

Bioabsorbable Interference Screw Fixation for Anterior Cruciate Ligament Reconstruction Yields No Tunnel Widening with Excellent Outcomes



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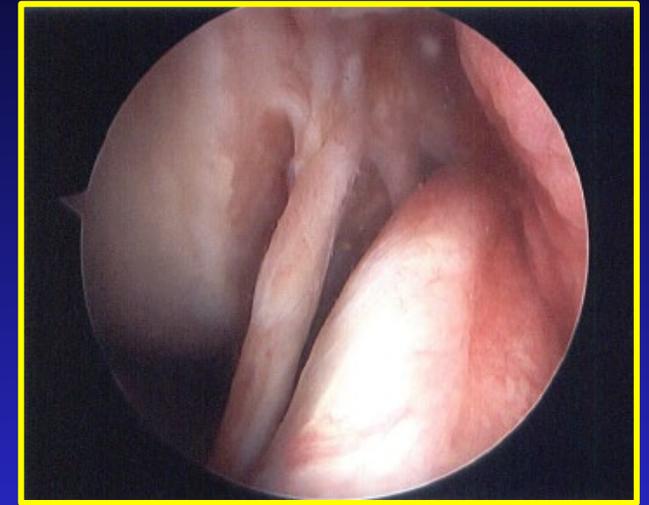


Disclosures

The author and co-authors have nothing to disclose.

ACL Reconstruction With Screw Fixation

- Bioabsorbable Screws for ACLR
 - ◆ Good Outcomes Reported
 - ✓ No Significant Difference In ROM, IKDC, Lysholm Compared To Metallic Screws³
 - ◆ Reported Concerns & Complications¹
 - ✓ Higher Graft Failure³
 - Resultant Instability - RR: 2.54
 - ✓ Tunnel Widening
 - Length Of Tendon Within Tunnel
 - Accelerated, Brace-Free Rehab⁵
 - Knee Laxity - OR: 2.08
 - Femoral Tunnel Width Increases >10%
 - ✓ Screw Breakage
 - 9.6% of Patients Have Screw-Related Issue²
 - 4.9% Undergo Reoperation For Screw Procedures
 - ✓ Inflammatory/Foreign Body Reaction⁴
 - Incidence Of Effusion - 15.6%
 - Incidence Of Infection - 11.1%
 - Min. 6-Month Follow-Up



Purpose

- Determine Mid- to Long-Term Outcomes In Patients After ACLR Using Bioabsorbable Poly (L-Lactic Acid) Interference Screw Fixation
 - ◆ Complications
 - ✓ Failure Rate
 - Revision ACL-R
 - Evidence Of Tunnel Widening
 - Pathologic Instability - KT-1000
 - ✓ Tunnel Widening
 - ✓ Knee Stability
 - ◆ Patient-Reported Outcomes



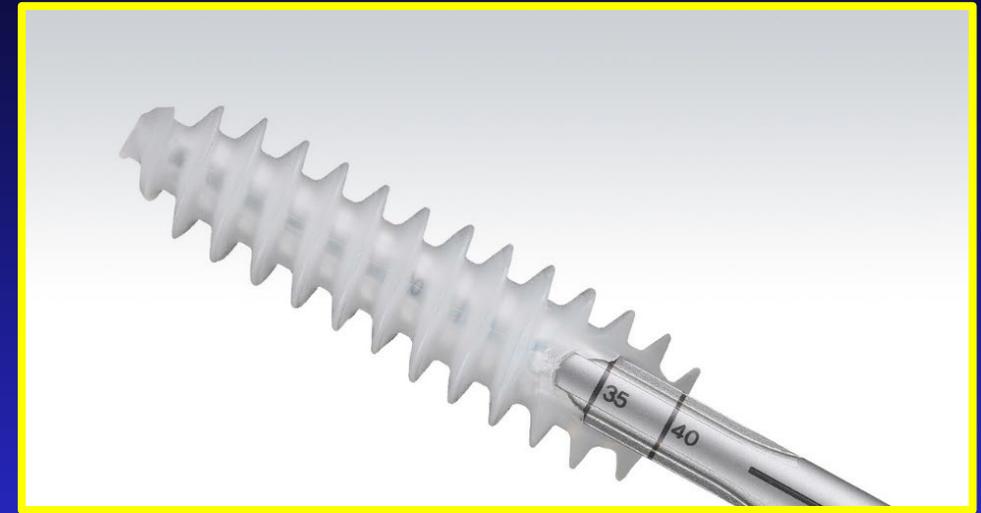
Methods - Cohort

- 81 Primary ACL Reconstructions
 - ◆ Cohort Study
 - ✓ Single Surgeon (KDP)
 - ◆ ACL Reconstruction (1995-2017)
 - ✓ BPTB Allograft/Allograft
 - ✓ Transtibial Technique
 - LifeNet (Virginia Beach, VA, USA)
 - MTF (Edison, NJ, USA)
- Exclusion Criteria
 - ◆ Revision Surgery
 - ◆ Osteochondral Grafting
 - ◆ Multiligamentous Injuries
 - ◆ ≥5-Year Follow-Up



Methods - Surgical Technique

- Autograft (10mm Tendon)
 - ◆ Cancellous Bone Graft in Defect
- Allograft Source
 - ◆ 5 Years Younger Than Patient Age
 - ✓ Not Terminally Irradiated
- Bioabsorbable Interference Screw
 - ◆ Poly L-lactic acid (Linvatec – Largo, FL)
 - ✓ Femur 8x20
 - ✓ Tibia 9x20 or 9x25
- Tibial & Femoral Tunnels
 - ◆ 10mm Reamer
- Decelerated Rehab Program
 - ◆ Bone Tunnel Enlargement Avoided
 - ✓ Accelerated Brace-Free Rehab Increases Enlargement
 - ◆ Cryotherapy
 - ◆ Brace Utilized
 - ✓ Post Op Knee Brace Locked 10-90°, 6 Weeks
 - ✓ ACL Sport Specific Brace, 6-12 Weeks Post Op
 - ◆ Supervised Physical Therapy
 - ✓ Brace Wear at 5 Months
 - ◆ Return to Cutting/Pivoting Sports Criteria
 - ✓ Adequate Proprioception
 - ✓ Never Less Than 6 Months
 - ✓ Sport Test - Return to Sport



Methods - Outcomes

- Patient-Reported Outcomes
 - ◆ Lysholm, IKDC, Tegner
- Physical Examination
 - ◆ Range of Motion
 - ◆ Ligamentous Testing
 - ✓ Lachman, Pivot Shift, KT-1000
- Postop Imaging
 - ◆ Plain Radiographs, MRI, CT Scan
- Tunnel Measurements
 - ◆ Screw Diameter Measured
 - ✓ Tunnel Diameter Measured At Widest Point
 - ◆ Tunnel Difference in Diameter
 - ✓ 2-Year Postoperative CT Scan



Results

- 81 Primary ACL Reconstructions
 - ◆ BPTB Autograft N=30
 - ◆ BPTB Allograft N=51
 - ◆ Mean Age: 36 Years
- Avg. Follow-Up: 13.0±4.0 Years
 - ◆ Range: 5 to 23 Years
- No Postop Infections
 - ◆ Defined by CDC Criteria⁶
- Revision Rate
 - ◆ 1.23% (1/81) Required Revision ACLR
 - ✓ Due to Traumatic Event at 6-Months
- Tunnel Measurements
 - ◆ **No Signs of Tunnel Widening On CT Scan**
 - ◆ Tunnel Narrowing Observed At 2-Year FU
 - ✓ Mean Size Femoral Tunnel: 8.6±2mm
 - ✓ Mean Size Tibial Tunnel: 8.5±2mm



24 Months Post-Op CT



11 Years Post-Op CT



Results

➤ Instability Testing

◆ KT-1000

- ✓ Mean Manual Maximum Difference: -0.2mm
 - 90.1% Knees (73/81) Had ≤ 3 mm Difference

➤ Outcome Measures

◆ Median Post-Operative Tegner: 5

- ✓ Range: 2-9

◆ VR-12 PCS = 57 ± 8

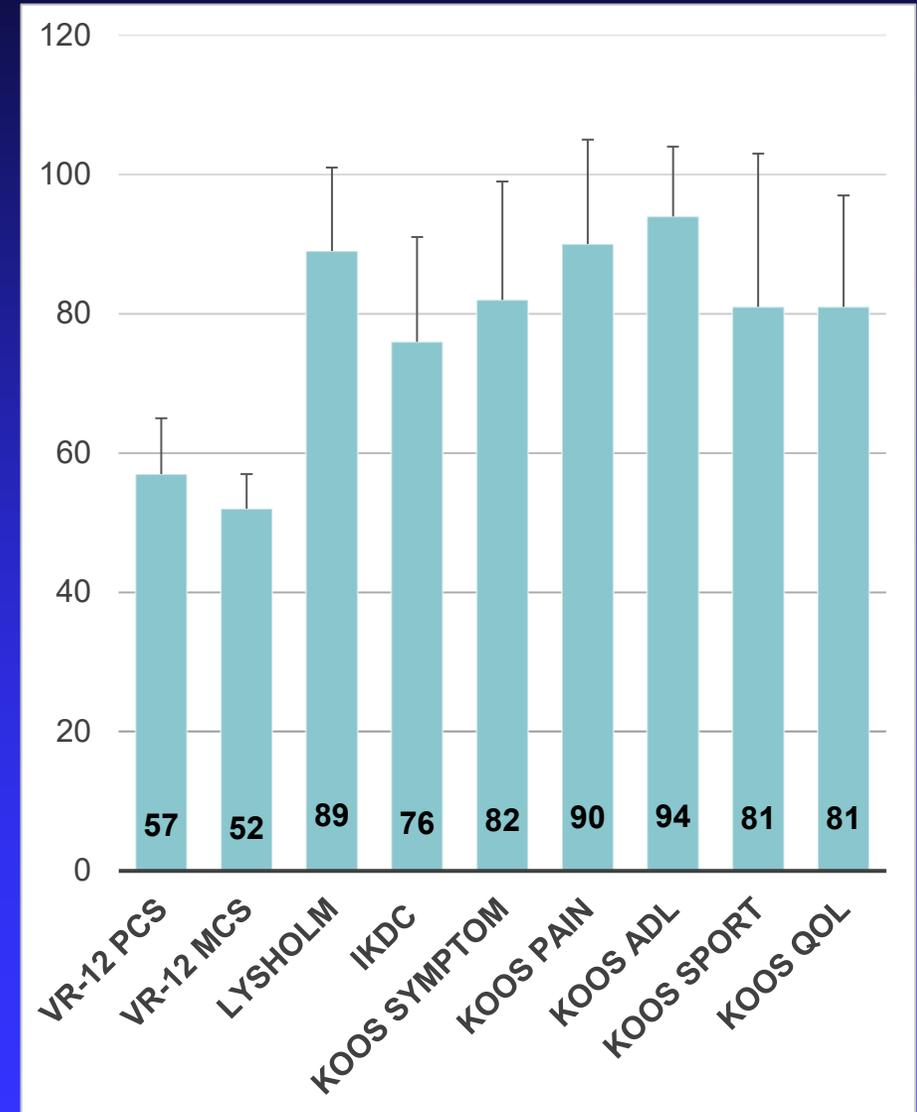
◆ VR-12 MCS = 52 ± 5

◆ Lysholm = 89 ± 12

◆ IKDC = 76 ± 15

◆ KOOS

- ✓ Symptoms = 82 ± 17
- ✓ Pain = 90 ± 15
- ✓ ADL = 94 ± 10
- ✓ Sport = 81 ± 22
- ✓ QoL = 81 ± 16



Conclusion

- Bioabsorbable Interference Screw Fixation Is An Excellent Option for Patients Undergoing ACLR
 - ◆ Mid- to Long-Term Follow-Up
 - ✓ **No Evidence of Tunnel Widening**
 - ✓ Excellent Stability & Functional Outcomes
 - ✓ Absence of Screw Breakage
 - ✓ No Delayed Graft Healing
 - ◆ Decelerated Rehab Program
 - ✓ Ensures Prevention of Bone Tunnel Enlargement



Thank You

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