SPORTS INJURY
FACT SHEET

QUADRICEPS CONTUSION (CORKED THIGH)

What is a quadriceps contusion?

Quadriceps contusion, or a 'corked thigh' as it is commonly known, results from a severe impact to the thigh that compresses the quadriceps muscle against the hard surface of the femur (thigh bone). This often causes a deep rupture of muscle tissue followed by haemorrhage and inflammation. While this type of injury can occur in other regions, such as the calf or upper arm, it is most common in the thigh.

It often occurs in contact sports such as Australian football and rugby, or in sports like cricket, hockey or lacrosse where a hard ball or object may strike the thigh.

Risk factors

Suspected risk factors include:

- Contact sports and sports that involve hard balls, racquets, bats, & sticks
- Inappropriate, inadequate, or no warm up
- Off season/pre-season/season training habits
- Poor muscle conditioning
- Playing position
- Level of competition
- Protective equipment use
- Playing experience and coordination
- Injury history, especially to the thigh, hip and/or knee
- Medical history of any bleeding disorder
- Increasing age
- Poor nutrition
- Smoking history
- Obesity

Signs and symptoms

At the time of trauma, pain and reduced range of motion are commonly experienced. The severity of symptoms depends on the force of impact. The affected area may be swollen, painful to touch and bruised. Contusions are classified according to their severity:

Grade 1 (mild)
The player may continue playing but experience soreness later. Tenderness, reduced muscle stretch, and reduced strength may occur.
Return to play: 2–3 weeks

Grade 2 (moderate)
The player may be unable to continue and walk with a limp. Pain and tenderness are present, with reduced motion (up to 50%).
Return to play: 4–6 weeks minimum

Grade 3 (severe)
Rapid swelling and uncontrolled bleeding. Severe loss of movement and difficulty bearing weight. Area will be extremely tender and strength significantly reduced.
Return to play: minimum 8 weeks

Return to sport timeframes may be reduced with early injury management and assessment by a sports medicine professional.

Myositis Ossificans
More severe contusions increase the risk of developing Myositis Ossificans, a condition where bone forms inside the healing haematoma instead of muscle. Signs include:

- Pain (especially overnight and in the morning)
- Pain during muscle contraction
- Palpable hard lump or 'woody' feel in the muscle
- Stiffness and loss of knee movement

Bone formation usually stops after 6–7 weeks, with reabsorption taking up to 12 months in severe cases. There is no treatment to accelerate reabsorption. Poorly managed contusions increase the risk of this condition. Early assessment by a sports medicine professional is recommended to support recovery and manage pain.

Management

Apply the RICER protocol:

- Rest the thigh in an elevated position
- Ice applied for 20 minutes every two hours (do not apply directly to skin)
- Compression bandage to limit swelling and bleeding
- Elevation to reduce fluid build-up
- Referral to a sports medicine professional

The No HARM protocol should also be applied – no heat, no alcohol, no running or activity, and no massage. This will ensure decreased swelling and bleeding in the injured area.

Gentle, gradual, pain free stretching of the muscle will assist in restoring full range of motion in mild muscle contusion injuries. Moderate to severe contusions may require the use of crutches to ensure complete rest, particularly if full weight bearing on the affected leg is painful.

Stretching (for mild injuries):

- Begin immediately post-injury
- Helps reduce muscle spasms and improves flexibility
- Use standard quadriceps stretches with hip flexed and extended
- Hold stretches for 10 seconds, repeat 3–5 times daily

Another early rehabilitation technique used is Quad Sets. These are isometric contractions of the muscle. The athlete tries to make the muscle flex and holds for 10 seconds, repeating 30–60 times, three to five times daily.

Strengthening of the injured muscle should begin two to seven days post-injury, depending upon the severity. These exercises include:

- Four plane straight leg raises
- Seated hip flexion
- Seated knee extension
- Partial squats
- Side step-up

Ways to help prevent quadriceps contusions occur include:

- Wearing protective padding over the thigh
- Participating in a strengthening, flexibility and conditioning program appropriate to the sport
- Undertaking training prior to competition to ensure readiness to play
- Gradually increasing the intensity and duration of training
- Allowing adequate recovery time between sessions
- Checking the sporting environment for hazards
- Drinking water before, during and after play
- Avoiding activities that cause pain—if pain occurs, stop the activity and begin 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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