Patient-reported outcomes after anterior cruciate ligament reconstruction with the JewelACL synthetic ligament: Multicenter study of at least 9 years follow-up

Klaudiusz Kosowksi, Ewa BręborowiczMarek Olek, Maciej Wiśniewski
J Exp Orthop. 2026;13:e70838. doi:10.1002/jeo2.70838.

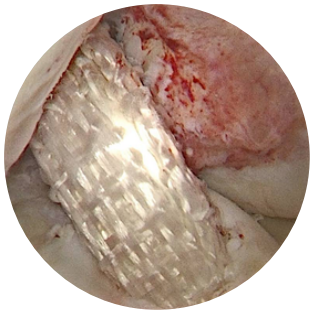
Key Points

- 5.2% re-rupture rate
- Excellent long-term PROMs
- 85% return to sport

Methods

A retrospective cohort of 58 patients who underwent ACL reconstruction between 2010 and 2014, using either JewelACL alone (n = 44) or JewelACL combined with hamstring autograft (hybrid technique; n = 14), was assessed. Patient-reported outcome measures (PROMs), including the International Knee Documentation Committee (IKDC), Lysholm and Tegner scores, as well as complication and re-rupture rates, were analysed. Long-term follow-up was based on telephone-administered PROMs; no standardised clinical laxity testing or imaging (magnetic resonance imaging or x-ray) was performed. A mean follow-up of 10.8± 0.9 years

Surgical Technique



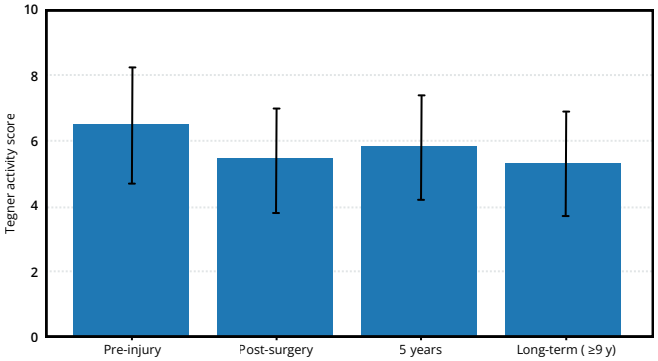
Arthroscopic view of the JewelACL in situ following fixation in the femoral and tibial tunnels. ACL, anterior cruciate ligament.

Routine arthroscopy is performed and any chondral or meniscal lesions are addressed.
The femoral tunnel is positioned at the AMB footprint and drilled to 6 mm, ensuring an adequate bony bridge remains.
The tibial tunnel is positioned at the AMB footprint and also drilled to 6 mm diameter.
The JewelACL graft is passed through the femoral and tibial tunnels.
The graft is fixed on the femoral side using either cortical suspensory fixation or an interference screw.
Tibial fixation is achieved with a titanium interference screw at least 1 mm larger than the tunnel.
Before final graft tensioning and fixation the knee is cycled through full flexion and extension.

For the hybrid technique: a gracilis or semitendinosus tendon is first harvested and passed through the longitudinal openings of the JewelACL graft. Tunnel preparation and graft fixation then follow the same technique as the standalone JewelACL reconstruction.

Results

- Overall, three patients experienced a re-rupture **(5.2%)**
- All these re-ruptures were as a result of secondary trauma **at least 9 years post-surgery.**
- Overall, **86% of patients participated in sports post-surgery**
- Tegner scores **remained stable** from post-surgery to long-term follow-up
- Statistical comparisons of PROMs between the two device types (JewelACL only vs JewelACL Hybrid) suggested no evidence of a difference between types for either Lysholm (100 [91,100] vs 99 [84,100]) or Tegner scores (5.3 vs 5.0)
- There was a significant difference between the devices for the IKDC scores at the 10-year follow-up, being **higher in the JewelACL-only group** (95 [89,99] vs 91 [83,95])
- Apart from re-ruptures, **no patient-reported infections** or hospital admissions related to operated knee were identified at final follow-up.



Changes in Tegner score (all patients, 9-year follow-up).

Conclusions

ACL reconstruction using JewelACL was associated with excellent long-term PROMs, low re-rupture rates and high return-to-sport rates. Although these findings are encouraging, interpretation is limited by the retrospective design, substantial loss to follow-up and the absence of imaging or objective clinical assessments. There was no statistically significant difference in return-to-sport rates between the JewelACL group (85%) and the hybrid group (86%) (p = 1.00)..

Xiros™ Ltd, Springfield House, Whitehouse Lane, Leeds LS19 7UE T. +44 (0) 113 238 7202 E. **enquiries@xiros.co.uk**

Find the clinical paper here

or visit us at www.xiros.co.uk