ISAKOS CONGRESS 2025 | MUNICH GERMANY June 8–11

IRCCS Ospedale Galeazzi, Milan, Italy

Title: Resuming Sports At Pre-Injury Level Correlates More To Patients' Perceived Knee Status And Psychological Readiness Than To Functional Ability In Athletes After Anterior Cruciate Ligament Surgery.

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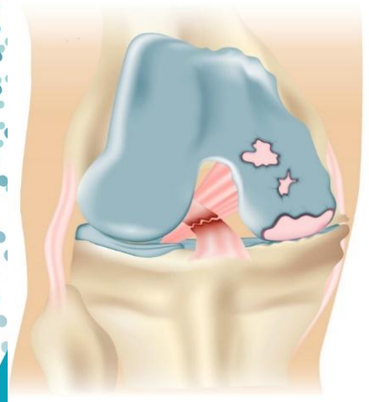
Faculty Disclosure Information

Authors have no financial relationships or conflict of interest related to the content of this presentation

INTRODUCTION

Return to sport (RTS) at pre-injury level is a high priority for athletes undergoing ACL surgery. As a result, there is increasing interest in determining safe criteria to RTS with the goal of improving clinical and functional outcomes, and minimizing complications such as graft re-ruptures.

For these reasons, in addition to commonly used patient-reported outcome measures (PROMs), functional tests and psychological readiness grading systems have been introduced to monitor patients' capacity to RTS following ACL reconstruction



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The Knee

ELSEVIER

Single-leg vertical jump test as a functional test after anterior cruciate ligament reconstruction☆

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KNEE

Side-to-side asymmetries in landing mechanics from a drop vertical jump test are not related to asymmetries in knee joint laxity following anterior cruciate ligament reconstruction

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Expectations for Return to Preinjury Sport Before and After Anterior Cruciate Ligament Reconstruction

Kate E. Webster,*† PhD, and Julian A. Feller,‡ FRACS
Investigation performed at OrthoSport Victoria and La Trobe University, Melbourne, Australia

Original Research

Association Between Meeting Return-to-Sport Criteria and Psychological Readiness to Return to Sport After Anterior Cruciate Ligament Reconstruction

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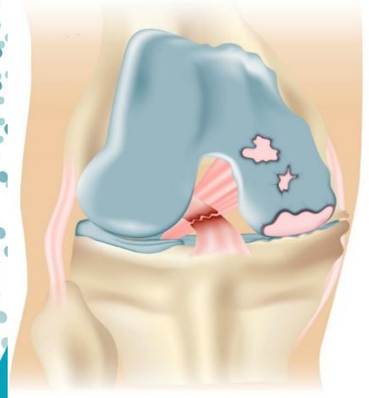
Investigation performed at Kobe University Hospital, Kobe, Japan

PURPOSE

The purposes of this study were to:

- prospectively evaluate clinical and functional outcomes of non-professional athletes following ACL reconstruction up to 12 months after surgery
- to identify the correlations between functional and subjective tests
- to determine which factors influence patients' ability to resume sports at pre-injury level



METHODS

Please indicate below the **HIGHEST** level of activity that you are able to participate in **CURRENTLY**.

- ☐ Level 10 Competitive sports-soccer, football, rugby (national elite)
- ☐ Level 9 Competitive sports-soccer, football, rugby (lower divisions), ice hockey, wrestling, gymnastics, basketball
- ☐ Level 8 Competitive sports-racquetball, squash or badminton, track and field athletics (jumping, etc.), downhill skiing
- ☐ Level 7 Competitive sports-tennis, running, motorcars speedway, handball
  Recreational sports-soccer, football, rugby, ice-hockey, basketball, squash, racquetball, running
- ☐ Level 6 Recreational sports-tennis and badminton, handball, racquetball, downhill skiing, jogging at least 5 x per week
- ☐ Level 5 Work-heavy labor (construction, etc.)
  Competitive sports-cycling, cross-country skiing
  Recreational sports-jogging on uneven ground at least twice weekly
- ☐ Level 4 Work-moderately heavy labor (e.g. truck driving, etc.)
  Recreational sports-cycling, cross-country skiing, jogging on even ground at least twice weekly
- ☐ Level 3 Work-light labor (nursing, etc.)
  Competitive and recreational sports-swimming, walking in forest possible
- ☐ Level 2 Walking on uneven ground possible, but impossible to back pack or hike
- ☐ Level 1 Work-sedentary (secretarial, etc.)
- ☐ Level 0 Sick leave or disability pension because of knee problems

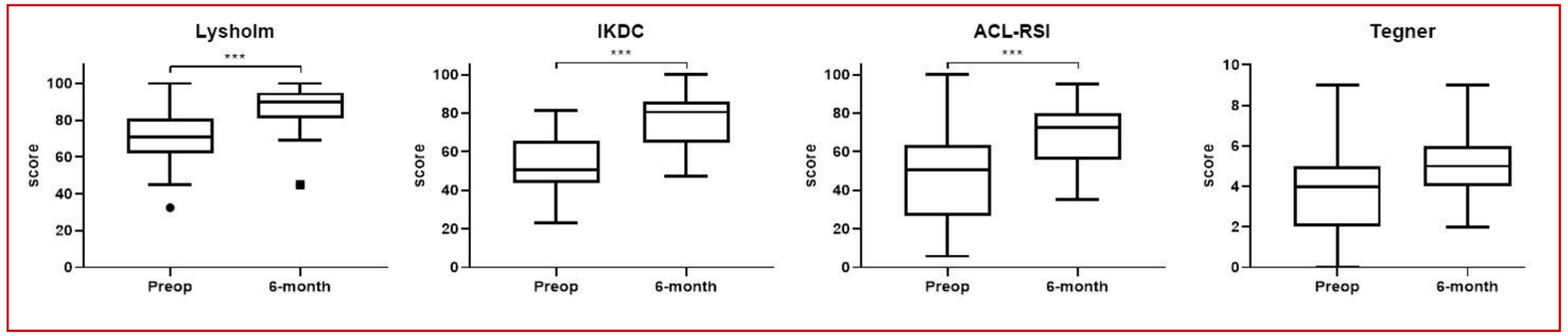
33 patients who underwent ACL reconstruction using doubled autologous hamstring graft were prospectively assessed pre-operatively, 6, and 12 months after surgery using

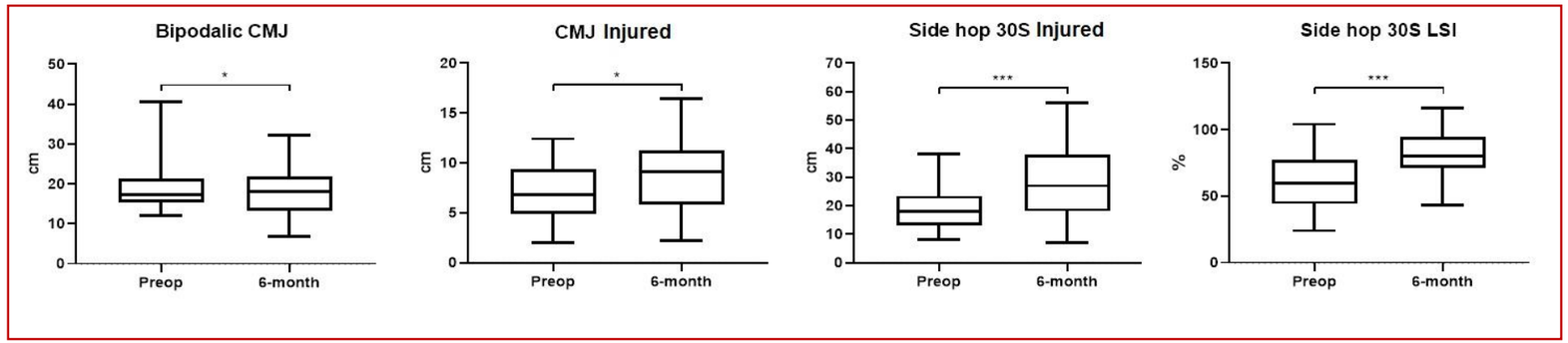
Assessment included International Knee Documentation Committee (IKDC) Subjective Knee Form, Tegner activity level, and ACL–Return to Sport after Injury (ACL-RSI) scale. Jumping ability was instrumentally assessed using a test battery including bipodalic squat jump (SJ), bipodalic countermovement jump (CMJ), monopodalic CMJ, and monopodalic side-hop test.

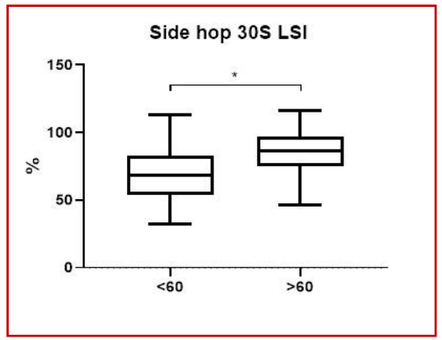
RESULTS

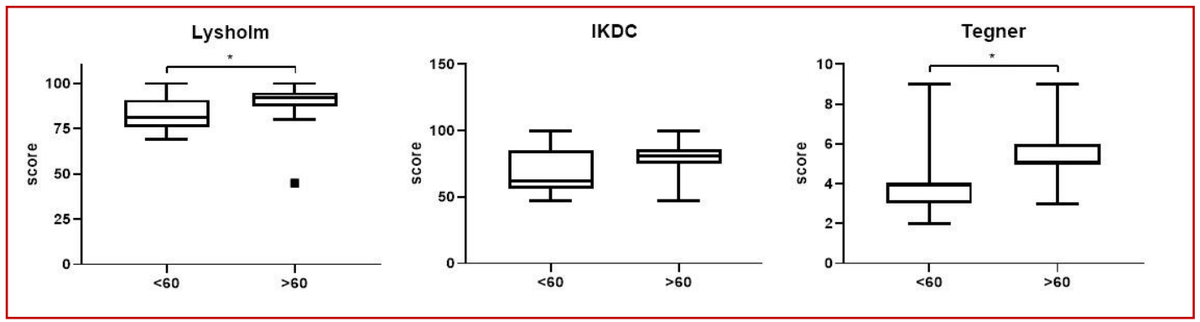
Mean overall IKDC, and ACL-RSI scores increased from preoperatively ($p<0.001$). Monopodalic jump tests showed improvements at 12-month evaluation compared to 6-month follow-up ($p<0.01$). No statistically significant correlation was reported for ACL-RSI and jump limb symmetry index (LSI) ($p=0.08$ vs. CMJ; $p=0.07$ vs. side-hop test). No differences were observed in terms of jump LSI between patients who returned to pre-injury activity level and those who did not ($p=0.11$ for CMJ, $p=0.09$ for side-hop test). A significantly higher IKDC score at 6 months was observed in patients who did not return to pre-injury levels ($p=0.009$). Patients who did not return to pre-injury activity reported lower ACL-RSI scores at 12-months follow-up ($p=0.007$).

RESULTS









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DISCUSSION

According to our results, one year following ACL reconstruction, the results of bipodalic CMJs, monopodalic CMJs on the injured limb and a 30 seconds Side Hop tests on the injured limb significantly improved compared to 6 months and to baseline. Similarly, non-inferiority in LSI recorded while performing CMJ and Side Hop test LSI was observed one year after surgery compared to 6 months and to baseline. The use of LSI allows to determine more precisely jumping performance compared to bipodalic tests, as patients cannot compensate with the unaffected limb during unilateral functional tests, which might have an impact on the test's outcome

DISCUSSION

Kinesiophobia and fear of re-injury are considered factors affecting RTS which may not be identified by traditional RTS criteria, and it has been demonstrated that lower ACL-RSI scores correlated with lower knee function. According to our findings, 12 months after surgery, weak positive correlation was observed between single leg vertical jump test and self-reported outcomes. Conversely, no statistically significant correlation was reported between jump tests and ACL-RSI. Therefore, it would appear that physical parameters such as the ability to perform vertical jumps do not influence psychological readiness one year after ACL reconstruction.

DISCUSSION

According to our results, no differences were observed in terms of jumps (CMJ LSI, and Side Hop 30S LSI) considering patients who returned to the pre-injury sport level at 12 months (assessed by Tegner score) and those who did not.

Previous studies failed to detect relationships between sport resumption at pre-injury level and functional ability [30]. In addition, the role of jumping assessment in predicting RTS at the same level may be questionable, given the complexity of factors involved in sporting activities.

CONCLUSIONS & TAKE-HOME MESSAGES

UKR One year after ACL reconstruction, an improvement in jumping ability was observed, while a persistence of lower limbs asymmetries was noted 6 months after surgery. The ability to perform vertical jumps was not influenced by psychological outcomes 12 months following ACL surgery.

Higher values of subjective knee score and psychological readiness weakly correlated to RTS at preinjury level, while no correlation was reported concerning jumping performance.

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