

Patient Acceptable Symptom State (PASS) Thresholds for the Lysholm Knee Scoring Scale in Patients Undergoing ACL Reconstruction

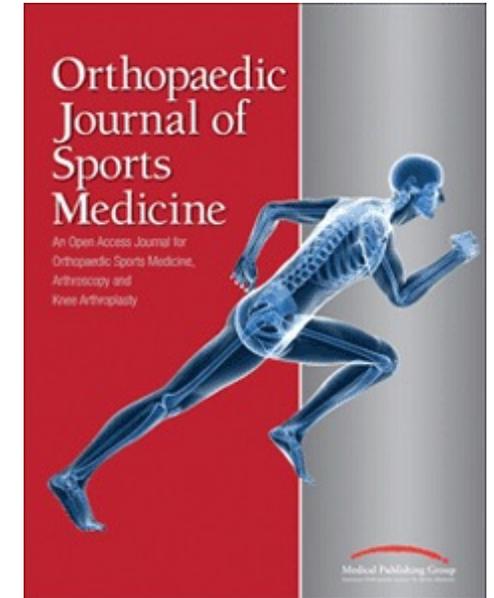
Andre Giardino



Original Research

Patient Acceptable Symptom State Thresholds for the Lysholm Knee Scoring Scale in Patients After Anterior Cruciate Ligament Reconstruction

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Rating Systems in the Evaluation of Knee Ligament Injuries

YELVERTON TEGNER, M.D., AND JACK LYSHOLM, M.D., PH.D.

1985

The top 3 most commonly reported PROMs:

IKDC (63.0%)

Lysholm (60.2%)

Tegner (43.5%)

Abed et al, AJSM, 2024

TABLE 1. Lysholm Knee Scoring Scale

1	Limp (5 points)	
	None	5
	Slight or periodical	3
2	Severe and constant	0
	Support (5 points)	
	None	5
3	Stick or crutch	2
	Weight-bearing impossible	0
	Locking (15 points)	
4	No locking and no catching sensations	15
	Catching sensation but no locking	10
	Locking	
5	Occasionally	6
	Frequently	2
	Locked joint on examination	0
6	Instability (25 points)	
	Never giving way	25
	Rarely during athletics or other severe exertion	20
7	Frequently during athletics or other severe exertion (or incapable of participation)	15
	Occasionally in daily activities	10
	Often in daily activities	5
8	Every step	0
	Pain (25 points)	
	None	25
9	Inconstant and slight during severe exertion	20
	Marked during severe exertion	15
	Marked on or after walking more than 2 km	10
10	Marked on or after walking less than 2 km	5
	Constant	0
	Swelling (10 points)	
11	None	10
	On severe exertion	6
	On ordinary exertion	2
12	Constant	0
	Stair-climbing (10 points)	
	No problems	10
13	Slightly impaired	6
	One step at a time	2
	Impossible	0
14	Squatting (5 points)	
	No problems	5
	Slightly impaired	4
15	Not beyond 90°	2
	Impossible	0

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<65: poor

65–83: fair

84–94: good

95–100: excellent

Interpretation of absolute scores remains challenging

Patient satisfaction not always reflected by high scores

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Good postoperative score



Patient's perception

Measures of clinical relevance

“Feeling Better”

Minimal Clinically Important Difference (MCID)

Indicates improvement, not necessarily satisfaction

“Feeling Satisfied”

Patient Acceptable Symptom State (PASS)

Strongly associated with overall satisfaction

PASS (Patient Acceptable Symptom State)

Single Yes-or-No Anchor Question

“Considering all the activities you perform as part of your normal daily life, your level of pain, and your degree of difficulty, if you were to remain in your current condition over the next few months, would you consider your current health state satisfactory?”

Defining Thresholds for the Patient Acceptable Symptom State for the IKDC Subjective Knee Form and KOOS for Patients Who Underwent ACL Reconstruction



Bart Muller,^{*†} MD, Mohammad A. Yabroudi,^{*‡} PT, MSc, PhD, Andrew Lynch,^{*} PT, PhD, Chung-Liang Lai,^{*§} MD, PhD, C. Niek van Dijk,[†] MD, PhD, Freddie H. Fu,^{*} MD, DSc(Hon), DPs(Hon), and James J. Irrgang,^{*||} PhD, PT, ATC, FAPTA
Investigation performed at the University of Pittsburgh Medical Center, University of Pittsburgh, Pittsburgh, Pennsylvania, USA

PASS threshold:

IKDC: 75.9

KOOS pain: 88.9

KOOS symptoms: 57.1

KOOS ADL: 100.0

KOOS sport/rec: 75.0

KOOS QoL: 62.5

Objectives

Primary:

To define PASS cutoff value for the Lysholm score in patients after ACL reconstruction.

Secondary:

To assess factors associated with failure to achieve the PASS cutoff value.

Methods

Post-ACLR Cohort (≥ 2 -Year Follow-up)

Inclusion:

>17 years-old

Anatomic ACL reconstruction

Meniscal injuries included

Exclusion:

Osteotomies

Peripheral reconstructions

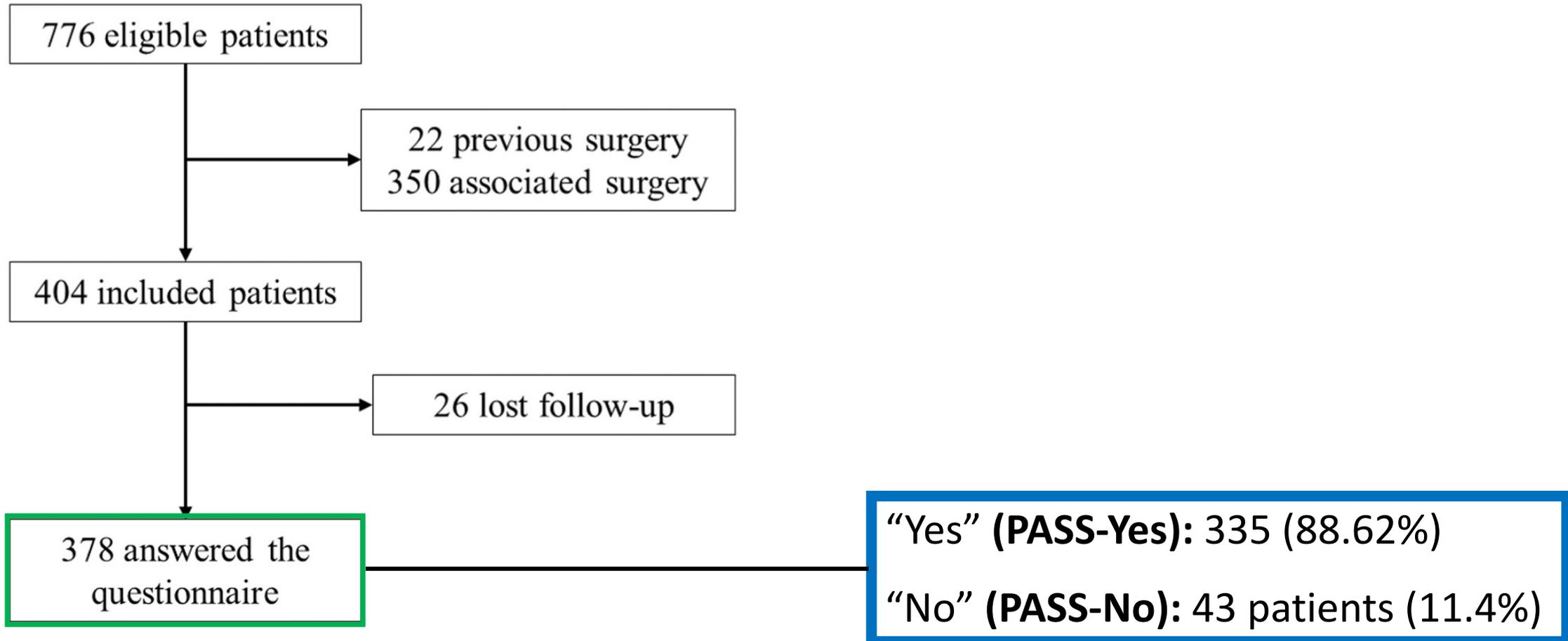
Chondral repair

Previous knee surgeries

Lysholm score and PASS anchor question were collected at follow-up

ROC curve analysis was performed to determine the PASS cutoff

Results



Results

Baseline characteristics



No statistically significant differences in **age, sex, time from injury to surgery, follow-up time, graft type or diameter, pre op pivot shift, meniscal injury and treatment**

Results

	PASS-No N=43	PASS-Yes N=335	P-value
Lysholm	71.1 ± 12.2	90.9 ± 5.3	< 0.001

Results

		PASS-No N=43	PASS-Yes N=335	P-value
Preop knee hyperextension (°)		6.0 ± 4.9	3.9 ± 4.2	0.008
Postop Pivot shift (0 to 3), n (%)	0	9 (20.9)	235 (70.1)	< 0.001
	1	25 (58.2)	100 (29.9)	
	2	9 (20.9)	0 (0)	

Results

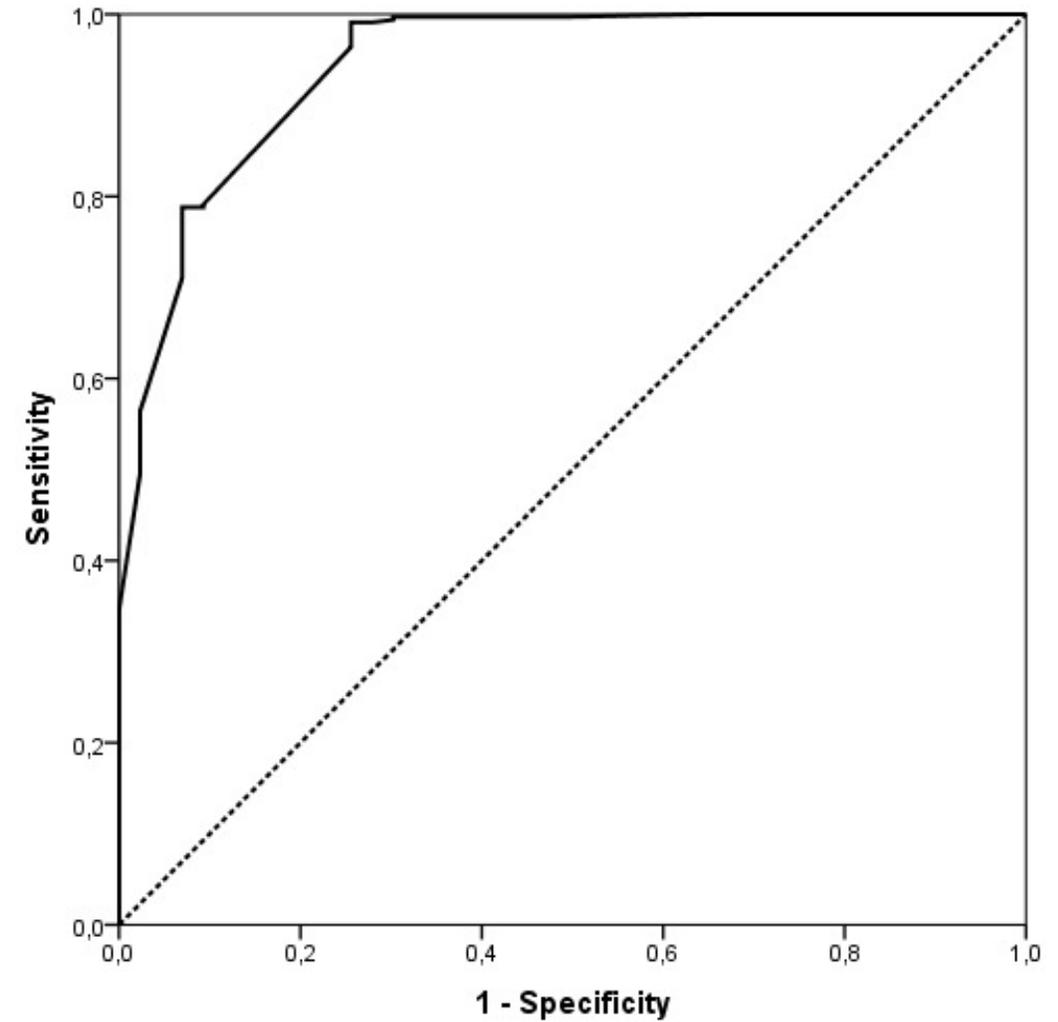
		PASS-No N=43	PASS-Yes N=335	P-value
Did you sustain any further injury to your operated knee after ACL surgery?	No	21 (48.8)	303 (90.4)	< 0.001
	Yes	22 (51.2)	32 (9.6)	

Results

		PASS-No N=43	PASS-Yes N=335	P-value
Did you undergo any additional surgery on the same knee after your ACL reconstruction?	No additional surgery	25 (58.1)	312 (93.1)	--
	Revision ACLR	11 (25.6)	0 (0)	--
	Meniscus surgery	5 (11.6)	9 (2.7)	0.001
	Arthroscopy	1 (2.3)	11 (3.3)	0.906
What type of surgery was it? n (%)	Other ligament reconstruction	1 (2.3)	3 (0.9)	0.224

Results

AUC	CI (95%)	Cutoff	Sensibility	Specificity
0.944	[0.906 - 0.981]	85.0	79.1%	90.7%



Discussion

PASS cutoff point on the Lysholm score: **85 points!**

PASS cutoff point on the IKDC score: **75.9 points**

(Muller et al, AJSM, 2016)

Why is the PASS for the Lysholm Scale high after ACL reconstruction?

Discussion

PASS Thresholds

Cartilage repair

PASS-IKDC: **62.1** / PASS-Lysholm: **70**

Chahal et al, AJSM, 2021

Patellar instability

PASS-IKDC: **73.2** / PASS-Lysholm: **75.5**

Qiao et al, Arthroscopy, 2024

Meniscal allograft

PASS-IKDC: **36** / PASS-Lysholm: **66.5**

Liu et al, OJSM, 2019

ACL reconstruction

PASS-IKDC: **75.9** / PASS-Lysholm: **85**

Muller et al, AJSM, 2016 / Okuma et al, OJSM 2025

Discussion

Why is the PASS for the Lysholm Scale high after ACL reconstruction?

- The scale emphasizes basic symptoms and daily-life functions such as:
 - *Limping*
 - *Use of walking aids*
 - *Stair climbing*
 - *Locking and swelling*
- After ACL reconstruction and rehabilitation:
 - *Most patients do not limp or require external support*
 - *Have minimal difficulty with stairs*
 - *Rarely report locking or swelling*
- As a result, patients easily score high points across multiple items

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Discussion

Implications of a high PASS threshold

- A high Lysholm score does **not necessarily indicate**:
 - Full functional recovery
 - Return to high-demanding activities / pre-injury performance
 - Complete patient satisfaction
- Scores shall be interpreted considering:
 - The scale is more focused on basic functions
 - May not fully capture the specific functional demands of ACL-reconstructed patients

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Conclusions

PASS cutoff point on the Lysholm score: **85 points!**

Factors associated with failure to achieve PASS:

- Higher preoperative knee hyperextension
- Residual postoperative pivot shift
- Additional meniscal surgery on the operated knee
- Revision ACL reconstruction



Obrigado!

Thank you!

