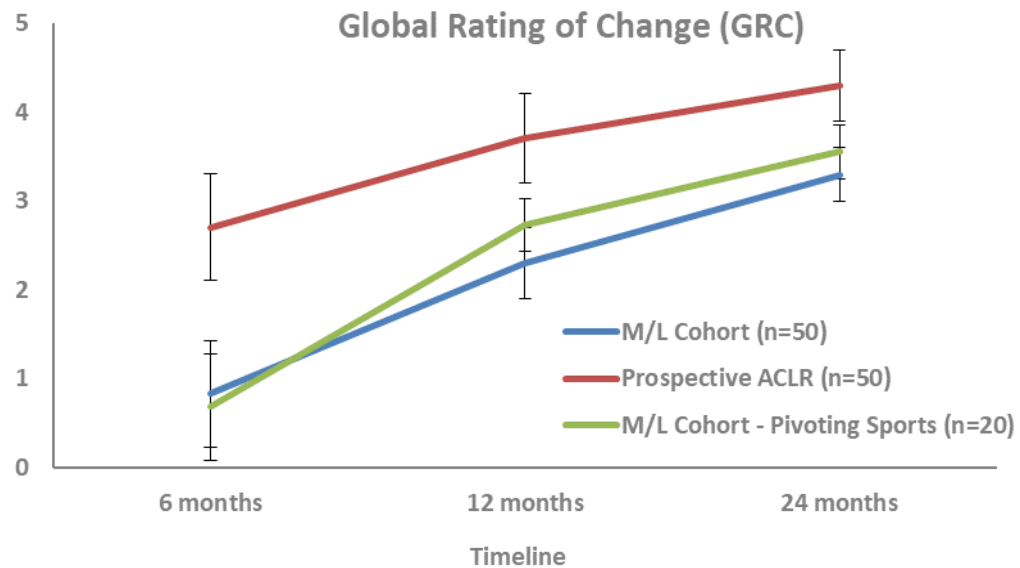
# Results

## - PROMs -



### ACL-RSI

- All groups significantly improved over time
- Both M/L cohorts significantly worse than ACLR cohort at all post-operative time-points (6, 12 & 24 months)



### GRC

- All groups significantly improved over time
- Both M/L cohorts significantly worse than ACLR cohort at all post-operative time-points (6, 12 & 24 months)



## Results

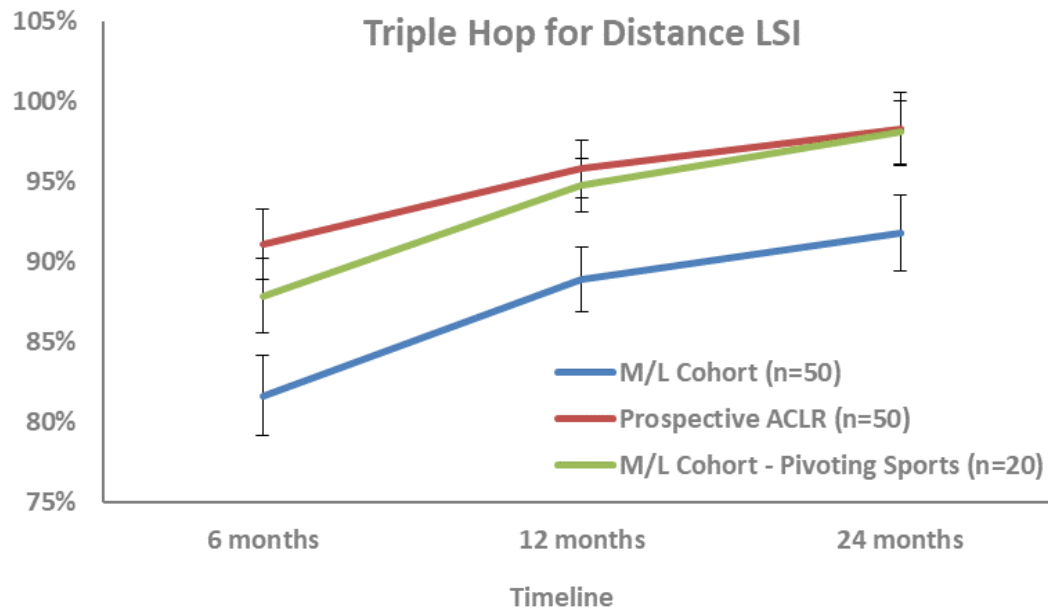
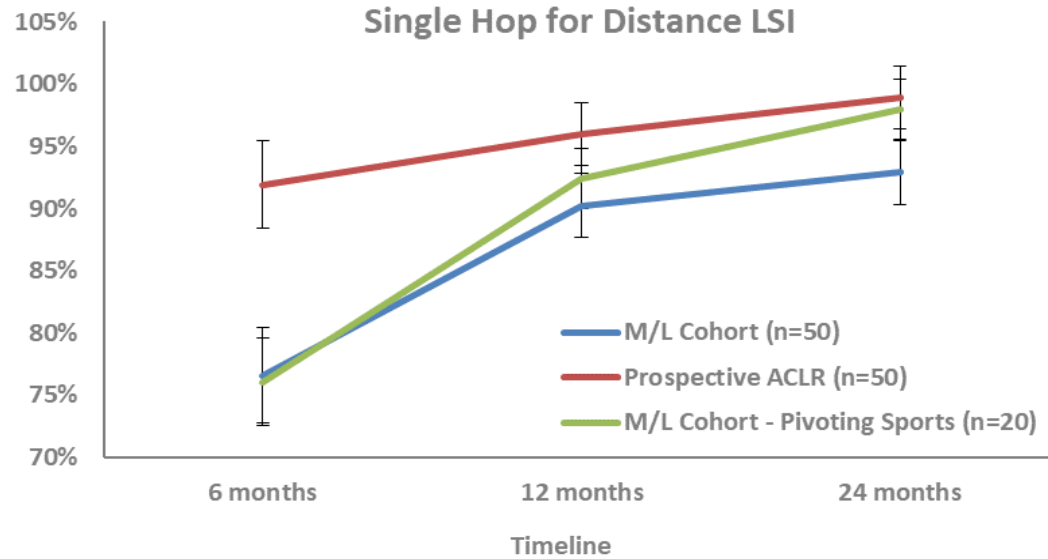
### - Peak Quadriceps Strength LSIs -



- LSIs for all groups significantly improved
- LSIs for both M/L cohorts significantly lower than ACLR cohort at 6 & 12 months
- While the LSI for the full M/L cohort was significantly lower than the ACLR cohort at 24 months, there was no difference between the pivoting-sport M/L and ACLR cohorts

# Results

## - Hop Capacity -



### SHD

- LSIs for all groups significantly improved
- LSIs for both M/L cohorts significantly lower than ACLR cohort at 6 months, though no differences between the pivoting-sport M/L & ACLR groups at 12 & 24 months post-surgery

### THD

- LSIs for all groups significantly improved
- LSIs for the full M/L cohort were significantly lower than ACLR cohort at all time-points
- No differences between the pivoting-sport M/L & ACLR groups at any time-point

## Results

### - Complications -

- 4 patients have undergone MUA/Arthrolysis for stiffness (7%)
- 1 patient has undergone revision fixation (MCL screw re-tightened)



## Conclusions

- Single stage MLKR is associated with a relatively low complication rate, combined with significant improvement in PROMs & functional outcomes.
- Those undergoing MLKR due to injury participating in pivoting sports actually **RTS at the same rate and level as those undergoing isolated ACLR.**
- However, following MLKR the perceived GRC & psychological readiness to RTS remains significantly lower, compared with ACLR alone.

