

SPORTS INJURY FACT SHEET

ANTERIOR CRUCIATE LIGAMENT (ACL) INJURY

What is an ACL injury?

Injuries to the Anterior Cruciate Ligament (ACL) are relatively common in sport, especially in all football codes, basketball, netball and alpine skiing. Historically, serious injuries to the ACL have prematurely halted sporting careers. However, current surgical and rehabilitation practices enable most athletes with ACL injuries to resume regular sporting activities.

Anatomy

The knee is one of the most complex joints in the human body. As a hinge joint, it is structured to perform two principal actions:

- Flexion (bending)
- Extension (straightening)

The primary muscles acting on the knee are the quadriceps (for extension) and the hamstrings (for flexion).

The knee is comprised of:

- The bottom end of the femur (thigh bone)
- The top end of the tibia (shin bone)
- The patella (kneecap)

The major ligaments of the knee include the Anterior Cruciate (ACL), Posterior Cruciate (PCL), and the Medial (MCL) and Lateral (LCL) Collateral Ligaments. These ligaments, together with the surrounding muscles, provide the joint's stability.

The ACL prevents the thigh bone from moving forwards during weight bearing and also helps to prevent rotational movement of the knee.

Risk factors

ACL injury most often occurs when an athlete is pivoting, decelerating suddenly, or landing from a jump. It can also result from another player falling across the knee. Women are more likely to suffer an ACL injury than men.

Management

Initial treatment of soft tissue injuries should follow the RICER protocol – Rest, Ice, Compression, Elevation and Referral – for 48–72 hours. The aim is to reduce bleeding and damage within the joint.

- Rest the knee in an elevated position
- Apply an ice pack for 20 minutes every two hours (never apply ice directly to the skin)
- Use a correctly sized compression bandage to reduce swelling and bleeding
- Crutches may be necessary, especially if pain or instability is present

The No HARM protocol should also be followed – No Heat, No Alcohol, No Running or activity, and No Massage – to avoid increasing swelling or bleeding.

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A sports medicine professional should assess the injury as soon as possible. They may conduct a physical examination and take x-rays. An MRI is often recommended to confirm the diagnosis.

The management of a torn ACL has evolved significantly. Recent studies suggest some injuries may heal without surgery, and some individuals (known as “copers”) may function well without an ACL. Traditional treatment involves reconstruction surgery, where the torn ligament is replaced with a graft.

Several factors influence the choice of treatment:

- The degree of knee instability
- The type and grade of the tear (usually seen on MRI)
- Associated injuries in the knee
- Social factors (e.g. treatment cost, time off work)
- The athlete’s age, sport and level of play
- The expected demands on the knee

Management decisions should be guided by a sports medicine practitioner (e.g. orthopaedic surgeon, sport and exercise physician, or sports physiotherapist) experienced in ACL injuries. Rehabilitation should ideally be supervised by a physiotherapist. While protocols vary, recent approaches begin with protected mobilisation (including bracing), followed by strengthening exercises and then sport-specific functional exercises. An exercise physiologist may also support the final phases of rehabilitation.

ACL rehabilitation typically takes 6–9 months. Return to sport should always be guided by a qualified sports medicine practitioner.

Ways to help prevent ACL injuries include:

- Participating in training drills that focus on balance, power and agility
- Adding plyometric exercises such as jumping, landing and balance drills to improve neuromuscular conditioning and muscular reactions
- Undergoing an ACL conditioning program - now routinely recommended for female players - focusing on muscle strengthening and rehabilitation (quadriceps, hamstrings, gluteals, calf muscles and proximal stabilisers)
- Undertaking pre-season training, with at least four weeks of endurance work before the sporting or ski season
- Warming up, stretching and cooling down
- Gradually increasing the intensity and duration of training
- Allowing adequate recovery time between workouts or training sessions
- Wearing the right protective equipment, including appropriate footwear
- Checking the sporting environment for hazards
- Avoiding activities that cause pain. If pain occurs, stop the activity immediately and commence RICER

Always consult a trained professional

The information above is general in nature and is only intended to provide a summary of the subject matter covered. It is not a substitute for medical advice, and you should always consult a trained professional practising in the area of sports medicine in relation to any injury. You use or rely on the information in this fact sheet at your own risk, and no party involved in the production of this resource accepts any responsibility for the information contained within it or your use of that information.

Need a sports medicine practitioner?

Visit SMA's *Find a Sports Doctor* [online directory](#) to connect with a qualified Sports Doctor near you.

Looking for more information?

Sports Medicine Australia (SMA) is the peak national body for sports medicine, sports science and injury prevention education, dedicated to keeping Australians active, healthy and safe.

The SMA website is packed with practical resources, fact sheets and tools to support you, your team and your community to perform at their best while reducing the risk of injury.

You can explore nationally recognised training courses, including Provide First Aid and Provide Cardiopulmonary Resuscitation (CPR), as well as our industry-leading sideline support courses such as Sports Trainer Level 1 and 2, Introduction to Sports Taping, Introduction to Sports Massage and more.

Everything you need is at sma.org.au.

Acknowledgements

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