

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 local blood vessels and reduces cell activity which helps limit bleeding and reduce 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** - For the greatest effect, the injured part should be higher than the level of the heart. This helps lower the blood pressure, 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

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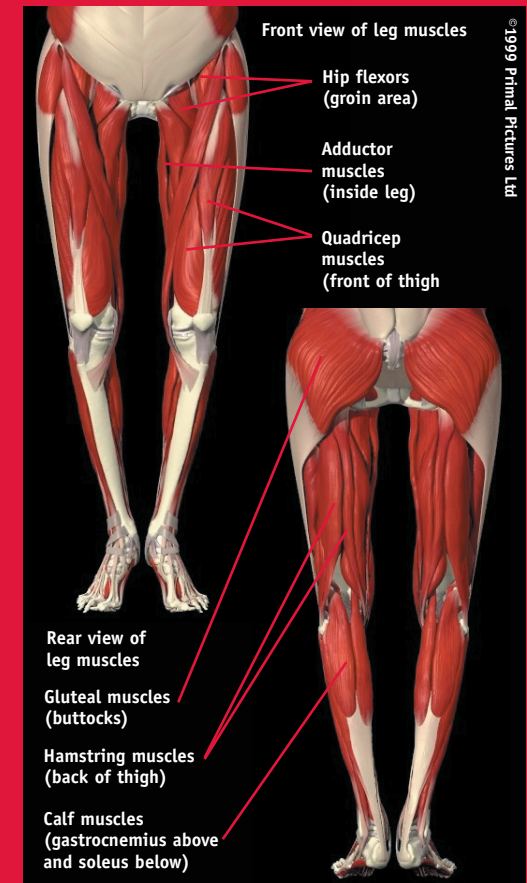
WARMING UP AND STRETCHING

THE LOWER BODY

WHY WARM UP & STRETCH?

Whatever your level of participation, from elite to recreational sport, formal or informal physical activity programmes or just occasional leisure activities, this leaflet is aimed at helping you participate safely. The main aim of a thorough warm-up and stretch is to prepare the cardiovascular system (eg. heart and blood vessels supplying the muscles), the musculoskeletal system (eg. muscles, ligaments), and the nervous system, for physical activity.

Warming up and stretching makes the muscles more flexible and there is a growing collection of research which suggests there is a relationship between muscle tightness and an increased risk of muscle strains (although this is still debated between some scientists). The increase in body temperature as a result of a warm up also encourages a more efficient use of oxygen by the body as well as an increase in the sensitivity of nerves carrying messages to the active muscles. Finally the warm up also helps the heart increase its output meaning that more fuel products can be delivered to the muscles along with more waste products being able to be removed.



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THE IMPORTANCE OF WARM UP AND STRETCHING

While the role of, and evidence for, warming up and stretching in the prevention of injury is still widely debated, there continues to be a significant number of clinical, experimental and qualitative observations which do support a link between warm up and improved physical performance and efficiency.

Warm up

The first aim is to increase your core body temperature which will increase the flexibility of

your muscles as explained earlier.

The second aim is to increase the heart and breathing rates and therefore the supply of oxygen to the muscles. A warm up should involve a 5-10 minute period of activity such as brisk walking, slow jogging or swimming a few gentle laps. Your core body temperature should have now risen and you should feel hot and sweaty! You now need to stretch out appropriate muscle groups. Remember to repeat the stretches on both legs.

Stretching/flexibility

- Hold each stretch for between 15-20 seconds and repeat 3-5 times on both legs.
- It is very important to maintain a good posture while carrying out every stretch.
- Concentrate on breathing slowly and deeply, particularly concentrating on exhaling as this may help increase the relaxation of the muscles.
- Make sure the stretches are preceded by an active warm up as outlined above as this makes the tissues more flexible.

- The following leaflet includes stretches for all the main muscle groups of the legs. However it may be beneficial to include additional stretches for the upper body and for specific activities or sports - a therapist, coach or trainer will be able to advise you on these stretches.
- Each stretch should be comfortable and not cause any pain.
- Remember to change legs on all the stretches.

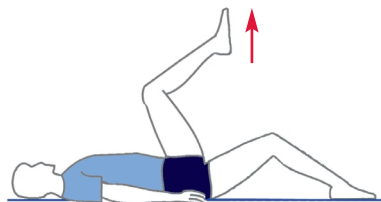
1. Quadriceps stretch (the muscles at the front of the thigh)

This exercise can be done either lying (see diagram) or standing. If you choose to stand then maintain a good posture, pull one foot towards your buttocks, ensuring the knee of the supporting leg is slightly bent or 'soft and not locked straight. Tuck your bottom in and maintain this position while squeezing your heel to your buttock.



2. Hamstring stretch (the muscles at the back of the thigh)

Lie on your back, bring your knee towards your chest then slowly straighten your leg gently until you can feel a stretch in the back of your leg. Ensure your back is flat to the floor.



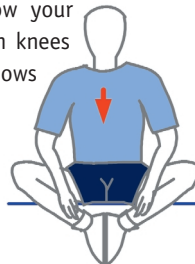
3. Hip flexor stretch (the muscles at the front of the groin)

Squat down with your right leg forward and your knee at a right angle with the foot fixed to the floor. Place your left foot as far back as possible from the right foot. If necessary support yourself by placing both hands either side of your right foot. Lower your body towards the floor, feeling the stretch at the front of the groin.



4. Adductor stretch (muscles inside your thigh)

Sit upright with a good posture. Place the soles of your feet together. Allow your knees to fall outwards. Push knees further apart with your elbows to increase the stretch.



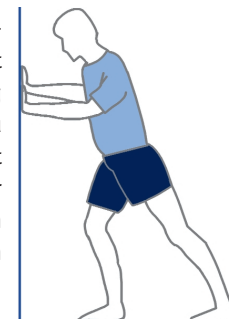
5. Gluteals stretch (the buttock muscles)

Lie on your back with your left knee bent. Raise your right leg with knee bent to a right angle and foot resting on your left thigh. Allow the right knee to drop out. Progress by placing your hands around the back of your left thigh and pulling it towards your chest feeling the stretch around the right hip.



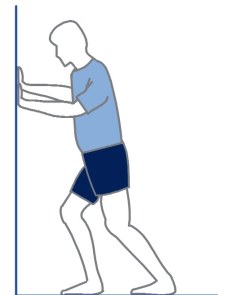
6. Gastrocnemius stretch (one of the two main calf muscles)

Stand facing a wall resting both palms against it. Extend your left leg straight out behind you and bend the front right leg. Keep the heel of your back leg down and lean forwards to feel a stretch in the calf area.



7. Soleus stretch (the other main calf muscle)

Take the same position as in exercise 6 but this time bend the back leg slightly. This will change the emphasis of the stretch to the other muscle which makes up the calf muscle area. Again you should feel a stretch in the back of your calf muscle.



PRACTITIONER CONTACT DETAILS