

Prospective, randomized study comparing clinical outcomes when reconstructing ACL with either semitendinosus autograft or the Jewel synthetic standalone device in two separate patient cohorts

Maciej Kentel, Sebastian Krupa, Paweł Reichert, Krzysztof Korolczuk, Monika Kentel, Kacper Kentel, Maciej Daszkiewicz
The Knee. (2025) 57:84-99

Key Points



Faster return to sport



No harvest site complications



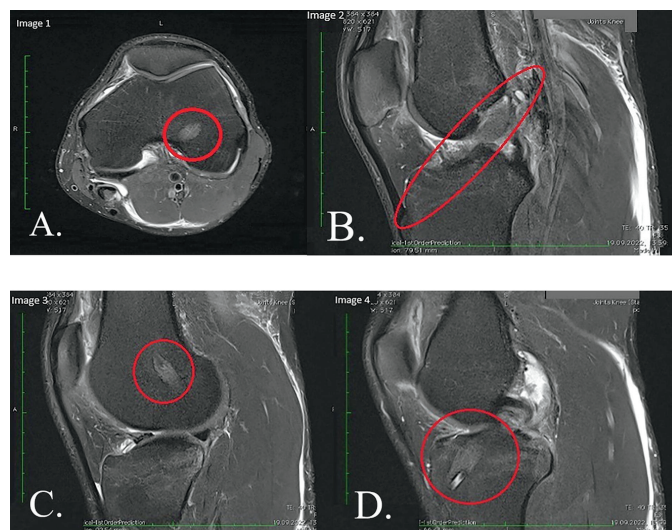
No synovitis recorded

Methods

A prospective, randomised study of patients with anteromedial bundle injuries for primary standalone ACL reconstruction, using either Semitendinosus (ST) autograft or a **JewelACL™**. 50 sport-active patients were split into group I (20 patients with a BMI of 24.36 ± 2.32 , and a mean age of 40.65 ± 11.43) where the **JewelACL™** was implemented, while in group II (30 patients with a BMI of 24.82 ± 3.25 , and a mean age of 35.57 ± 7.18) the ST autograft was used, both with the same surgical technique. Pre- and postoperative assessments included ROM, Lachman, Pivot Shift, KT 1000, IKDC 2000, Cincinnati, Lysholm, Tegner scores, and time to return to sport. Patients were followed up at a minimum of 2 years. To compare the results between the **JewelACL™** and ST groups, the Student's t-test was used for parametric distributions. In cases of small sample size in the **JewelACL™** group and non-normal distribution of most data, the Mann-Whitney U test was used to account for both the small sample size and the non-normal distribution of the data. Then, differences in groups between specific study periods were calculated by a Wilcoxon test.

Results

- The **JewelACL™** group returned to participation sooner (2.6 months vs 5.2 months) and returned to sport sooner (4.65 months vs 10.87 months)
- 10% Hematoma reported in the ST group, compared to **no donor site morbidity** when using the JewelACL
- **100% of the JewelACL™ group** had a negative pivot shift, compared to 90% of those with ST
- Both groups achieved a **full range of motion** of 135° after 24 months
- In the **JewelACL™** group, there were **no cases of screw or graft loosening** and **no widening of the tibial tunnel**.
- No negative symptoms were observed on the **JewelACL™** in the form of **exudate, synovitis, or implant rejection-lysis** at the border of the cancellous bone centres and the implant.
- After 24 months, there was residual laxity observed in 30% of the ST group vs only 10% in the **JewelACL™** group.
- Both IKDC scores were **statistically significant** between the results obtained on the day of surgery and 24 months after the procedure.



The MRI of the knee joint in a 24-year-old man, taken 3 years after reconstruction with the JewelACL™. A, C – consolidation in the femoral stabilization canal; B – intra-articular course of the JewelACL ligament; D – consolidation in the tibial stabilization canal

Conclusions

ACL reconstruction using the ST autograft and the Jewel synthetic ligament both provided similarly good to very good clinical outcomes across nearly all measured scores.

ACL reconstruction using the **JewelACL™** technique allows for a faster return to training and sports activities.

In the ST group, donor site complications may arise following graft harvesting, potentially impacting the recovery process.

Find the clinical paper here



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