

Treating inflammation with PRICE - immediately after injury and for 3-5 days afterwards

Tissue injury usually involves damage to small blood vessels that results in bleeding at the site of injury. This bleeding leads to the five main signs of inflammation: heat, redness, swelling, pain and loss of function. The inflammatory reaction is necessary as it is part of the natural healing process. However the body tends to overreact to sudden traumatic injury and as a result more inflammatory fluid accumulates than is necessary for healing. This fluid contains a protein that turns into replacement 'scar' tissue. Too much scar tissue may prevent the structure returning to normal function with reduced flexibility and increased risk of re-injury. The advice below should be followed for 3-5 days depending on severity. It can be remembered by the acronym **PRICE**.

- **PROTECT** - Protect the injured tissue from undue stress that may disrupt the healing process and/or cause further injury. Make sure the mode of protection can accommodate swelling.
- **REST** - This reduces the energy requirements of the area, avoids any unnecessary increase in blood flow, ensures protection of the area and optimises healing. For example using slings, crutches or static rest (ie. sitting or lying down).
- **ICE** - The ice helps constrict the blood vessels thereby limiting bleeding and reducing the accumulation of unnecessary scar tissue. Crushed ice wrapped in a damp towel (to prevent ice burn) is best (ice cubes can be wrapped in the cloth and smashed against a wall to crush the cubes). Ice should be applied immediately after injury for 20 minutes every 3-4 hours or no more than 5-10 minutes at a time on bony areas.
- **COMPRESSION** - Simple off-the-shelf compression bandages such as Tubigrip™ and adjustable neoprene supports are adequate. It is important to ensure the bandages are not too tight to cause pins and needles or any loss of feeling around the joint.
- **ELEVATION** - Lowers the blood pressure and helps limit bleeding and encourage drainage of fluid through the lymphatic system.

When following **PRICE** it is also important to avoid **HARM**, hence the saying: 'Give **PRICE** and avoid **HARM**'.

AVOID

H - Heat (eg. hot bath, sauna)

A - Alcohol

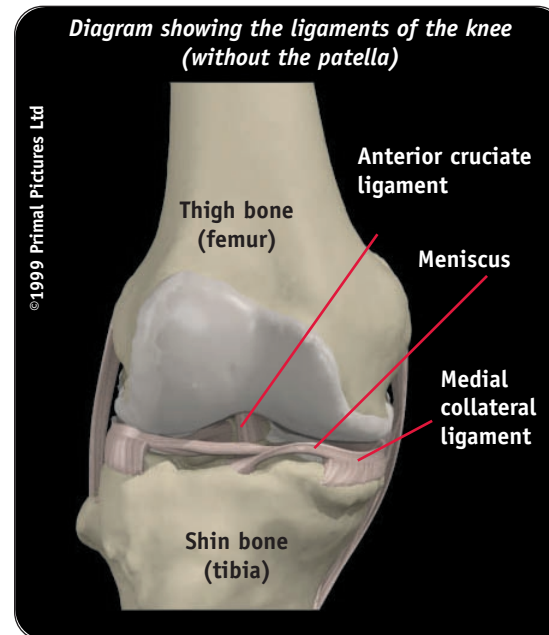
R - Running

M - Massage



these are counter-productive to **PRICE** treatment

Exercises for ACL rehabilitation



USEFUL RESOURCES

- SportEX Medicine magazine
www.sportex.net
- The Organisation of Chartered Physiotherapists in Private Practice -
www.physiofirst.org.uk
- General Osteopathic Council
www.osteopathy.org.uk
- The Sports Massage Association
www.thesma.org
- The Osteopathic Sports Care Association
www.osca.org.uk

YOUR INJURY

The anterior cruciate ligament (ACL) is one of the most important ligaments of the knee. It plays a central role in controlling the locking of the knee and excessive movement of the tibia (shin bone) on the femur (thigh bone), both in a forwards direction and in rotation. Without the ACL stabilising knee movements and providing proprioceptive feedback, the knee can become unstable during functional or sporting activities causing further trauma to the knee.

WARM UP & WARM DOWN

When injured it is particularly important that you warm up with a fast walk (at a pain free pace) for 3-4 minutes before you start your exercises. This increases your circulation and helps prepare your muscles for the activity to come.

When you have finished your exercises, it is also important to allow your heart rate to slow down gradually by ending the session with a gentle walk for 3-4 minutes.

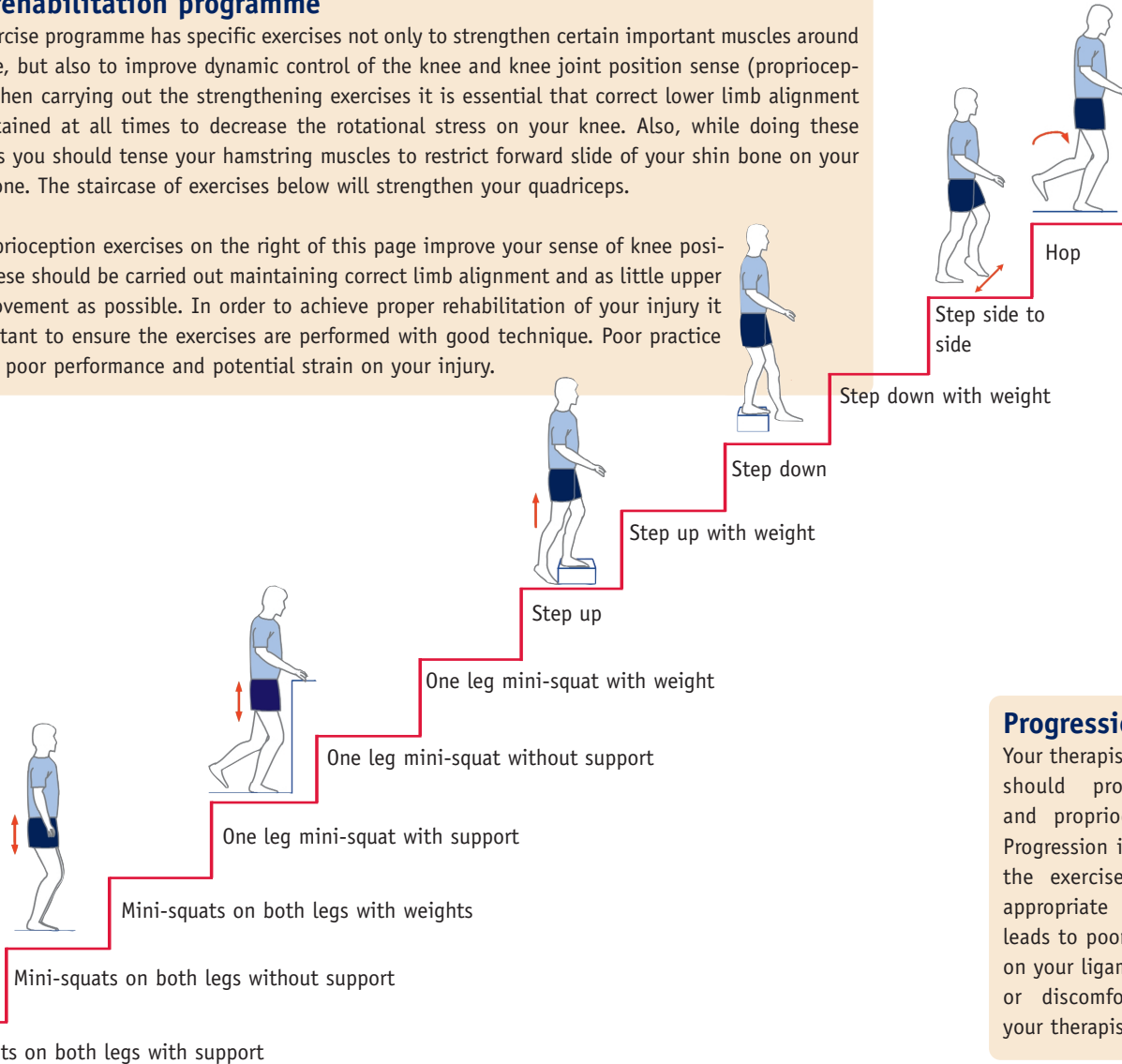
Exercises for ACL rehabilitation

Strengthening exercises

Your rehabilitation programme

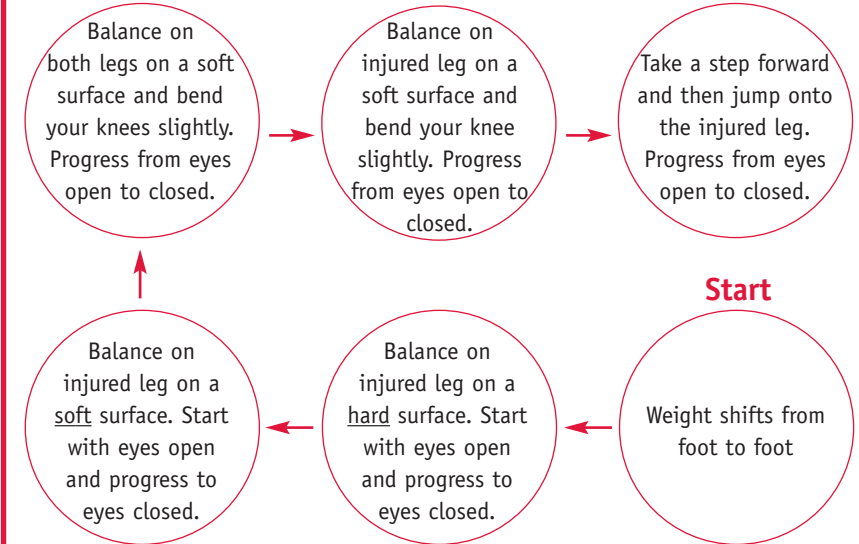
This exercise programme has specific exercises not only to strengthen certain important muscles around the knee, but also to improve dynamic control of the knee and knee joint position sense (proprioception). When carrying out the strengthening exercises it is essential that correct lower limb alignment is maintained at all times to decrease the rotational stress on your knee. Also, while doing these exercises you should tense your hamstring muscles to restrict forward slide of your shin bone on your thigh bone. The staircase of exercises below will strengthen your quadriceps.

The proprioception exercises on the right of this page improve your sense of knee position. These should be carried out maintaining correct limb alignment and as little upper body movement as possible. In order to achieve proper rehabilitation of your injury it is important to ensure the exercises are performed with good technique. Poor practice leads to poor performance and potential strain on your injury.



Proprioceptive exercises

Proprioception exercise progression



Progression speed

Your therapist will advise you on the speed you should progress on the strengthening and proprioception progression programme. Progression is not just about being able to do the exercise but to do it correctly, with appropriate control. Remember poor practice leads to poor performance and potential strain on your ligament. If at any time you feel pain or discomfort stop the exercises and consult your therapist.

PRACTITIONER CONTACT DETAILS