

TIME FROM ACL INJURY TIME TO SURGERY: EVALUATING A MULTIFACETED SET OF POTENTIAL PREDICTORS

CLAIRE F. GIACHINO, HANNAH ROSSING,
DAVID R. HOWELL PHD, ATC, CURTIS
VANDENBERG MD, JAY C ALBRIGHT MD



Children's Hospital Colorado
Sports Medicine Center



School of Medicine
UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS



There are no disclosures.

Background

- Existing studies show lower socioeconomic status may cause longer time from injury to surgery for pediatric ACL reconstructions
- Multifaceted set of potential factors related to injury-to-surgery timing may reveal additional variables



Purpose

- To examine which variables predicted time from ACL injury to surgery
- Hypothesis: Greater proportion of patients with public insurance would have an injury-to-surgery time ≥ 45 days post injury compared to those with private insurance



Methods

1

- Retrospective
- January 15, 2019 to May 18, 2021
- Two surgeons at one pediatric sports medicine center

2

- Patients were categorized as:
 - underwent surgery ≥ 45 days post-injury
 - underwent surgery < 45 days post-injury

3

- Patients completed pre-operative assessments:
 - demographics
 - injury/surgical info.
 - patient-reported outcomes
 - grit
 - PROMIS
 - HSS Pedi-FABS

RESULTS

- We enrolled 116 patients during their pre-operative visit.
- Half of the participants (n=58) underwent surgery within 45 days of their injury.

Table 1. Demographic and socio-economic characteristics of the two groups.

Variable		Injury to Surgery Time ≥45 Days (N=58)	Injury to Surgery Time <45 Days (N=58)	P value
Time from injury to surgery (days)		99.5 (8.3)	30.2 (9.0)	-
Time from pre-operative assessment to surgery (days)		24.4 (19.4)	12.4 (9.3)	-
Age (years)		16.1 (2.8)	15.5 (2.4)	0.18
Sex (female)		35 (60%)	44 (76%)	0.10
Insurance (public)		28 (48%)	8 (14%)	< 0.001*
Family affluence (FAS score)		12.4 (2.1)	13.1 (1.7)	0.08
Height (cm)		167.9 (8.6)	165.4 (8.7)	0.13
Weight (kg)		67.6 (19.3)	62.1 (14.8)	0.10
Competitive athlete		46 (79%)	54 (93%)	0.03*
Skeletally mature		42 (81%)	33 (61%)	0.03*
Race	Asian	3 (5%)	1 (2%)	0.69
	Black or African American	5 (9%)	5 (9%)	
	White	31 (53%)	39 (67%)	
	More than one race	5 (9%)	5 (9%)	
	Unknown or not reported	14 (24%)	8 (14%)	
Ethnicity	Hispanic or Latino	18 (31%)	10 (17%)	0.18
	Not Hispanic or Latino	35 (60%)	44 (76%)	
	Unknown or Not Reported	5 (9%)	4 (7%)	

SIGNIFICANT CHARACTERISTICS

	Variable	Injury to Surgery Time \geq 45 Days (N=58)	Injury to Surgery Time <45 Days (N=58)	P value
1	Insurance (public)	28 (48%)	8 (14%)	<0.001*
2	Competitive athlete	46 (79%)	54 (93%)	0.03*
3	Skeletally Mature	42 (81%)	33 (61%)	0.03*

RESULTS

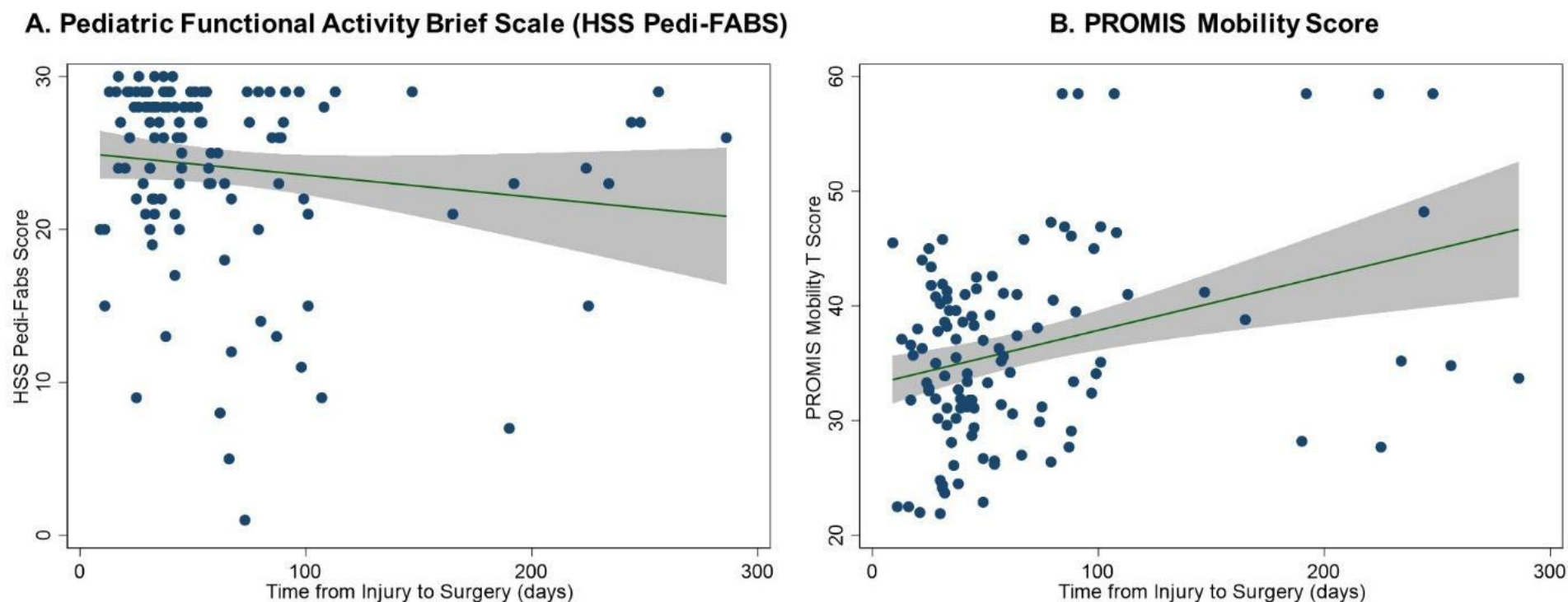


Figure 1. Scatterplot, line of best fit (shaded area represents the 95% confidence interval) describing the relationship between time from injury to surgery and HSS Pedi-FABS and PROMIS Mobility scores.

Results

Table 2. Multivariable regression model describing the relationship between potential predictor variables and time from ACL injury to surgery time.

Predictor Variable	β coefficient	95% confidence interval	P value
Public Insurance	41.7	17.4, 65.9	0.001*
Competitive Athlete	0.5	-35.2, 36.1	0.98
Skeletally Mature	20.8	-16.4, 58.0	0.27
Transphyseal Surgery Approach	1.5	-34.4, 37.5	0.93
HSS Pedi-FABS score	-1.5	-3.6, 0.6	0.17
PROMIS Mobility score	2.0	0.7, 3.4	0.003*

*p<0.05

CONCLUSION

Summary:

The two most prominent predictors of delays:

- public insurance status
- self-reported post-injury mobility

Implications:

Delays for ACL surgery may have to do with self-reported functional status in addition to insurance status

References:

- 1. Patel, Akash R. BSA; Sarkisova, Natalya BSA; Smith, Ryan MDA; Gupta, Kavish BSb; VandenBerg, Curtis D. MDA,b,* Socioeconomic status impacts outcomes following pediatric anterior cruciate ligament reconstruction, Medicine:April2019-Volume98-Issue17-pe15361doi: 10.1097/MD.00000000000015361
- 2. Ziedas A, Abed V, Swantek A, Cross A, Chaides S, Rahman T, Makhni EC. Social Determinants of Health Influence Access to Care and Outcomes in Patients Undergoing Anterior Cruciate Ligament Reconstruction: A Systematic Review. Arthroscopy. 2022 Feb;38(2):583-594.e4. doi: 10.1016/j.arthro.2021.06.031. Epub 2021 Jul 9. PMID: 34252555.