

## Immediate treatment of inflammation using PRICE;

The treatment should be used directly after the injury has been sustained and carried out for 3-5 days.

Tissue injury involves damage to small blood vessels, which in turn results in bleeding at the sight of injury. There are 5 main signs of inflammation that can be recognized; Heat, redness, swelling, pain and loss of function. Inflammation is a necessary bodily response for the healing process of the damaged area. However we can use PRICE as the body tends to over react to injury, to minimize the symptoms and reduce discomfort.

- **P - PROTECT** - protecting the injured tissue from further damage, whilst allowing swelling to accumulate.
- **R - REST** - reducing the energy requirements of the area as well as avoiding any excess blood traveling to the area.
- **I - ICE** - which causes vasoconstriction, allowing the blood vessels to reduce blood flow to the area. Crushed ice in a damp towel works best, and should be put on immediately after injury for 20 minutes, then every 3-4 hours at 5 - 10 minutes duration.
- **C - COMPRESSION** - Simple bandages will do, whilst making sure the bandages are not too tight.
- **E - ELEVATION** - The injured area should be placed higher than the heart level, in turn helping to reduce blood pressure, limit bleeding as well as encouraging removal of fluid through the lymphatic system.

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## Exercises for hamstring strains

### About your injury;

The hamstring muscle group is found in the back of the thigh and consists of three muscles. The hamstrings are described as two joint muscles, where the contractions occur at both the hip and knee, which makes them particularly vulnerable to injury. Muscle damage usually occurs in different stages of damage; Grade 1 - Minor tear of a few fibres. Grade 2 - tearing of more fibres but muscles still intact. Grade 3 - Total rupture of the muscle.



Hamstring Strain



### Warm up and warm downs;

When carrying an injury it is especially important to make sure there is sufficient blood flow to the area in question as well as warming the muscles. This must be carried out before any stretches, and is usually done so by having a light jog for up to 5 minutes. Upon finishing an activity a warm down must also be carried out, which allows for the removal of lactic acid as well as a gradual decrease to heart rate and blood pressure. This should be carried out with a light jog decreasing to walking pace.

## Strengthening exercises

In order for you to rehabilitate your injury you need to gain strength and flexibility within the hamstring muscle. The following exercises have been designed to progressively build muscle strength. To begin with the muscle is initially contracted against resistance, while the limb is held in a fixed position (producing an isometric contraction - no movement is involved).

Once you have reached the point where this can be accomplished pain free, you can progress to a dynamic muscle contraction, with gradually increasing the load. The final step of the rehabilitation is to make the exercises sport specific.

### 1. Hamstring flexion

- Lie face down and begin by trying to bring your heel to your bottom against the resistance of your therapist.
- Progress by including movement
- Build up to adding a theraband and flexing your heel at the bottom.

### 3. High step ups

Step up onto a high step (the hip should reach 90 degrees with one foot on, one foot off the box)



### 2. Chair drags

Sit on an office chair (with wheels) pull yourself along digging in your heels as opposed to pushing off the floor.

### 4. Hip curls

Lying on your back with your heads towards a door (or somewhere where you can attach the theraband). Flex your hip as high as possible keeping your knee straight. Attach the band to your ankle and extend the leg to the floor making sure you control the return movement.

## Stretching exercises

Regaining flexibility - during the first two weeks following injury you should not stretch the injured muscle as this is likely pull apart the healing tissue. After 14 days the scar begins to sink and then the stretching exercises are required to maintain normal extensibility of the involved muscle.

### 1. Sitting hamstring stretch

Sit on a chair and extend your leg until you feel a gentle stretch in your hamstrings.

### 3. Supported hamstring stretch

Lie on your back through an open door, hips just in front of the door frame. Slide your leg until you feel a stretch.

### 2. Hamstring stretch

Lie on your back and extend your legs upwards until you feel a stretch, work towards straightening your knee.



### Guidance for stretching exercises -

Hold all stretches for 20 seconds each and repeat them 5 times on each leg. It is important to stretch the uninjured legs as well so that both legs reach a similar level of flexibility.

### Progression speed -

Your therapist should advise you on the speed that you should progress on the strengthening and proprioception exercises. It is important to remember that progression is not only about capability to perform the exercise, but to perform it safely and correctly to remove any risk of injury.

