



PREDICTIVE VALUE OF EXAMINATION UNDER ANESTHESIA IN PATIENTS UNDERGOING ISOLATED MEDIAL PATELLOFEMORAL LIGAMENT RECONSTRUCTION

Zachary Wang BS, Kevin Credille BSE, MS, Navya Dandy MD, Tristan Elias BA, Erik Haneberg BS, Vince Morgan MD, Adam B. Yanke MD PhD

1. Rush University Medical Center, Chicago IL 60612

BACKGROUND

- Prior to medial patellofemoral ligament reconstruction (MPFLR), an exam under anesthesia (EUA) can assess patellar tracking and stability
- In patients who failed MPFLR, patellar instability at > 30 degrees of knee flexion on EUA has been observed (Fathalla)
- Patellar apprehension past 60° of knee flexion is associated with patella alta, an increased TT-TG distance, and trochlear dysplasia (Colatruglio)

PURPOSE

Evaluate patient reported outcome scores (PROs) and failure rates of patients undergoing primary, isolated MPFLR relative to their EUA findings to further examine the utility of an EUA in surgical decision-making

HYPOTHESIS:

Patients whose patella continues to subluxate past 60° of knee flexion when a lateral force is applied during an EUA will have worse PROs and an increased rate of re-dislocation at a minimum 2-year final follow up

METHODS

- A retrospective review was performed on 96 patients who underwent primary, isolated MPFLR between August 2015 and April 2020
- **Inclusion criteria:** (1) recorded EUA, (2) minimum 1-year follow up from date of surgery, and (3) patients between 20 and 80 years of age
- PROs, including IKDC, Koos Jr, and Kujala questionnaire, were collected preoperatively, at 1-year, and at 2-year minimum
- The degree of knee flexion when the lateral force applied to the patella would no longer cause subluxation was recorded, with flexion measurements $\geq 60^\circ$ considered elevated

1 Year PROs	Mean	P-Value
IKDC 1Y Final		
Flexion Angle < 60°	84.08 ± 15.64	
Flexion Angle $\geq 60^\circ$	80.10 ± 21.62	0.40
KOOS Jr 1Y Final		
Flexion Angle < 60°	88.26 ± 15.71	
Flexion Angle $\geq 60^\circ$	87.13 ± 15.60	0.78
Kujala 1Y Final		
Flexion Angle < 60°	90.61 ± 10.18	
Flexion Angle $\geq 60^\circ$	90.10 ± 12.15	0.85
IKDC 1Y Delta		
Flexion Angle < 60°	33.31 ± 23.12	
Flexion Angle $\geq 60^\circ$	25.44 ± 21.59	0.17
Koos Jr 1Y Delta		
Flexion Angle < 60°	16.77 ± 18.70	
Flexion Angle $\geq 60^\circ$	15.32 ± 15.62	0.75
Kujala 1Y Delta		
Flexion Angle < 60°	27.68 ± 17.91	
Flexion Angle $\geq 60^\circ$	25.10 ± 16.72	0.58

Table 1. 1-year PROs (Flexion Angle < 60° vs $\geq 60^\circ$)

2 Year PROs	Mean	P-Value
IKDC 2Y Final		
Flexion Angle < 60°	88.60 ± 10.98	
Flexion Angle $\geq 60^\circ$	74.24 ± 22.16	< 0.01
KOOS Jr 2Y Final		
Flexion Angle < 60°	89.10 ± 14.32	
Flexion Angle $\geq 60^\circ$	83.51 ± 14.42	0.19
Kujala 2Y Final		
Flexion Angle < 60°	95.55 ± 6.67	
Flexion Angle $\geq 60^\circ$	78.57 ± 18.45	< 0.01
IKDC 2Y Delta		
Flexion Angle < 60°	37.94 ± 16.10	
Flexion Angle $\geq 60^\circ$	25.86 ± 21.21	0.03
Koos Jr 2Y Delta		
Flexion Angle < 60°	21.79 ± 20.73	
Flexion Angle $\geq 60^\circ$	15.74 ± 19.14	0.31
Kujala 2Y Delta		
Flexion Angle < 60°	32.1 ± 15.86	
Flexion Angle $\geq 60^\circ$	20.87 ± 19.62	0.04

Table 2. 2-year PROs (Flexion Angle < 60° vs $\geq 60^\circ$)

RESULTS

- 6 of 96 patients (6.25%) re-dislocated their patella at a minimum 2-year follow up
- Patients with continued lateral instability at flexion $\geq 60^\circ$ had inferior 2-year minimum final and delta patient reported outcome scores [Final: IKDC ($p < 0.01$), Kujala ($p < 0.01$); Delta: IKDC ($p = 0.03$), Kujala ($p = 0.04$)] (**Table 2**)
- Flexion angle when instability resolved did not significantly correlate with re-dislocation post MPFLR ($p=0.59$)
- Average tibial tubercle to trochlear groove distance (TT-TG) for patients with a flexion measurement < 60° was 14.64 ± 4.78 , compared to 16.84 ± 5.29 for patients $\geq 60^\circ$ (P-value = 0.11).

CONCLUSION

- Continued ability to laterally translate the patella past 60° of knee flexion during an EUA correlates with inferior functional outcomes at minimum 2-years (IKDC and Kujala)
- Patients with patellar instability at $\geq 60^\circ$ knee flexion may benefit from a TTO or trochleoplasty addressing risk factors such as patella alta or trochlear dysplasia
- While risk factors are currently evaluated radiologically, the EUA can potentially augment the patellar instability surgical treatment algorithm for borderline cases

REFERENCES

- Colatruglio, Matthew et al. "Identifying Patients With Patella Alta and/or Severe Trochlear Dysplasia Through the Presence of Patellar Apprehension in Higher Degrees of Flexion." *Orthopaedic journal of sports medicine* vol. 8,6 2325967120925486. 1 Jun. 2020, doi:10.1177/2325967120925486
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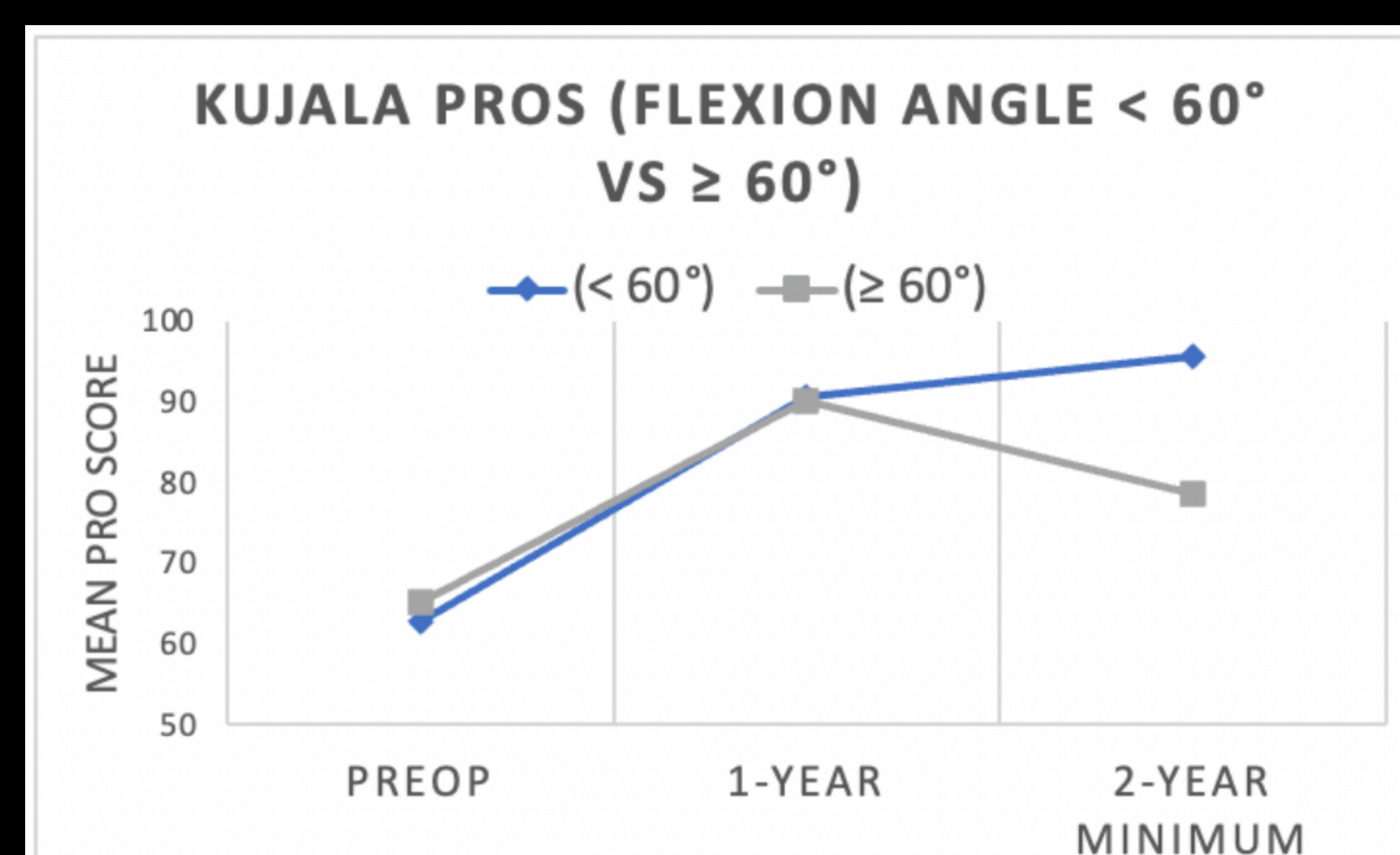


Figure 1. Kujala Final PROs (Flexion Angle < 60° vs $\geq 60^\circ$)