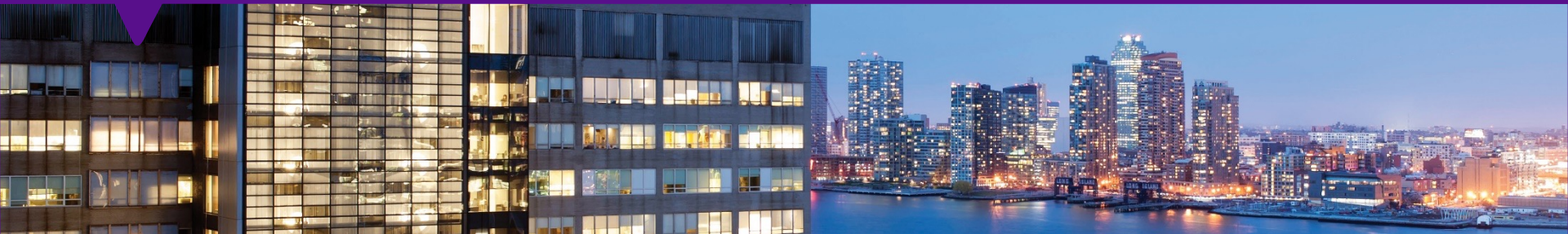


# **Return to Sports in Isolated MPFL Reconstruction Versus Additional Tibial Tubercle Osteotomy**

Zachary I. Li, BA; Sharif Garra, MD, Jordan Eskenazi, BS; Jairo Triana, BS; Samuel R. Montgomery, MD;  
Andrew J. Hughes, FRCS (Tr&Orth); Michael J. Alaia, MD; Eric J. Strauss, MD;  
Laith M. Jazrawi, MD; Kirk A. Campbell, MD

*Division of Sports Medicine, Department of Orthopedic Surgery, NYU Langone Health*



# I (and/or my co-authors) have something to disclose.

All relevant financial relationships have been mitigated.

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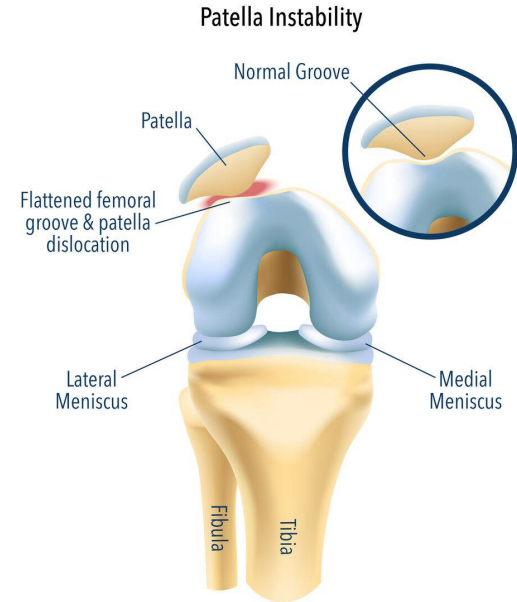
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# Background

1. MPFL reconstruction (MPFLR) is considered essential operative treatment of recurrent patellar instability, though less consensus exists regarding indications to surgically address trochlear dysplasia or malalignment of the tibial tubercle.
2. The comparative literature describing rates of return to activities among MPFLR +/- tibial tubercle osteotomy (TTO) is limited and lacks consensus, especially with respect to return to sport.



# Objective

- To investigate the **rate of return to sports** and sport **psychological readiness** between patients who underwent isolated MPFL reconstruction (iMPFL) vs a matched cohort who underwent MPFLR + anteromedializing TTO (MPFL/TTO).

# Hypothesis

- The hypothesis was that there would be a **similar rate of return to sports and psychological readiness** between these groups.

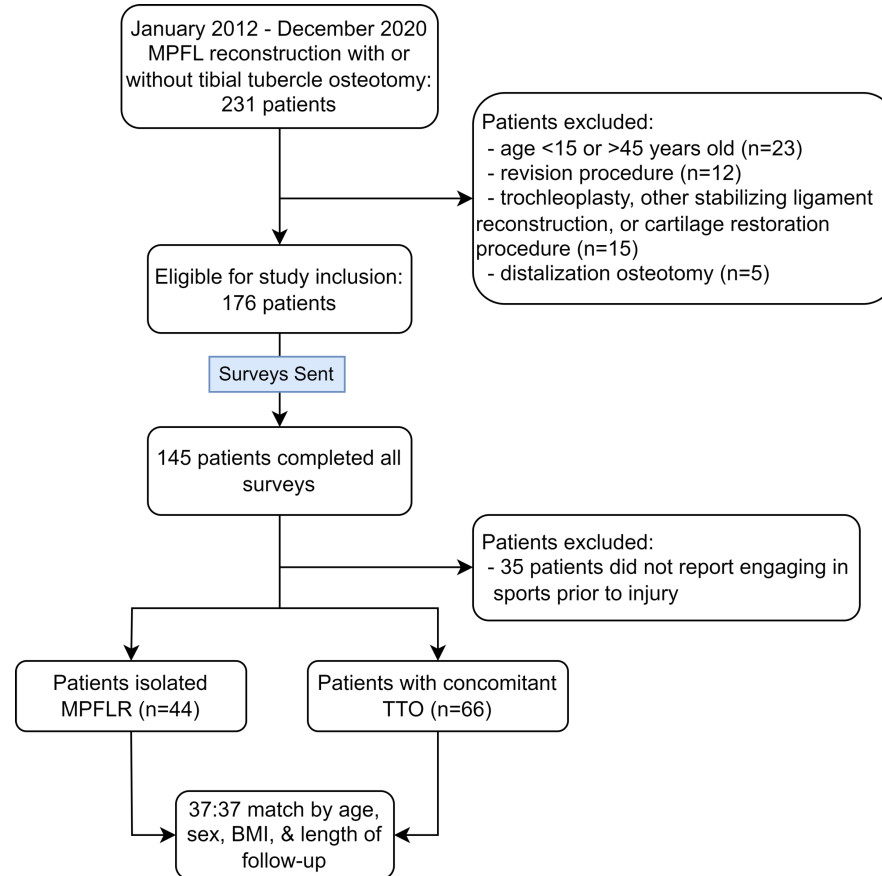
# Methods

- Single-center, retrospective cohort study
- Inclusion criteria
  - Age 15-45 who underwent MPFL reconstruction +/- anteromedializing TTO from 2012-2020
  - Minimum 2-year follow-up
- Exclusion criteria
  - Prior surgery on ipsilateral knee
  - Pure distalization TTO
  - Trochleoplasty
  - Reconstruction of other stabilizing ligaments
  - Cartilage restoration procedures

## Methods (cont.)

- Matching
  - Propensity matched 1:1 based on **age**, **sex**, and **BMI**
- Outcomes
  - **Return to sport & work** surveys
  - **VAS pain, satisfaction**
  - **Kujala** Anterior Knee Pain Scale
  - **Tegner** Activity Scale
  - MPFL-Return to Sport after Injury (**MPFL-RSI**)
  - **TT-TG**, **patella alta** (CDI > 1.2), **Dejour class**
- Statistical analysis
  - T-tests, Fisher's exact tests, multivariable logistic regression

# Patient Flow



# Results - Demographics

Demographics	iMPFLR	MPFLR/TTO	p-value
N	37	37	
Sex, n (% female)	27 (70.2)	27 (70.2)	n.s.
Age (years)	25.8 ± 10.4	26.1 ± 8.6	n.s.
Body mass index	26.0 ± 6.1	26.2 ± 5.3	n.s.
Symptom duration (months)	44.6 ± 70.3	69.3 ± 69.2	<b>0.011</b>
Follow-up (months)	50.6 ± 23.2	54.3 ± 26.9	n.s.



# Results – Pre-op MRI & Radiographic Characteristics

Variable	iMPFLR	MPFLR/TTO	p-value
TT-TG (mm)	14.4 ± 2.9	18.5 ± 3.2	<0.001
Caton-Deschamps Index	1.11 ± 0.13	1.12 ± 0.22	n.s.
Patella alta, n (%)	4 (17.4)	8 (34.8)	n.s.
Dejour class, n (%)			n.s.
None	22 (59.5)	12 (32.4)	-
A	5 (13.5)	7 (18.9)	-
B	8 (21.6)	12 (32.4)	-
C	2 (5.4)	6 (16.2)	-
D	-	-	-

# Results – Clinical Outcomes

Patient-Reported Outcomes	iMPFLR	MPFLR/TTO	p-value
VAS Pain	1.5 ± 2.3	1.1 ± 2.0	n.s.
VAS Pain During Sport	2.4 ± 2.9	2.6 ± 2.8	n.s.
Satisfaction	83.3 ± 26.3	85.0 ± 23.9	n.s.
Kujala	84.9 ± 15.3	85.0 ± 15.3	n.s.
Tegner			
Pre-Injury	7 (1-10)	6 (2-10)	n.s.
Post-Injury	3 (1-7)	2 (0-10)	n.s.
Current	5 (1-8)	4.5 (0-10)	n.s.
MPFL-RSI	53.9 ± 30.1	62.4 ± 26.5	n.s.
MPFL-RSI Passing Rate, n (%)	18 (48.6)	20 (54.1)	n.s.

# Results – Return to Sport

	Cohort, n (%)		
Return to Sport	iMPFLR (n=37)	MPFLR/TTO (n=37)	p-value
Return to Any Level	25 (67.6)	27 (73.0)	n.s.
Time to return (months)	8.4 ± 4.5	12.4 ± 6.6	<b>0.019</b>
Same or Higher Pre-Injury Level	17 (45.9)	15 (40.5)	n.s.
Time to return (months)	7.3 ± 4.3	12.6 ± 5.5	<b>0.008</b>
No Return	12 (32.4)	10 (27.0)	n.s.

## Results – Return to Work

	Cohort, n (%)		
Return to Work	iMPFLR (n=37)	MPFLR/TTO (n=37)	p-value
Return to Any Level	22 (95.7)	23 (88.5)	n.s.
Time to return (months)	3.1 ± 4.2	4.9 ± 4.5	n.s.
Same or Higher Pre-Injury Level	18 (78.3)	17 (65.4)	n.s.
Time to return (months)	1.7 ± 2.5	4.6 ± 3.9	<b>0.005</b>
No Return	1 (4.3)	3 (11.5)	n.s.

# Limitations

1. Retrospective nature of this study precluded the use of a standardized rehabilitation protocol, which would certainly influence the time taken to return to sport or work.
2. Range of follow-up was relatively wide (mean: 52.5 months [range: 24-117]), which could bias patients' recall of their ability to return to activities.
3. Retrospective design precluded the collection of baseline PRO scores, which would significantly strengthen comparisons made in a cohort study.

# Conclusions

1. MPFLR with AMZ TTO demonstrates similar rates of return to sport compared to an isolated MPFLR matched comparison group, though iMPFLRs returned more quickly.
2. Patients with more severe trochlear pathology required more time to return to sports.

> [Knee Surg Sports Traumatol Arthrosc.](#) 2024 Feb;32(2):371-380. doi: 10.1002/ksa.12051.  
Epub 2024 Jan 25.

**Patients who undergo tibial tubercle anteromedialization with medial patellofemoral ligament reconstruction demonstrate similar rates of return to sport compared to isolated MPFL reconstruction**

Zachary I Li <sup>1</sup>, Sharif Garra <sup>1 2</sup>, Jordan Eskenazi <sup>1</sup>, Samuel R Montgomery Jr <sup>1</sup>, Jairo Triana <sup>1</sup>, Andrew J Hughes <sup>1</sup>, Michael J Alaia <sup>1</sup>, Eric J Strauss <sup>1</sup>, Laith M Jazrawi <sup>1</sup>, Kirk A Campbell <sup>1</sup>

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