

MRI Measurement of TT-TG Can Change Without Intervention: An Analysis of Sequential Pre-**Operative MRIs in PFI Patients**

Nicolas Pascual-Leone, BA Danielle E. Chipman, BS Ryann Davie, MD Joshua Bram, MD Douglas N. Mintz, MD Peter D. Fabricant, MD, MPH Daniel W. Green, MD, MS, FACS, FAAP

Hospital for Special Surgery, New York, NY, USA





Disclosures

NO RELEVANT DISCLOSURES

Douglas N. Mintz

Board or committee member: American College of Radiology, Society of Skeletal Radiology

Peter D. Fabricant

Editorial or governing board: Clinical Orthopaedics and Related Research Stock or stock Options: Osso VR Board or committee member: POSNA, ROCK Paid consultant: WishBone Orthopedics

Daniel W. Green

Board or committee member: AAOS, NY County Medical Society, NYS Society of Orthopedic Surgeons, PatelloFemoral Foundation, POSNA, PRiSM Paid presenter or speaker: AO Trauma International, Arthrex, Inc. Paid consultant: Arthrex, Inc. Editorial or governing board: Current Opinion in Pediatrics IP royalties: Arthrex, Inc., Pega Medical Publishing royalties, financial or material support: Wolters Kluwer Health - Lippincott Williams & Wilkins, Current Opinion in Pediatrics







- Following a patellar dislocation event, the patella can remain unstable, leading to patellofemoral instability (PI)
- There are various anatomic risk factors for PI that help guide surgical treatment, including the tibial tubercle to trochlear groove (TT-TG) distance
- To the authors' knowledge, no study has analyzed the temporal changes in TT-TG prior to any surgical intervention
- This study sought to understand the variations in TT-TG for pediatric patients suffering from patellar instability prior to any surgical intervention
- Hypothesis: TT-TG would not substantially change between timepoints









- Patients undergoing medial patellofemoral ligament (MPFL) reconstruction using CPT code 27427 were identified
 - Included:
 - 2 pre-operative MRIs performed of the same Ο knee within 8 months of each other prior to any surgical intervention
 - Initial TT-TG between 10 mm and 20 mm Ο
 - Excluded:
 - Previous ipsilateral knee surgery Ο
 - Planned MPFL reconstruction with tibial \bigcirc tubercle osteotomy



Initial and subsequent TT-TG measurements were compared using paired-samples t-tests with two-tailed statistical significance set at p ≤0.05

Variable	Number (%)
Total	20 (100%)
Age:	14.5 ± 2.5
Sex:	
Male	8 (38.1%)
Female	13 (61.9%)
Race:	
White	17 (81.0%)
Black/African American	0 (0%)
Asian	0 (0%)
Other	2 (9.5%)
Did Not Respond	2 (9.5%)
Ethnicity:	
Hispanic	2 (9.5%)
Not Hispanic	17 (81.0%)
Did Not Respond	2 (9.5%)
Laterality:	
Left	10 (47.6%)
Right	11 (52.4%)

Table 1: Demographics of included cohort (n=26).





- After considering 251 patients for inclusion, 26 patients met inclusion criteria and were analyzed
 - Mean age = 14.5 ± 2.4 years
 - 42.3% male
- TT-TG was initially noted to be 15.3 ± 1.8 mm
- At mean time between sequential MRI's of 4.8 ± 1.9 months, TT-TG was noted to be 17.1 ± 3.5 mm
- Differences between initial and subsequent TT-TG ranged from a 21% decrease to a 61% increase, with a mean difference of a 12.1% increase
- Comparison between initial and subsequent TT-TG values demonstrated a significant difference (p=0.006)









Conclusion

- At a mean time between MRIs of 4.8 months, variations in TT-TG ranged from a decrease of 21% to an increase of 61%
- Suggest that TT-TG measurements may vary in patients on sequential MRIs and could be due to variations in tibiofemoral rotation during imaging
- Surgeons should be aware of these variations when planning surgical correction for patellar instability











*** Lerner Children's Pavilion



Contact Information: Daniel W. Green, greendw@hss.edu

Thank you!





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