Factors Influencing Return to Sport After Pediatric and Adolescent ACL Reconstruction

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Disclosures

Philipp W. Winkler: Web editor for Knee Surgery, Sports Traumatology, Arthroscopy (KSSTA).

Kristian Samuelsson: Member of the Board of Directors in Getinge AB.

Eric Hamrin Senorski: Assoc. editor of the Journal of Orthopaedics & Sports Physical Therapy.

Objective

To evaluate clinical outcomes, the level and rate of return to sport (RTS), and predictive factors for RTS after pediatric and adolescent ACL reconstruction.

Hypothesis

Pediatric and adolescent ACL reconstruction would result in satisfactory clinical outcomes, a high rate of RTS, and the ability to compete at an elite level and that certain variables affect the rate and level of RTS.

Swedish National Knee Ligament Registry

Prospective data collection

>90% coverage for primary ACL reconstructions

***Ahldén** et al. AJSM. 2012.*

Participation on a **voluntary** basis

Surgeon-related section

Patient-related section (KOOS subscales)

Preoperative, 1-, 2-, 5-, and 10-years postoperative

Inclusion

10-18 years at primary ACLR

Autologous ACL graft

Registered in the SNKLR

Exclusion

Fractures, nerve, blood vessel, or tendon injuries

ACL repair

>48 months between injury and ACLR

Pediatric Patients

♀ 11-13 years
♂ 11-15 years

Adolescent Patients

♀ 14-18 years
♂ 16-18 years

Kooy *et al. AJSM. 2023.*
Hamrin Senorski *et al. KSSTA. 2018.*
Fabricant *et al. Orthop Clin North Am. 2016.*

Study-specific Survey

Experts in the management of ACL injuries

Aim: To assess sport-specific variables (type of sport, level of sport, etc) and RTS rates

3 patient-specific questions and 30 knee-related questions

Successful Return to Sport:

Have you returned to the sport you were active in before your first ACL injury?

- ***Yes***
- *No*

Elite Athlete

Which is the absolute highest level you have been competing in AFTER your ACL injury?

- **International competition; national team; world elite**
- **National elite (highest in your country)**
- **Elite (national classified leagues under the highest league / junior elite)**
- Active competition non-elite
- Motion and recreation

Statistical Analysis

(1) Descriptive statistics
(2) Preoperative vs. 1, 2, 5, and 10 years postoperative
(3) Pediatric vs. adolescent patients
(4) Logistic regression analysis

Demographic Data

	Total Study Group (n = 1,392)	Pediatric (n = 81)	Adolescent (n = 1,311)	*P* Value
Female, [%]	73%	24%	76%	< 0.001
Age at ACLR, [years]	16.4 ± 1.4	13.7 ± 1.4	16.5 ± 1.2	< 0.001

Time between ACLR and survey completion: **9.7 ± 4.2 years**

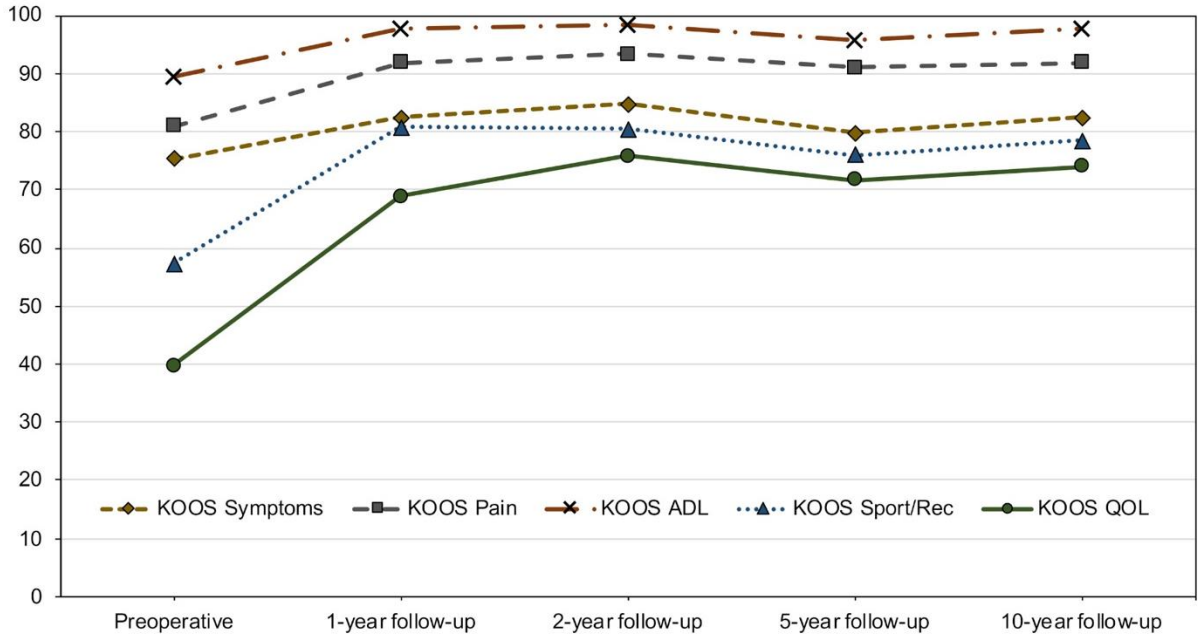
Concomitant injuries: **No difference between groups**

Type of sport before ACL injury: **No difference between groups**

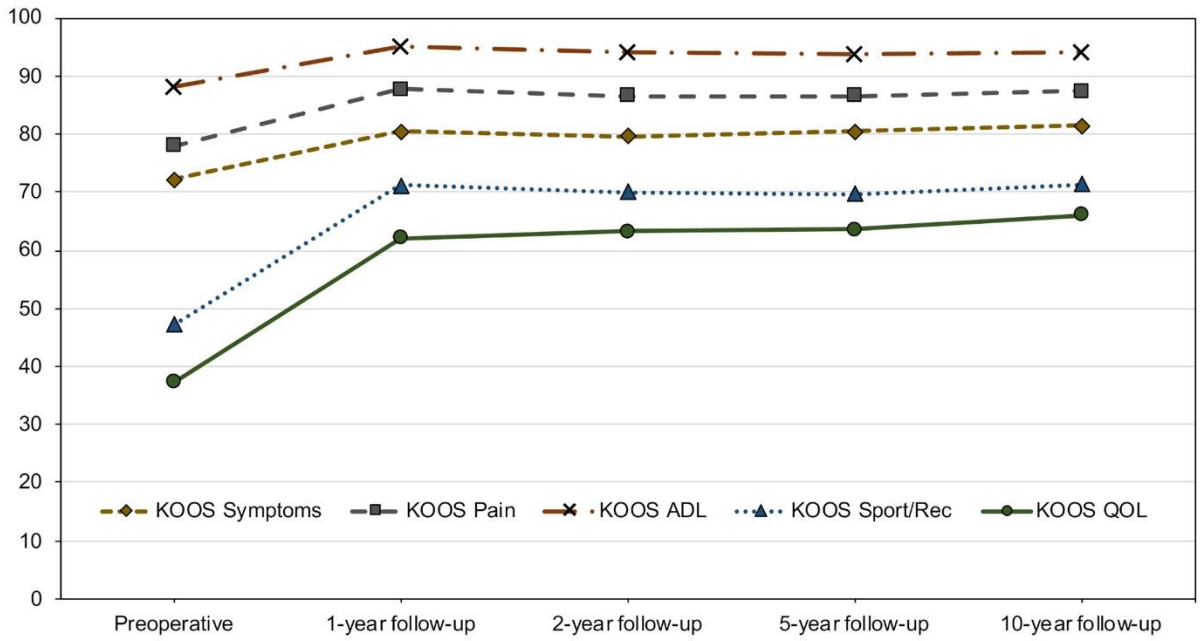
Level of sport before ACL injury: **No difference between groups**

KOOS Subscales

Pediatric patients



Adolescent patients



Significant improvements in KOOS subscales ADL, Sport/Rec, and QOL from preoperative to the 1-, 2-, 5-, and 10-year follow-ups after pediatric ACLR ($p < 0.05$).

Significant improvements in all KOOS subscales from preoperative to the 1-, 2-, 5-, and 10-year follow-ups after adolescent ACLR ($p < 0.0001$).

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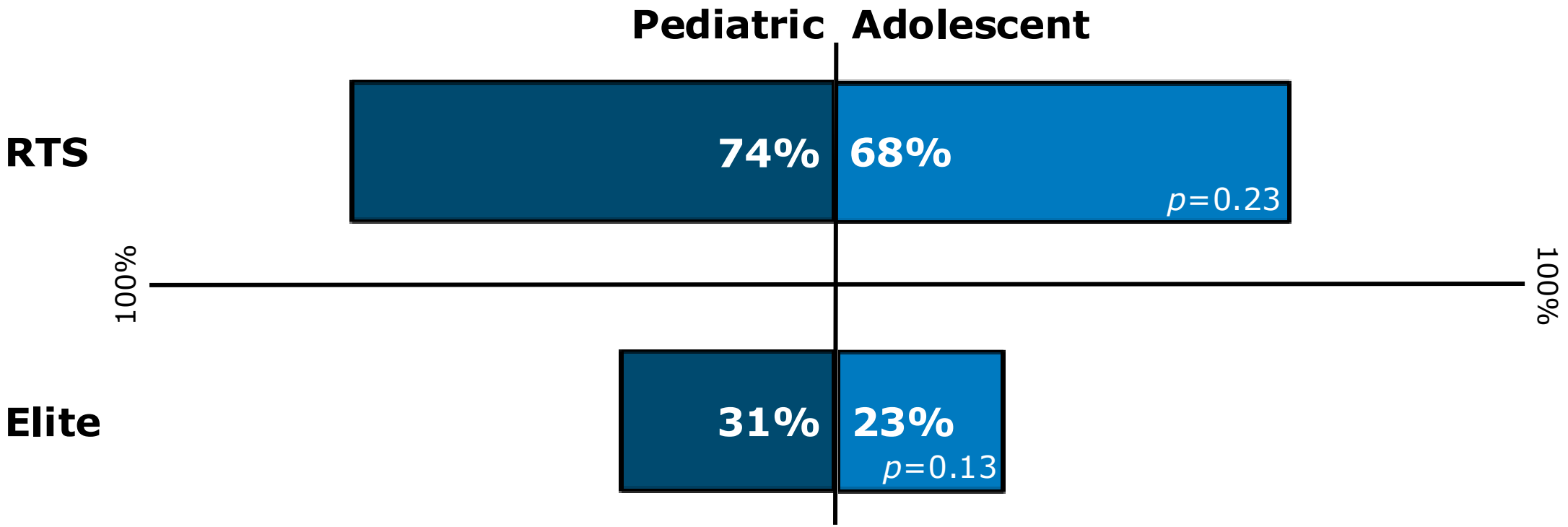
Return to Sport & Elite Level Sport



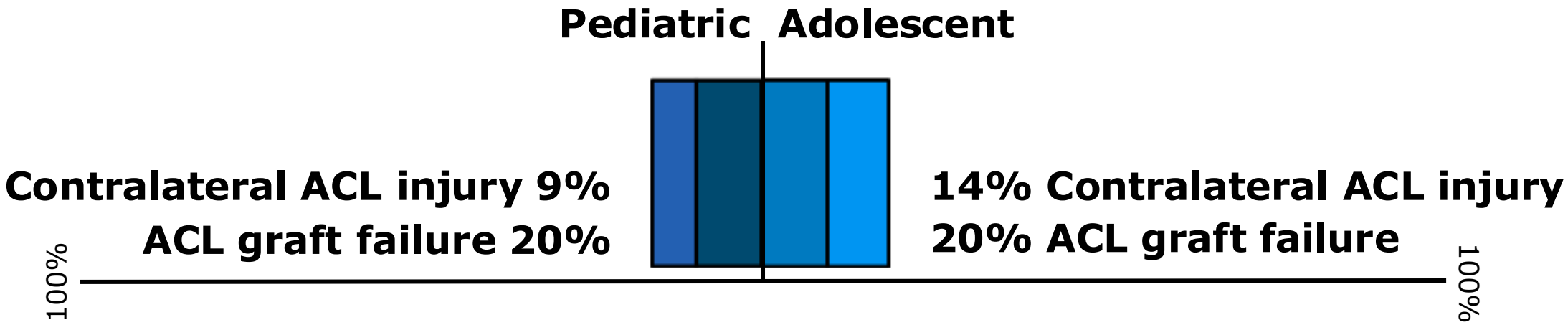
Cartilage injury at ACLR lowered the odds of pediatric and adolescent patients returning to their previous sport (OR, 0.60 [95% CI, 0.44-0.81]; p = 0.001).

No RTS & Second ACL Injury

Unable to RTS at all (physical limitations, fear, studies)

Pediatric: **6%**

Adolescent: **8%**



Long-lasting clinical improvements and high RTS rates can be expected after pediatric and adolescent ACL reconstruction.

Young athletes still have the chance to compete in elite-level sports after ACL reconstruction.

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