



ISAKOS
CONGRESS
2025



MUNICH
GERMANY

June 8-11

Ibermutua

Mutua Colaboradora con la Seguridad Social nº 274



ribera

Hospital
Covadonga



Hospital
Begoña

Arthroscopic Anterior Cruciate Ligament Primary Repair: A Case Series of 40 Consecutive Physical Workers With Minimum Two Years Follow-Up

Javier A. Ruiz Díaz ^{1, 2, 3}, Rubén Álvarez Canal ¹, Celestino Guerra García ^{2, 4},
Francisco J. Álvarez García ¹, Amaury González Llorca ¹, Gabriel López Graña ⁵

¹ Ibermutua Asturiana (Oviedo-Gijón, Spain)

² Hospital Ribera Covadonga (Gijón, Spain)

³ Hospital Begoña (Gijón, Spain)

⁴ Hospital de la Cruz Roja (Gijón, Spain)

⁵ Ibermutua Servicios Centrales (Madrid, Spain)



@drjuizdiaz



www.linkedin.com/in/javier-a-r-98378b137



drjuizdiaz@gmail.com

Disclosures

- Javier A. Ruiz Díaz:
 - Consultant for Smith & Nephew
 - Consultant for Arthrex
- All other authors: No conflicts of interest

Introduction

- Anterior cruciate ligament (ACL) tears are common in physical workers ⁽¹⁾
- The ACL's proximal third has healing capacity ⁽²⁾
- Primary repair has become a viable option in selected cases with excellent short to mid-term outcomes ^(3, 5, 6, 7, 8)
- Indications: high-grade partial proximal tears (HGPT) or complete proximal tears (Sherman 1 and 2) ⁽⁴⁾
- Goal: to evaluate the outcomes of arthroscopic ACL primary repair (ACLPR) using femoral fixation and suture tape augmentation in physical workers

Materials And Methods

- 40 patients with complete proximal avulsion or HGPT
 - 35 male, 5 female
- Mean age: 40.4 years (range 21-55 years)
- Surgical technique: arthroscopic repair using femoral fixation and suture tape augmentation
- Single surgeon (main author)
- Exclusion criteria: multi-ligament injuries
- Mean follow-up: 32 months (range 24-55 months)
- Clinician-reported results: Objective International Knee Documentation Committee (O-IKDC)
- Patient-reported results: Lysholm Score

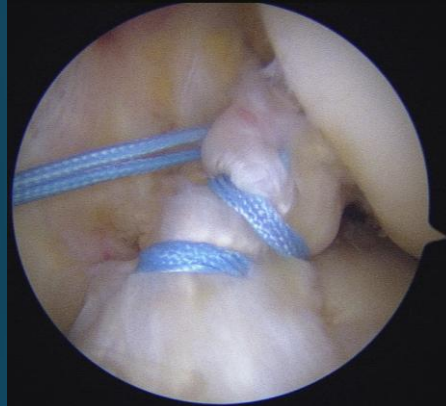
Surgical Technique



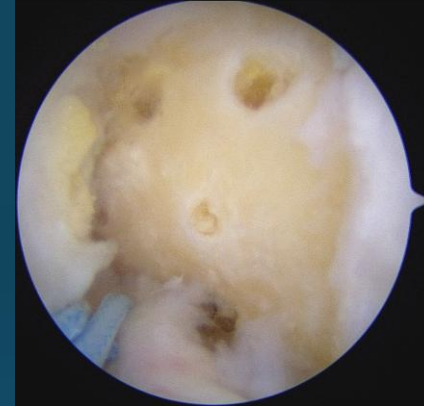
Confirm proximal ACL tear with good tissue



Pass first loop-suture



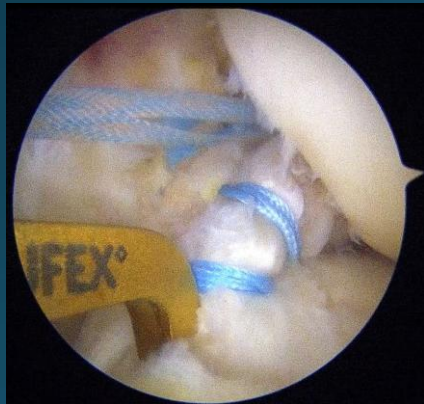
Two loop-sutures passed



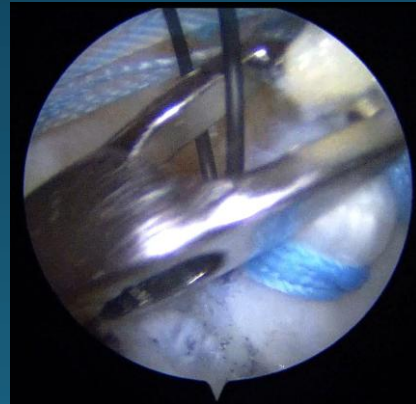
Perform microfractures, punch/tap hole for implant



Knotless anchor loaded with both sutures + tape



Tibial tunnel



Nitinol for tape recovery



Tibial fixation w/knotless anchor



Final repair

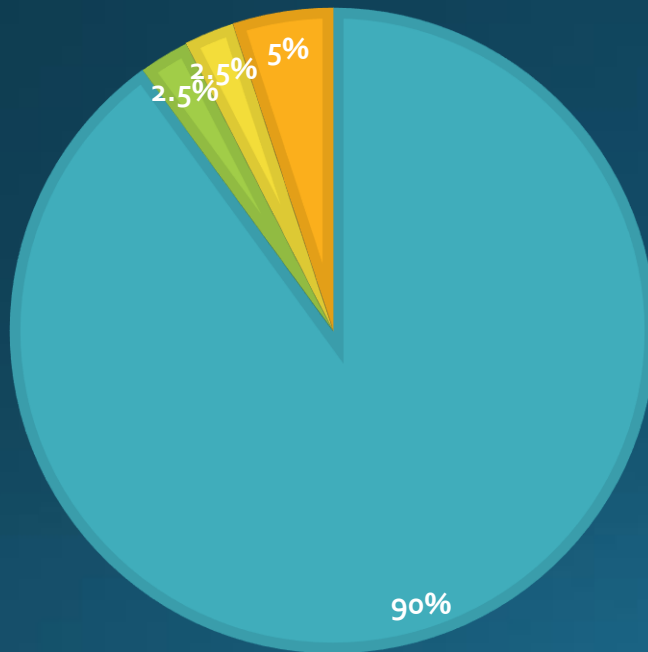
Results: Demographics

Profession	HGPP	Sherman 1	Sherman 2
Constructor / plumber	4	3	3
Sailor / fisher	0	1	1
First responder	2	1	1
Farmer / rancher	3	0	1
Truck driver / delivery driver	1	3	1
Metal worker / Miner	1	1	1
Physical education teacher	1	2	0
Lumberer / forester	2	0	0
Warehouse assistant	1	0	1
Maintenance worker / janitor	2	1	2
Total	17	12	11

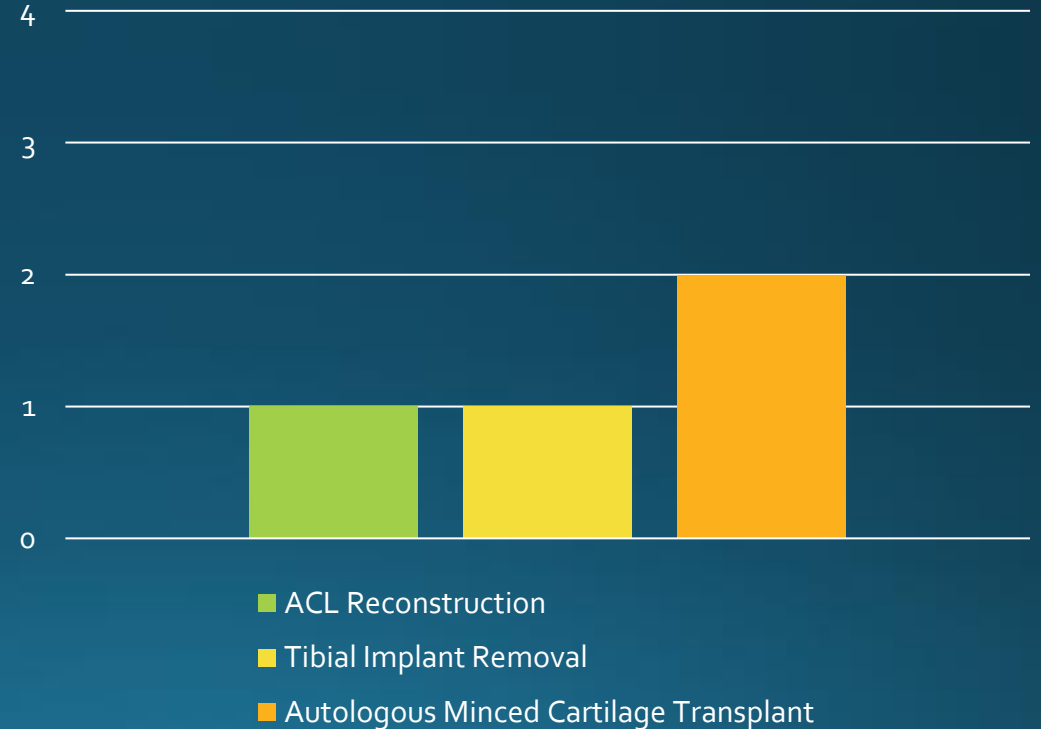
Results: Revision Surgery

Need for Revision Surgery

■ NO ■ Failure ■ Implant Irritation ■ Chondral Defect

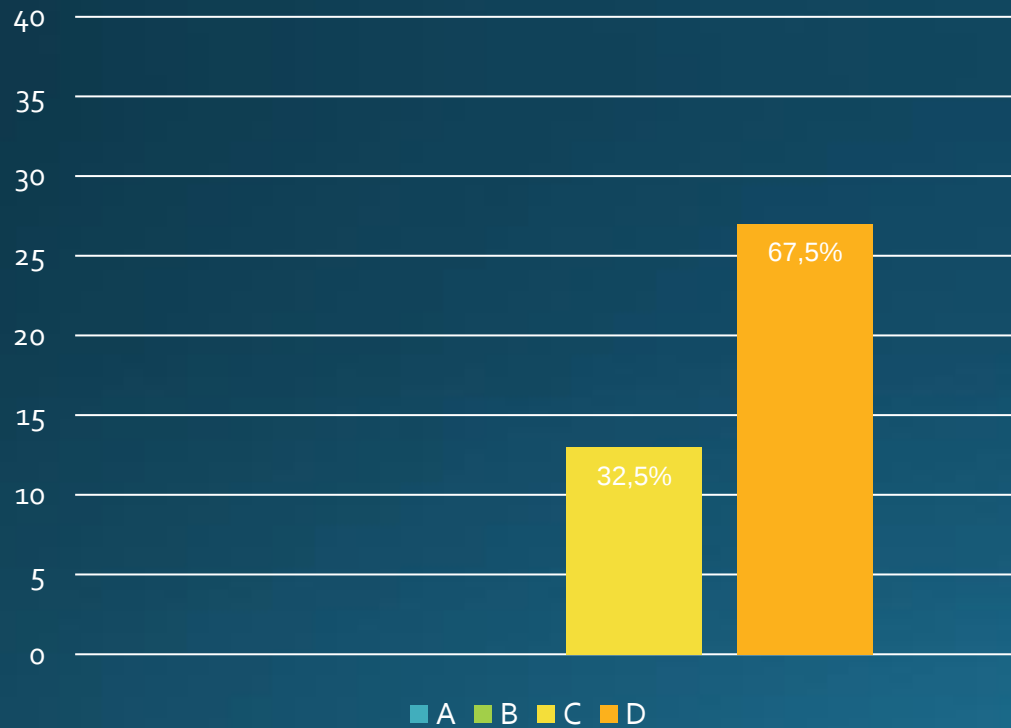


Revision Surgery Technique

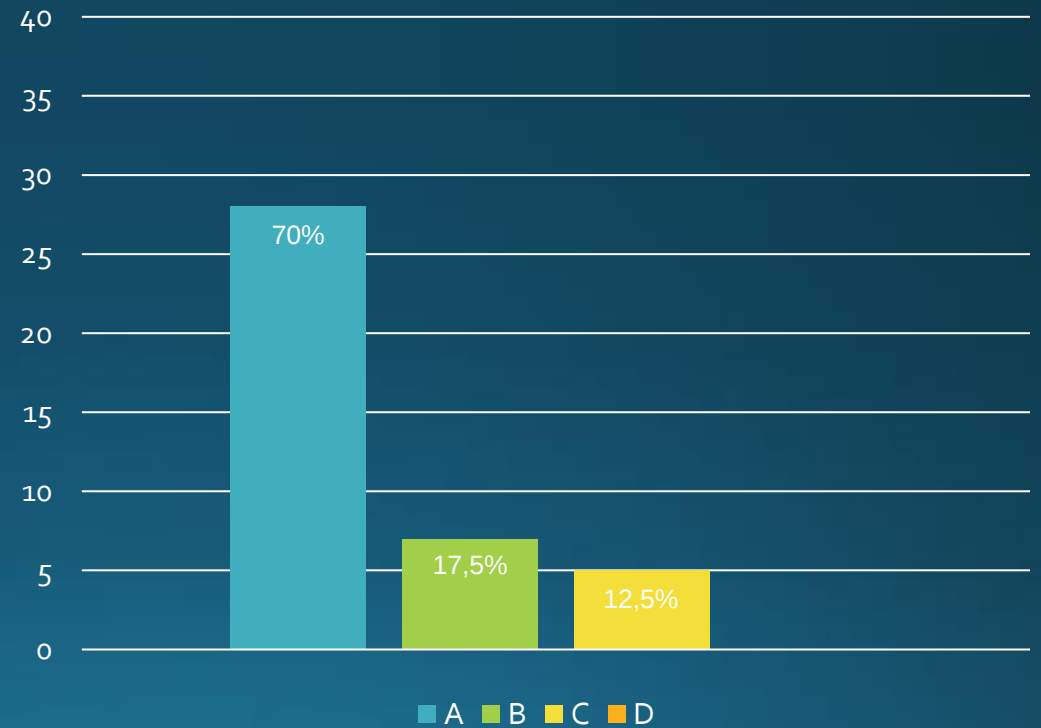


Results: O-IKDC

Preoperative



Postoperative

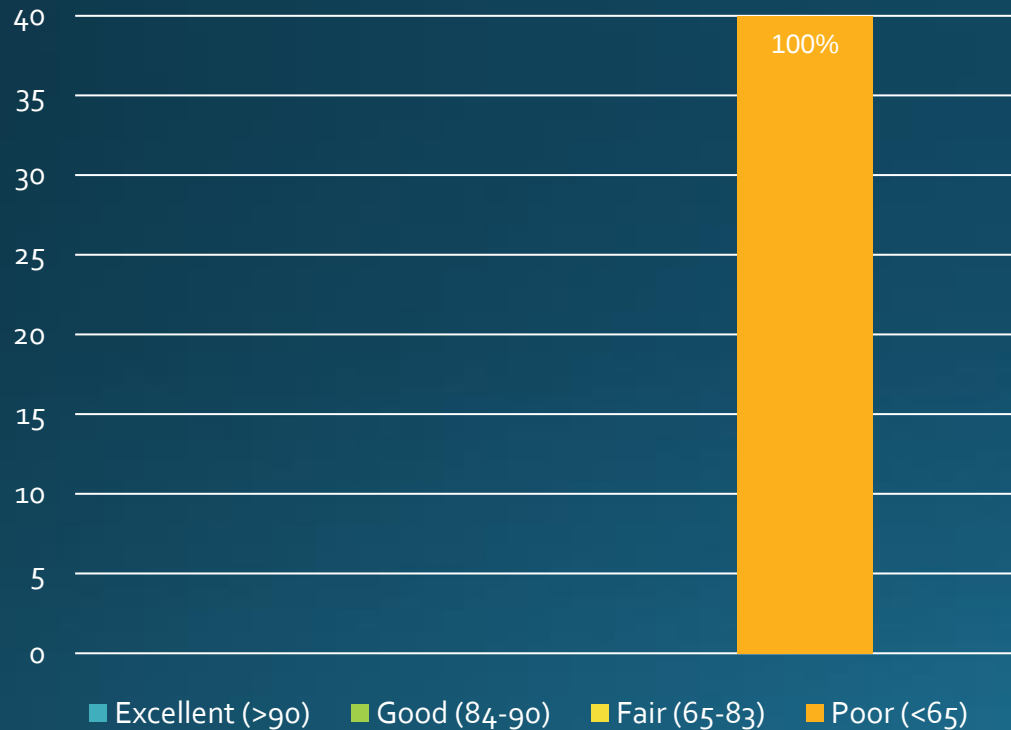


$P < 0,01$

Results: Lysholm Score

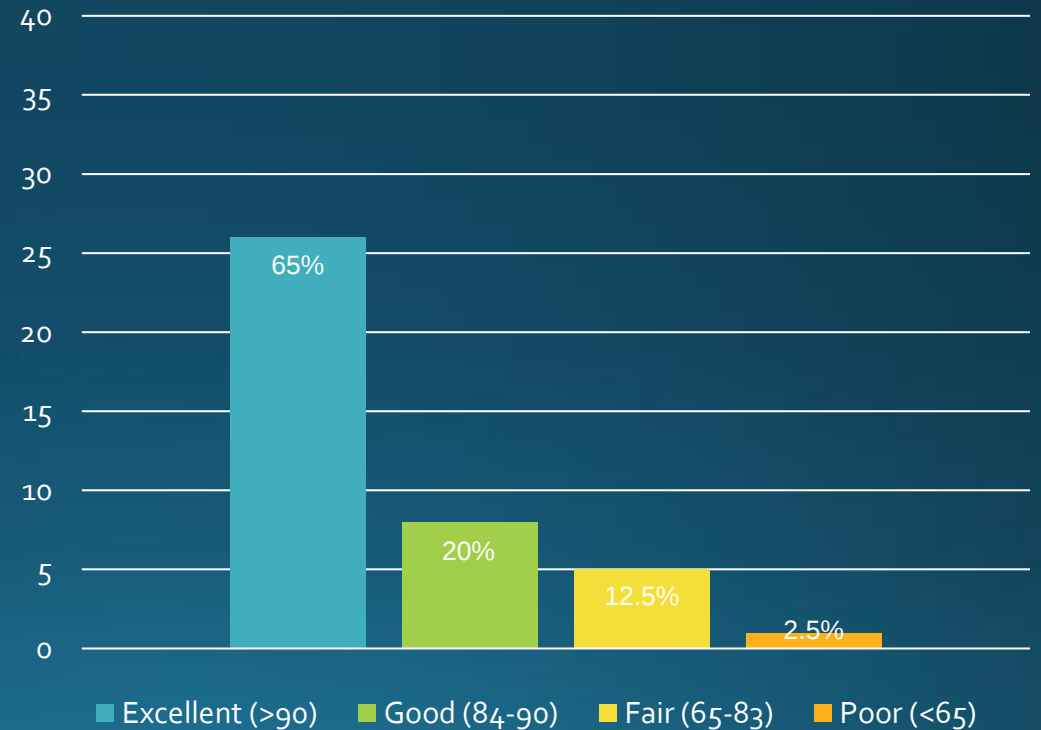
Preoperative

$\bar{x}$: 36.75 (10-63)



Postoperative

$\bar{x}$: 91.18 (62-100)



P < 0,01

Conclusion

- ACLPR has given good objective and subjective results with a low revision and reintervention rate for physical workers at two years follow-up



Presurgical and postsurgical (8 months) MRI of a repaired ACL

References

1. Noyes FR, Mooar LA, Barber SD. The assessment of work-related activities and limitations in knee disorders. *Am J Sports Med.* 1991 Mar-Apr;19(2):178-88. doi: 10.1177/036354659101900214. PMID: 2039070.
2. Nguyen, D.T., Ramwadhoebe, T.H., van der Hart, C.P., Blankevoort, L., Tak, P.P. and van Dijk, C.N. (2014), Intrinsic healing response of the human anterior cruciate ligament: An histological study of reattached ACL remnants. *J. Orthop. Res.*, 32: 296-301. doi.org/10.1002/jor.22511
3. Vermeijden HD, van der List JP, Benner JL, Rademakers MV, Kerkhoffs GMMJ, DiFelice GS. Primary repair with suture augmentation for proximal anterior cruciate ligament tears: A systematic review with meta-analysis. *Knee.* 2022 Oct;38:19-29. doi: 10.1016/j.knee.2022.07.001. Epub 2022 Jul 20. PMID: 35870397.
4. Robinson JD Jr, Williamson T, Carson T, Whelan RJ, Abelow SP, Gilmer BB. Primary anterior cruciate ligament repair: Current concepts. *J ISAKOS.* 2023 Dec;8(6):456-466. doi: 10.1016/j.jisako.2023.08.008. Epub 2023 Aug 24. PMID: 37633336.
5. Jonkergouw A, van der List JP, DiFelice GS. Arthroscopic primary repair of proximal anterior cruciate ligament tears: outcomes of the first 56 consecutive patients and the role of additional internal bracing. *Knee Surg Sports Traumatol Arthrosc.* 2019 Jan;27(1):21-28. doi: 10.1007/s00167-018-5338-z. Epub 2019 Jan 5. PMID: 30612165.
6. Hopper GP, Aithie JMS, Jenkins JM, Wilson WT, Mackay GM. Satisfactory patient-reported outcomes at 5 years following primary repair with suture tape augmentation for proximal anterior cruciate ligament tears. *Knee Surg Sports Traumatol Arthrosc.* 2022 Jan;30(1):253-259. doi: 10.1007/s00167-021-06485-z. Epub 2021 Feb 13. PMID: 33582828; PMCID: PMC8800885.
7. Wilson WT, Hopper GP, Banger MS, Blyth MJG, Riches PE, MacKay GM. Anterior cruciate ligament repair with internal brace augmentation: A systematic review. *Knee.* 2022 Mar;35:192-200. doi: 10.1016/j.knee.2022.03.009. Epub 2022 Mar 30. PMID: 35366618.
8. Douoguih WA, Apseloff NA, Murray JC, Kelly RL, Svoboda SJ. Suture-Augmented Anterior Cruciate Ligament Repair for Proximal Avulsion or High-Grade Partial Tears Shows Similar Side-to-Side Difference and No Clinical Differences at Two Years Versus Conventional Anterior Cruciate Ligament Reconstruction for Mid-Substance Tears or Poor Anterior Cruciate Ligament Tissue Quality. *Arthroscopy.* 2024 Mar;40(3):857-867. doi: 10.1016/j.arthro.2023.07.011. Epub 2023 Jul 20. PMID: 37479153.