Return to Sports is Faster with Combined Reconstruction of the MPFL and MQTFL Compared to Isolated MPFL Reconstruction: Preliminary Results

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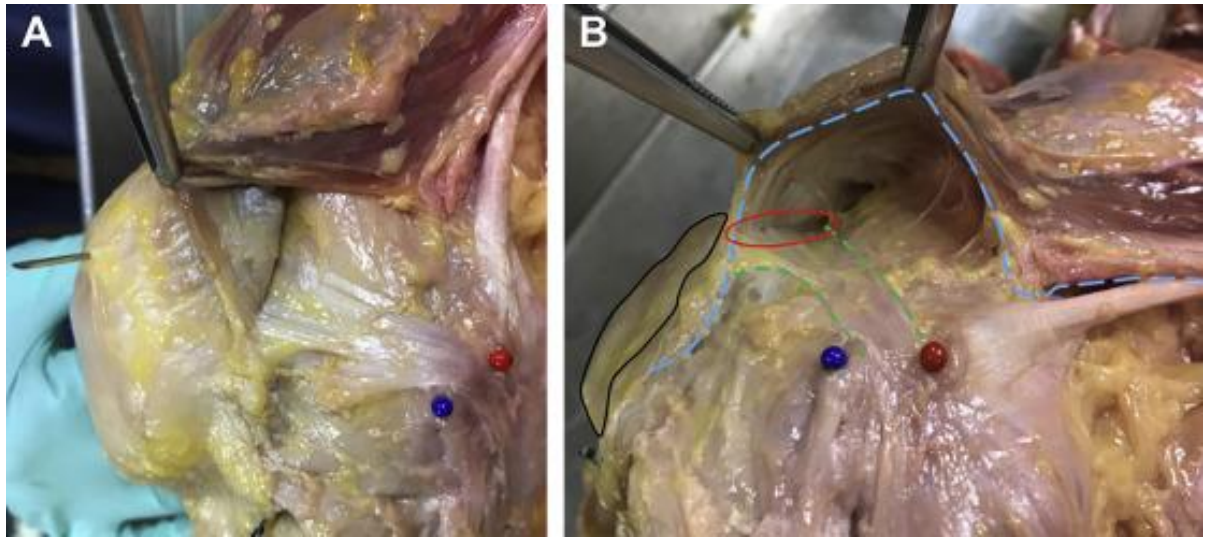
DISCLOSURE STATEMENT

- The authors have nothing to disclose.

BACKGROUND

- Patellar dislocation disrupts the proximal-medial patellofemoral complex (MPFC), which is composed by the medial patellofemoral ligament (MPFL) and the medial quadriceps-tendon femoral ligament (MQTFL) [1].
- Isolated MPFL reconstruction provides good outcomes, but with variable rates of recurrent instability [2, 3].



[1] Espregueira-Mendes et al. (2019). Arthroscopy techniques, 8(5):e481-e488.

[2] Schneider et al. (2016) Am J Sports Med, 44(11):2993-3005.

[3] McNeilan et al. (2018) Arthroscopy. 2018;34(4):1340-1354.

PURPOSE

The purpose of this study was to compare the surgical outcomes and new dislocation episodes between isolated MPFL reconstruction and combined reconstruction of the MPFL and MQTFL.

METHODS

Prospective cohort study (Porto, Portugal)

Inclusion criteria:

- ✓ All consecutive patients with objective patellar instability (defined as at least one previous patellar dislocation).

Isolated MPFL reconstruction: Semitendinosus autograft. The graft is fixed at the femur by looping around the adductor tendon insertion (quasi-anatomical point). At the patella, the graft is then fixed at the adjacent retinaculum of the medial border of the patella with sutures.

Combined MPFL+MQTL reconstruction: Semitendinosus and gracilis autografts. The grafts are fixed at the femur by looping around the adductor tendon insertion (quasi-anatomical point). At the patella, while the two arms of the gracilis graft are sutured to their own substance and to the quadriceps tendon, the two arms of the semitendinosus graft are sutured at adjacent retinaculum of the medial border of the patella.

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Combined MPFL+MQTL reconstruction

Technical Note

Combined Soft Tissue Reconstruction of the Medial Patellofemoral Ligament and Medial Quadriceps Tendon–Femoral Ligament

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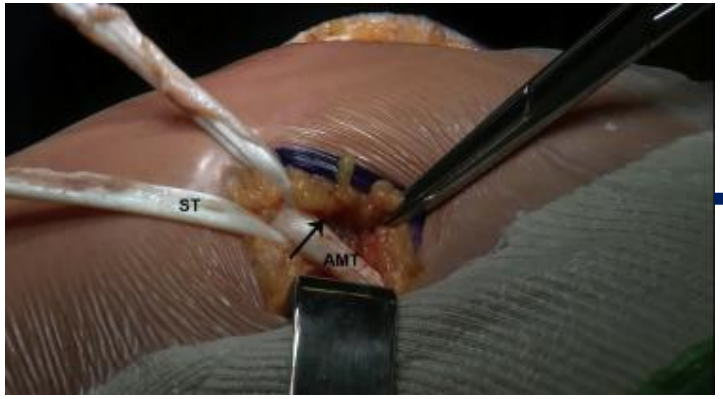
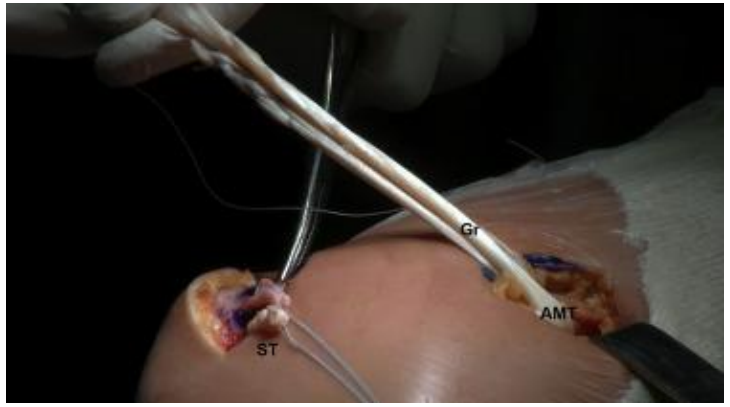


The semitendinosus autograft is looped around the adductor tendon.

The semitendinosus autograft is passed through the 2 incisions made in the medial aspect of the patella.



The gracilis autograft is also looped around the adductor tendon.

Gracilis autograft extremities are pulled into the quadriceps tendon incision.

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The 2 arms of the gracilis autografts are crossed on each other.

The 2 crossed arms of the gracilis autografts are sutured to their own substance under proper tension.

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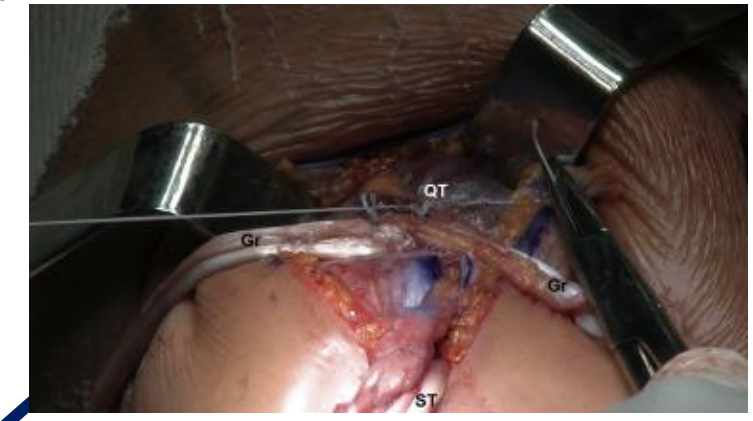
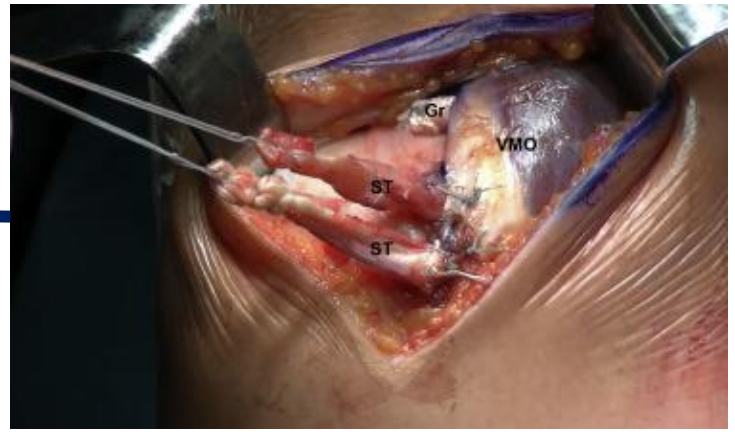


Gracilis autograft suture is reinforced by suturing to the quadriceps tendon.



The 2 arms of the semitendinosus autograft are now sutured to the adjacent retinaculum with the knee at full extension.

Revision of all sutures have been placed correct.

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METHODS

Outcome measures

PROMS (baseline and 2y follow-up)

- Pain (VAS)
- Kujala score

Other outcomes (2y follow-up)

- Rate of return to sports
- Time to return to sports
- Number of new dislocation episodes

RESULTS

- A total of 43 patients were included (21.7 ± 7.7 years, 22.0 ± 3.6 kg/m^2, 44% males, 61% left knees).
  - 29 isolated MPFL reconstruction
  - 14 MPFL+MQTFL reconstruction
- The median number of previous dislocations was 3 (IQR, 4).
- Seven patients reported previous surgical interventions (any knee), with an overall rate of 0.23 ± 0.57 of previous surgeries per patient.
- Age, body mass index, sex, number of previous dislocations, and Kujala and VAS were homogenous at baseline between groups (p>0.05).

		MPFL	MPFL+MQTFL	p-value
Sample size		29	14	
Sex	Female	18 (62%)	6 (43%)	p=0.235**
	Male	11 (38%)	8 (57%)	
Age (years)		20 (8.0)	17.5 (11.0)	p=0.585*
Leg dominance	Right	9 (31%)	8 (57%)	p=0.101**
	Left	20 (69%)	6 (43%)	
BMI (Kg/m²)		20.8 (6.0)	20.8 (5.0)	p=0.756*
Duration of symptoms		24.0 (78.0)	24.0 (129.0)	p=1.000*
Number of previous dislocations		3.0 (4.0)	3 (25.25)	p=0.623*
Associated Elmslie procedure		10 (34%)	2 (14%)	p=0.279**
VAS		7.0 (5.0)	5.5 (5.0)	p=0.783*
Kujala		58.0 (24.0)	65.0 (23.0)	p=0.058*

*** Independent-Samples Mann-Whitney U Test**

**** Chi-squared or Fisher's Exact Test.**

Data presented as median (IQR) or n (%).

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RESULTS

Both groups improved significantly from baseline to 2-year follow-up.

	MPFL			MPFL+MQTFL		
	Baseline	**2-year**	**Sig**	**Baseline**	**2-year**	**Sig**
VAS	7.0 (5.0)	0.0 (3.0)	p<0.001*	5.5 (5.0)	2.0 (2.0)	p=0.004*
Kujala Score	58.0 (24.0)	92.0 (11.0)	p<0.001*	65.0 (23.0)	92.0 (7.0)	p=0.003*

***Wilcoxon Signed Ranks Test.**

Data presented as median (IQR).

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RESULTS

The Kujala and VAS were comparable between groups at 2-year follow-up.

Improvement in Kujala and VAS scores was also similar between groups.

	MPFL	MPFL+MQTFL	Sig
VAS (at 2-year)	0.0 (3.0)	2.0 (2.0)	p=0.877*
VAS (pre-post improvement)	-5.0 (5.0)	-4.0 (6.3)	p=0.497*
Kujala (at 2-year)	92.0 (11.0)	92.0 (7.0)	p=0. 907*
Kujala (pre-post improvement)	31.0 (18.0)	20.5 (49.0)	p=0.826*

***Independent-Samples Mann-Whitney U Test.**

Data presented as median (IQR).

RESULTS

Only one patient in isolated MPFL group had a new dislocation episode.

From the 30 patients that are athletes, the rate of return to sports was comparable between groups.

Although not statistically significant, those in MPFL+MQTFL group returned faster to sports (4.9 ± 2.1 vs 8.2 ± 5.0 months).

	MPFL	MPFL+MQTFL	Sig
Rate of RTS (%)	17 (90%)	9 (85%)	p=1.000**
Time to RTS (months)	4.9 ± 2.1	8.2 ± 5.0	p=0.131*

***Independent-Samples Mann-Whitney U Test. ** Fisher's Exact Test.**

Data presented as median (IQR) or n (%).

CONCLUSION

Isolated MPFL reconstruction and combined reconstruction of the MPFL and MQTFL show comparable clinical and functional outcomes at 2 years follow-up.

Despite the similar rate of return to sports, those with combined reconstruction of the MPFL and MQTFL returned faster.

These results should however be considered with caution as these are still preliminary and with a low sample size.