



# A COMPARISON OF TRANSOSSEOUS SUTURES VERSUS SUTURE ANCHORS FOR QUADRICEPS TENDON REPAIRS

POSTER #2

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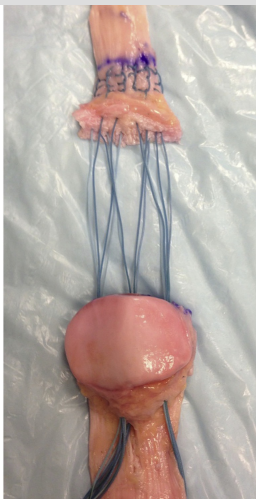
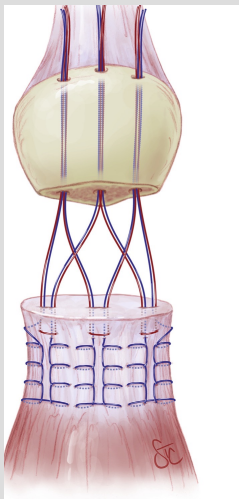


# DISCLOSURE OF INTEREST

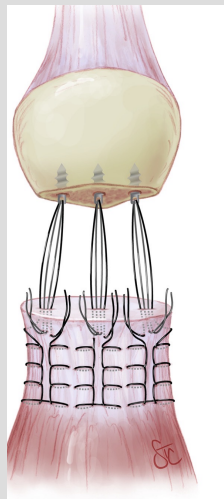
All researchers declare nothing of interest to disclose.

# STUDY OBJECTIVE

**Figure A**



**Figure B**



**Figure A:** the transosseous suture repair technique as an illustration (left) and on a cadaver (right).

**Figure B:** the suture anchor repair technique as an illustration (left) and on a cadaver (right).

- A quadriceps tendon rupture (QTR) is a debilitating injury that is most often sustained by males over the age of 50.
- Diabetes, rheumatoid arthritis, obesity, chronic renal failure, gout, and peripheral vascular disease are common risk factors for a quadriceps tendon rupture.
- Several repair options are available for a QTR. Two popular techniques utilize transosseous sutures and suture anchors (e.g., SwiveLock anchors).
- A cadaveric study on quadriceps tendons found suture anchors provided better biomechanical results when compared to transosseous sutures<sup>1</sup>.
- There is no consensus on the optimal repair technique for QTRs as it is largely dictated by surgeon preference and the literature comparing repair techniques is scarce.

<sup>1</sup>Ettinger M, Dratzidis A, Hurschler C, Brand S, Calliess T, Krettek C, Jagodzinski M, Petri M. Biomechanical properties of suture anchor repair compared with transosseous sutures in patellar tendon ruptures: a cadaveric study. Am J Sports Med. 2013 Nov;41(11):2540-4. doi: 10.1177/0363546513500633.

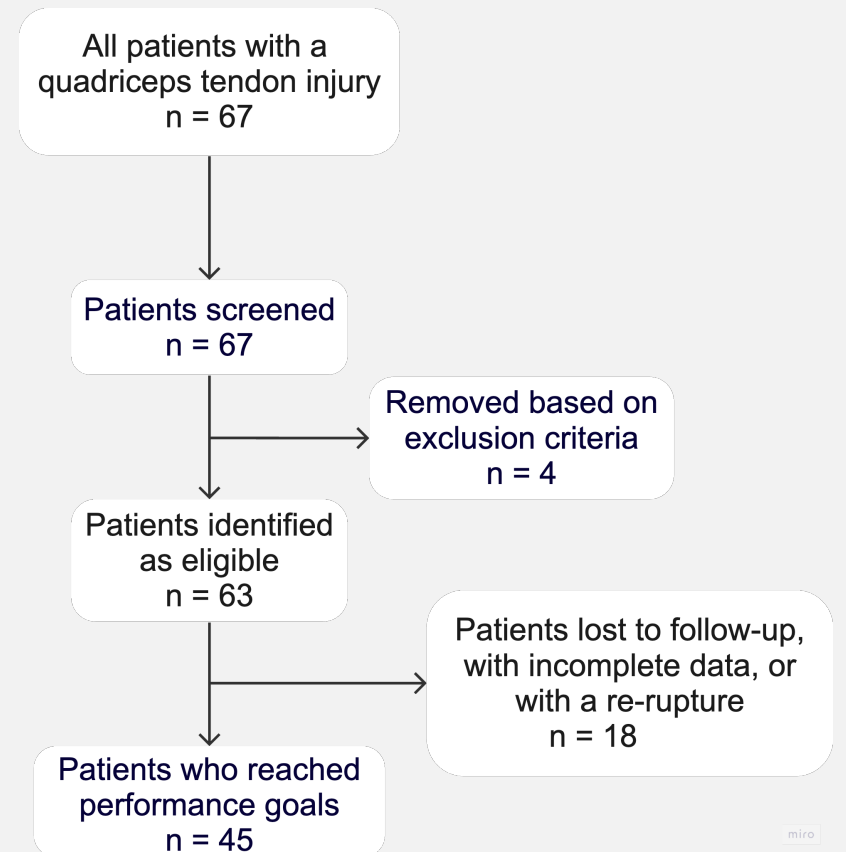
To compare reoperation rates, time to medical clearance, and perceived quality of life for patients who underwent a quadriceps tendon repair using several different repair techniques.



PURPOSE

# MATERIALS AND METHODS

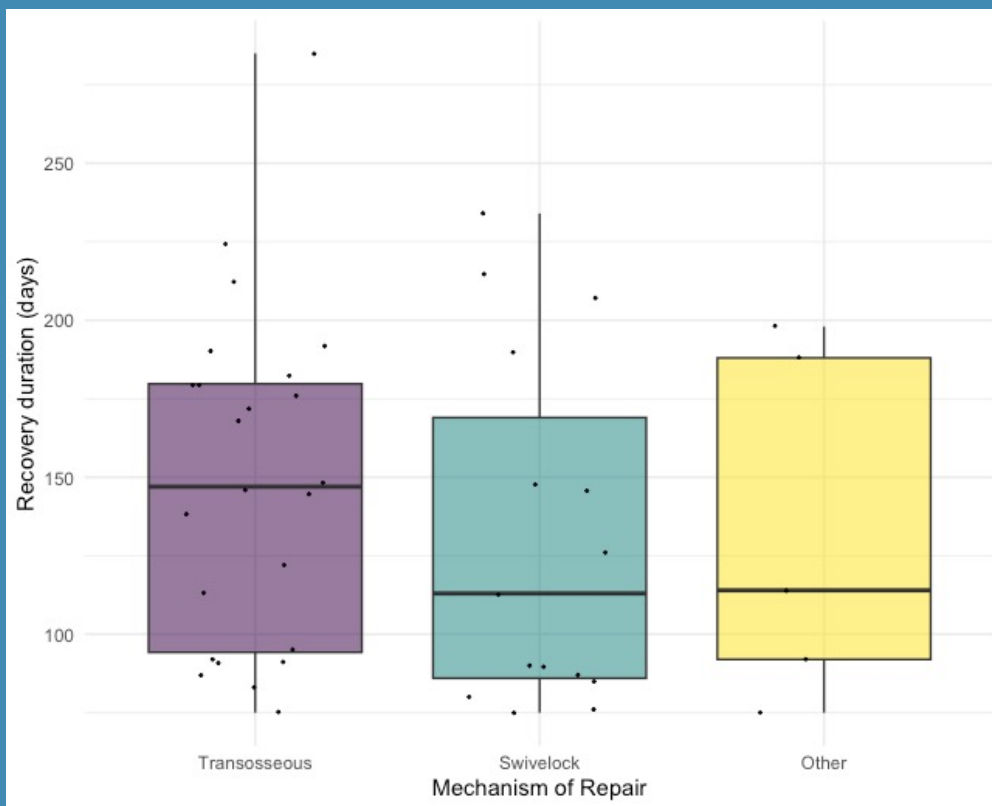
- This retrospective study included 67 patients (18-90 years old) who sustained a QTR and received surgical treatment during the years 2018 to 2022.
- Patients were included if they obtained medical clearance or reached all clinical benchmarks (i.e., pain-free and full function) for clearance.
- Patients were excluded from this study if they were younger than 18 or older than 90 years old or if it was determined that they did not receive surgery.
- The recovery status of each patient was tracked until medical clearance was reached.
- Reoperation rates, use of walking assistance, pain scores, and number of follow-up appointments were tracked to assess differences between repair techniques; patients lost to follow-up or with incomplete data were excluded.



	Total cohort (n=45)	Transosseous suture (n=25)	Suture anchor (n=15)	Other technique (n=5)	P Value
<b>Age (years)</b>	61.0 ± 15.1	60.8 ± 15.2	62.1 ± 13.1	58.6 ± 22.8	0.896
<b>BMI (kg/m<sup>2</sup>)</b>	33.2 ± 8.8	32.4 ± 7.7	32.5 ± 5.1	39.6 ± 18.5	0.832
<b>Sex (Male   Female)</b>	34   10	19   5	12   3	3   2	0.76
<b><u>Comorbidities</u></b>					
Diabetes	6 (13.3%)	4 (16%)	1 (6.7%)	1 (20%)	0.563
Hypertension	23 (51.1%)	12 (48%)	8 (53.3%)	3 (60%)	1
Gout	3 (6.7%)	2 (8%)	1 (6.7%)	0 (0%)	1
Hx of Smoking	13 (28.9%)	8 (32%)	4 (26.7%)	1 (20%)	0.899
Corticosteroid Use	1 (2.2%)	0 (0%)	1 (6.7%)	0 (0%)	0.465
<b>Time to surgery (days)</b>	8 [IQR: 5.5]	8.7 [IQR: 7.0]	7.2 [IQR: 2.0]	6.4 [IQR: 3]	0.805
<b>Reoperation Rate</b>	1 (2.2%)	1 (4.0%)	0 (0%)	0 (0%)	1
<b>Time to no pain (days)</b>	48.6 [IQR: 40.0]	60.7 [IQR: 45.5]	29.2 [IQR: 32]	46.5 [IQR: 35]	0.147
<b>Recovery duration (days)</b>	146.3 ± 63.3	158.2 ± 68.2	130.8 ± 56.0	133.4 ± 56.3	0.522
<b>PT attendance</b>	86.70%	80%	100%	80%	0.384

# RESULTS

Legend: BMI, Body Mass Index; Hx, History; PT, Physical Therapy; IQR, Interquartile Range



## RESULTS

Average recovery duration (in days) was not significantly different between the three repair techniques ( $P = 0.522$ ).

## STUDY CONCLUSIONS

- Recovery duration, PT attendance rates, and re-rupture rates did not differ between repair techniques.
- Time to no pain model was significantly different, but after adjusting for multiple comparisons there were no group differences.
- Additional clinical factors warrant further investigation to determine if they influence the risk of poor outcomes following repair.
- Future studies with a larger cohort will be necessary to determine if there are differences in outcomes for patients who underwent QTR repair using different techniques.
- Additionally, we believe it is worth investigating if the results from this quadriceps tendon cohort are similar in a patellar tendon cohort.



# SIGNIFICANCE

- Currently, there is no consensus on the appropriate repair technique (suture anchors or transosseous sutures) for quadriceps tendon rupture repairs the adult population and our cohort did not find a clear advantage in techniques.
- Identifying underlying complications and risk factors in patients undergoing the operation and tracking their progress would contribute to the current body of evidence.
- Tailoring a quadriceps tendon repair technique for an individual could lead to improved quality of life, decreased recovery time, lower reoperation rates, and further alignment with the patient-center care model. These benefits are especially important for individuals who likely cannot afford a costly revision surgery, cannot take off extended time from work, or patients who must remain physically independent.



QUESTIONS?

