

ACL Injury Management

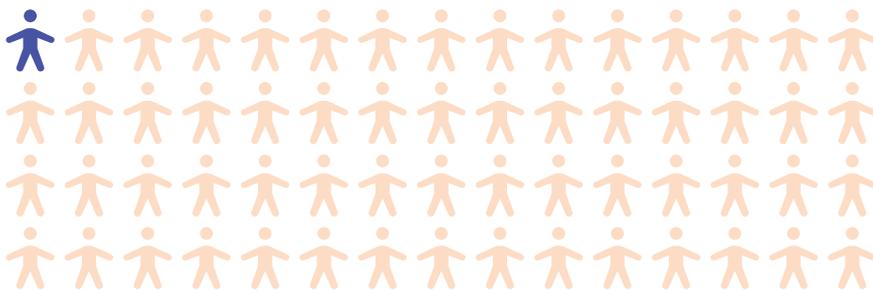


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The Anterior Cruciate Ligament (ACL) is a ligament within the knee which provides stability, particularly during pivoting, twisting and fast-paced movements. ACL injuries often occur during contact and non-contact sports that involve sudden stops, pivoting and jumping.



1 in 60

adolescent athletes will suffer an ACL injury

70%
of ACL injuries are non-contact



Peak incidence for males in

20-24
year old age group



Peak incidence for females in

15-19
year old age group



DIAGNOSING AN ACL RUPTURE

An ACL injury is often acutely painful. An audible pop may be heard at the time of injury, and the knee usually swells soon after the incident. If the injury occurs during a game of sport, patients are usually unable to continue with the match, though occasionally this is not the case and the injury can be subtle.

Following the injury, patients may limp or struggle to put weight on the knee, but these early symptoms often improve within 10-14 days. Initially, a combination of rest, ice, elevation and crutches for comfort will facilitate early functional recovery of the knee, to allow rehabilitation of the knee and periodic assessment from your treating specialists. Examination will reveal increased laxity of the injured joint, especially when compared to the non-injured knee. Sometimes the full extent of an ACL injury can go unnoticed until an attempt to return to sporting activities results in the experience of a joint giving way and a lack of confidence in the knee.

A doctor, surgeon or physiotherapist will usually request an MRI to confirm the diagnosis of ACL rupture. The MRI is important for assessing other structures within the knee (including the bones, menisci, cartilage and other ligaments).

TREATMENT AND RECOVERY FOR ACL INJURIES

Each case is unique. Patients benefit greatly from assessment by a professional with expertise in dealing with sporting knee injuries. Collaboration between an ACL specialist surgeon, physiotherapist, sports physician or GP is crucial in creating a treatment plan, even in cases where surgery is not required.

NON-SURGICAL TREATMENT

The human body has an incredible capacity for healing with the right help. Non-surgical treatment can yield positive results for some types of ACL injury. The ideal candidates for non-surgical treatment will have no other injury in the knee: ie no meniscal, cartilage or other ligamentous injuries and are usually playing lower levels of sport.^[1]

Successful non-surgical treatment relies on a comprehensive rehab program^[2] overseen by a therapist with experience in ACL injury treatment, with added input from an ACL specialist surgeon.

Beware of the unstable, swollen knee – repetitive instability episodes may be causing more damage!

WHEN SHOULD SURGERY BE CONSIDERED?

ACL injuries can be complex. Surgery is usually most beneficial for knees which have had more than one ligament injured, or those suffering from locked knees. Bucket handle tears of the meniscus require early surgical intervention to prevent degeneration of the knee and get it moving again. Some patients who have had isolated ACL injuries but continue to experience instability or wish to play pivoting and twisting sports will also benefit from surgical reconstruction.

Surgery may be the preferred course of action for ACL injuries to large, repairable meniscal tears or cartilage damage, as well as those with continued instability, pain or swelling despite rehabilitation. Most often, repair of the ACL is not possible, and a reconstruction is performed using a graft. Where surgery offers the best outcome, physiotherapy will support the healing process.

Common reconstruction graft options include hamstring, patella or quadriceps tendon.

PORTION OF PATIENTS STILL WANTING SURGERY AFTER A TRIAL OF NON-OPERATIVE TREATMENT^[3]



WITHIN TWO YEARS OF INJURY



WITHIN FIVE YEARS OF INJURY

Early reconstruction (<5 months) requires significantly fewer meniscectomies and shows less medial compartment osteoarthritis at ten years compared with late reconstruction.^[4] Early reconstruction also had a lower risk for meniscal injuries (37%) than later reconstructions (62%).^[5]

Timely ACL surgery can pave a faster road to recovery; however, it's important to regain range of motion in the knee, be comfortable with the knee, and commence some 'prehab' before undergoing surgery.

Getting back in the game

Both operative and non-operative treatments require a structured program to return to regular activity. It may take a long time to feel close to 'normal' again, but the long-term results for health and wellbeing are substantial.

REDUCING RE-INJURY

Post-surgery recovery time offers patients the greatest chance to avoid re-injury. Every month of delay in return to sport, the re-injury rate reduced by 51% (up until nine months post-operation). A meta-analysis of competitive sportspeople who had undergone ACL reconstruction surgery showed:^[6]

RETURN TO SPORT CRITERIA FOLLOWING SURGERY

ACL surgery will usually involve prehab and rehab with a physiotherapist in readiness for a return to sport. Testing at a minimum of 9 months post-surgery, markers of success to reduce re-injury on the field or court include:

- Quads strength within 10% of the normal side
- Four single-leg hop tests: within 10% of the normal side
- T-test agility drill in under 11 seconds

Reconstructed knee needs to be within

10%

of uninjured knee



81% returned to any sport

65% returned to preinjury level

55% returned to competitive level

Lower psychological readiness to return to sport is associated with increased failure.^[7]

REFERENCES AND FURTHER READING

Remember that each injury is specific and, as such, requires an individually tailored approach. Patients may find value in discussing their ailment and treatment plan by involving their surgeon, sports physician, physiotherapist and GP before making any decisions about what is right for their body, including injury prevention management.

Prevention programs can reduce ACL injury by up to 67%^[8]

NETBALL AUSTRALIA
KNEE PROGRAM
knee.netball.com.au

PREVENT INJURY AND ENHANCE PERFORMANCE (PEP) PROGRAM
aclstudygroup.com/pdf/pep-program.pdf

FIFA 11+ MANUAL
slideshare.net/PedMenCoach/fifa-11-warmup-to-prevent-injuries

STOP SPORTS INJURIES
stopsportsinjuries.org

AFL FOOTYFIRST
aflcommunityclub.com.au/index.php?id=906

RUGBY ACTIVATE PROGRAMME
australia.rugby/participate/coach/coaching-resources/world-rugby-activate

[1] Paterno. Non-operative Care of the Patient with an ACL-Deficient Knee. *Curr Rev Musculoskelet Med* 2017; 10(3): 322-327

[2] Grindem et al. ACL Injury – Who Succeeds Without Reconstructive Surgery? The Delaware-Oslo ACL Cohort Study. *Orth Journal of Sports Medicine* 2018; 6(5).

[3] Frobell et al. *NEJM* 2010; 363(4): 331-42 – *BMJ* 2013; 364:f232

[4] Karikis et al. The Long-Term Outcome After Early and Later Anterior Cruciate Ligament Reconstruction. *Arthroscopy* 2018; 34(6): 1907-1917.

[5] Barenius et al. Quality of Life and Clinical Outcome After Anterior Cruciate Ligament Reconstruction Using Patellar Tendon Graft or Quadrupled Semitendinosus Graft: An 8-Year Follow-up of a Randomized Controlled Trial. *AJSM* 2010; 38(8): 1533-1541.

[6] Ardern et al. Fifty-five per cent return to competitive sport following ACL Reconstruction surgery: An updated systematic review and meta-analysis including aspects of physical functioning and contextual factors. *BJSM* 2014; 48(21): 1543-52.

[7] McPherson et al. Psychological Readiness to Return to Sport Is Associated With Second Anterior Cruciate Ligament Injuries. *AJSM* 2019; 47(4): 857-862.

[8] Huan et al. The effect of neuromuscular training on the incidence of knee injury in female athletes: a prospective study. *AJSM* 1999; 27: 699-706.