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RAPID RESEARCH

September 2021

Inside This Week: ACL Injuries, Surgery & Return to Play

-
- ✓ Bridge Enhanced ACL Repair; 2 Year Follow-up vs. Graft

 - ✓ ACL Tears; Effectiveness of Injury Prevention Programs

 - ✓ When is it Safe to Return to Sport After ACLR?

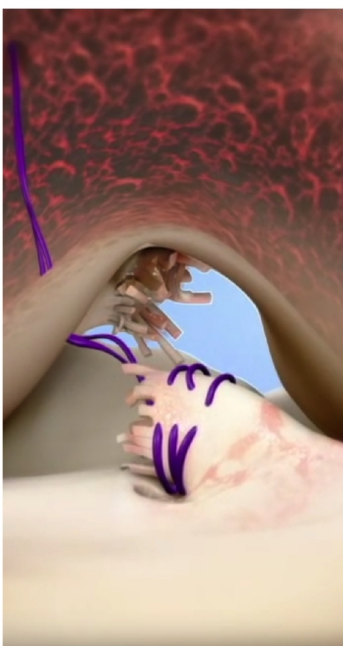


BRIDGE ENHANCED ACL REPAIR; 2 YEAR FOLLOW-UP VS. GRAFT

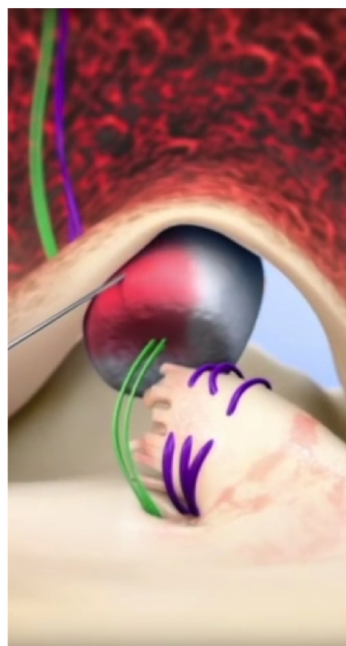
[Click for Full Text
\(Murray et al. 2020\)](#)

This 2 year clinical trial tested the efficacy of a suture repair of the ACL, using a protein implant placed in the gap between the torn ends (bridge-enhanced ACL repair [BEAR]), as a viable alternative to ACL reconstruction (ACLR).

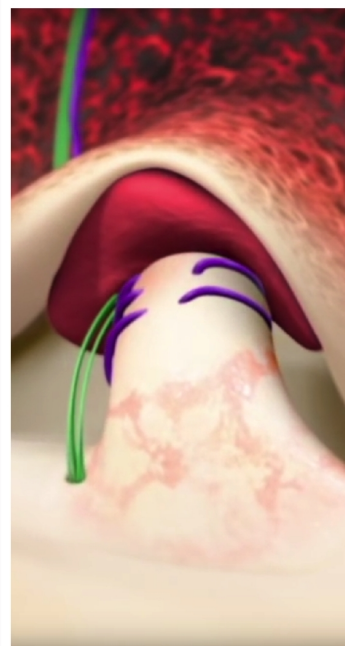
Bridge-Enhanced[®] ACL Repair (BEAR[®]) Implant



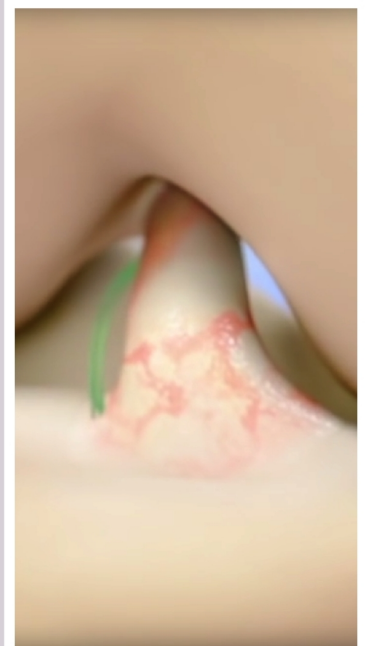
Torn ACL



Surgeon adds patient's own blood to BEAR Implant



Surgeon inserts BEAR Implant between torn ends of ACL



As ACL heals, BEAR Implant is absorbed by the body, usually within eight weeks

KEY FINDINGS

100 people with complete midsubstance ACL tears had surgery within 45 days.

BEAR (n = 65)

Autograft ACLR (n = 35 [33 Hamstring, 2 Bone-Patellar-Bone Graft])

Identical PT protocol used for all patients (Multicenter Orthopaedics Outcomes Network)

96% returned for 2-year follow-up.

IKDC Objective Scores, No significant differences.

IKDC Subjective Score (BEAR, 88.9 points; ACLR, 84.8 points).

Side-to-side difference in knee laxity (**BEAR, 1.61 mm; ACLR, 1.77 mm**)

Average **hamstring muscle strength index at 2 years (BEAR 98.2% vs ACLR 63.2%)**

14% of the BEAR group and 6% of the ACLR group had a **re-injury that required a second ipsilateral ACL surgical procedure.**

BEAR group took **4% longer to hop 6 m on the operative leg as compared with the nonoperative leg.**

MAIN TAKEAWAYS

BEAR ACL repair produced **similar patient-reported outcomes compared to ACLR at 2 year follow-up.**

Benefits of this procedure, include:

No need for autograft harvest,

Decreased risk of post-traumatic osteoarthritis

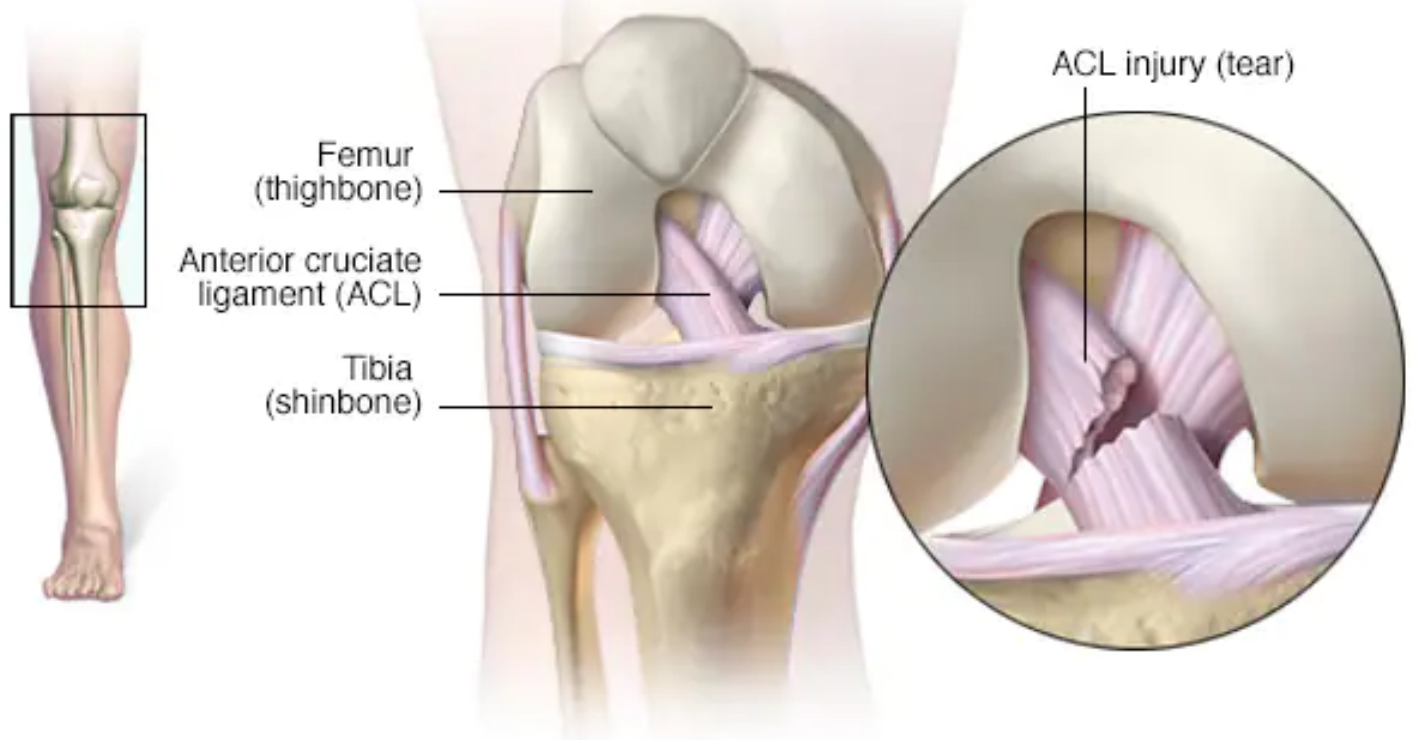
There is **risk of requiring conversion to an ACLR** in the first 2 years after surgery.

ACL repair with the **BEAR implant is a safe and promising technique** that is deserving of further study

ACL TEARS; EFFECTIVENESS OF INJURY PREVENTION PROGRAMS

[Click for Full Text](#)
([Monajati et al. 2016](#))

Due to the high incidence rate of non-contact ACL tears, this review examined the different proposed injury prevention protocols on modifiable ACL risk factors in uninjured team sport athletes.



KEY FINDINGS

19 studies with 485 participants were included in this review, with 4 assessment categories:

Landing, Side cutting, Stop-jump, & Muscle strength outcomes.

Risk factors included:

Biomechanical (posture, trunk, or lower limb alignments).

Neuromuscular (strength deficits or balance)

8 studies using multifaceted interventions showed **improvement in landing and/or stop-jump biomechanics.**

No effects were observed on side-cutting maneuver.

Programs including hamstring eccentric exercises:

Increased hamstring strength, hamstring to quadriceps functional ratio and/or promoted a shift of optimal knee flexion peak torque toward a more open angle position.

MAIN TAKEAWAYS

Multifaceted programs including eccentric hamstring exercises combined with other training modalities such as plyometric, balance, resistance, agility and/or flexibility exercises improve modifiable ACL risk factors.

The addition of appropriate technical feedback appears to be an essential component of the injury prevention protocols in team sport athletes.

WHEN IS IT SAFE TO RETURN TO SPORT AFTER ACLR?

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\(Kaplan et al. 2019\)](#)

This review aimed to provide highlights of the current researched criteria regarding the safety of return to sport after ACLR.



Return to Play Decisions are usually focused around the following 5 factors:

Psychological

Not trusting the knee, Fear of a new injury, Poor knee function.

Psychological factors are the most strongly associated with returning to the pre-injury activity.

Performance/functional tests

Usually includes the battery of hop tests at 6, 8, and 10 months postoperatively.

Athletes who did not meet the discharge criteria had a 4x greater risk of ACL graft rupture vs. those who met all RTS criteria.

Strength tests

Accepted criteria includes >90% strength compared to the nonoperative side.

Muscle strength tests should be conducted preoperatively & at 6, 8, and 10 months postoperatively.

Time

ACL re-injury rate is reduced by 51% for each month RTS was delayed until 9 months after surgery.

Non-modifiable risk factors.

Non-modifiable risks may include a previous ipsilateral ACLR tear, age, and ethnicity.

Those aged younger than 20 years have a 6.3x risk of re-rupture vs. those older than 20 years; and 35% have a second injury.

Nearly 1 in 4 young athletes with ACLR will sustain another ACL injury, usually early on in the RTP period.

MAIN TAKEAWAYS

Good communication is of great importance, as expectations of each individual differ.

Psychological readiness, such as **high self-efficacy, high internal locus of control, and low fear levels** are associated with higher chances of RTP.

Validity of strength, performance, and functional tests as part of the RTS process is unclear.

A battery of tests should be used for evaluating SRTS in ACLR patients.

Due to a high re-rupture rate in young patients, **RTS decision after ACLR should be delayed to at least 9 months** post-surgery.

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