

Hockey Injuries

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Soleus Strain

The soleus is the deeper of the two main calf muscles. It arises from the *tibia* & *fibula* just below the knee, & blends into the Achilles tendon, which inserts into the back of the heel. The main function of soleus is to help raise the heel (an action known as *plantar flexion*). It does this with the assistance of the other main calf muscle, *gastrocnemius*, and certain other deep muscles.



pressure on the arch & inside aspect of the forefoot. The effect can also be felt higher, with twisting at the knee and hip. Tightness can also cause early raising of the heel, which puts added pressure on the forefoot, on other muscles of the lower leg, and on the front of the knee. Tightness also makes the soleus more prone to strain injury. Extreme tightness can lead to a high arch foot posture.

Soleus Strains

A strain is a tear of the muscle fibres. This can occur suddenly, resulting in acute pain and limitation. However, in the case of soleus, it is more common for symptoms to build up slowly. The player may notice a cramping sensation, or a gradual tightening during a match or over several days. Interestingly, sprinting can be less of a problem than walking, jogging or going down stairs. In hockey, it is common for the injury to build slowly, and it may not significantly interfere with performance during a match



Soleus has secondary functions other than plantar flexion. When we stand, it helps us maintain upright posture, by making adjustments when the body sways forward. This is why the soleus has a large number of 'slow twitch' muscle fibres – it needs to have good endurance capacity. When the leg bends forward over the ankle, it contracts to prevent excessive movement. It helps us to maintain a semi-squat position, giving support to the knee and lower leg. This is important in certain sports like



hockey, cricket and basketball.

Tightness



When the soleus is tight it can have certain detrimental effects on the leg. It can encourage a *hyperextension* at the knee in standing. When walking, it can cause a 'toeing out' compensation, which places

Causes:

1. Sudden overload. An explosive movement, particularly with the knee bending forward over the ankle, can cause an acute tearing of the soleus muscle fibres. This will be likely to result in sudden pain and



possibly swelling, but sometimes pain may be delayed.

2. Sustained or repetitive positions that involve soleus activation. In hockey these positions are common. There is sustained loading during stationary dribbling, short corners and defensive positions; and sudden loading during running, propping, passing and hitting.

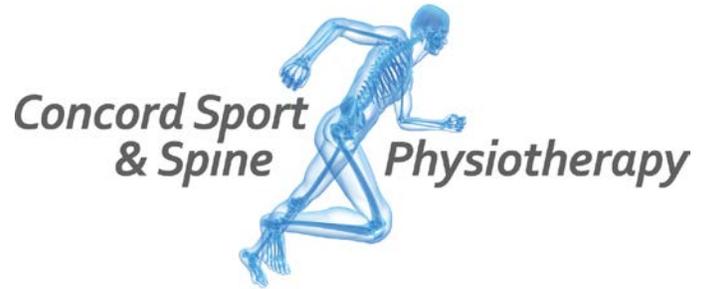


3. Excessive pronation (flat-footed posture)
4. Calf tightness.
5. Knee instability. When the knee is unstable due to ligament injury, muscle weakness, or patellar (kneecap) instability, the soleus will try to assist with stabilizing the knee and may be overloaded.
6. Weakness of other lower leg muscles.



6. Correction of faulty foot biomechanics.

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Treatment

1. R.I.C.E. treatment in the acute stage. Rest from sport may be necessary for up to 4 weeks in more significant strains.
2. Stretching, particularly the bent knee calf stretch.
3. Use of a raised heel for walking in the early stages
4. Deep tissue massage, trigger point techniques or dry needling.
5. Specific strengthening:
 - Calf raises with a bent knee. Progressive resistance is added, and the endurance of the muscle needs to be improved as well.
 - Training in hockey specific positions, for both static and sudden loading of the muscle.

