

# Impact Injuries

## and Flexibility Peter Georgilopoulos



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In this article Peter discusses how athletes may be able to offset some of the effects of the accumulation of training impact on the body.

The scourge of most athletes is undoubtedly recurrent injury, joint and muscle soreness and impaired performance as a result of insufficient recovery from impact loading on joints and muscles.

The mechanism whereby athletes complain of recurrent episodes of back, hamstring and groin tightness is largely the result of a series of events which can result in either lower back pain or a lesion in either the hamstring or the groin.

Quite often athletes will complain of increasingly tighter muscles in the buttock and thigh despite being very conscientious about their flexibility routine. Often this is explained as post exercise muscle soreness and disregarded as nothing out of the ordinary.

Realistically, most athletes at some stage of their career will experience these muscular limitations or may even have long standing episodes of muscular breakdown, requiring considerable amount of time away from their sport.

A likely scenario involves the huge impact forces that are transmitted on landing with each step whilst sprinting or landing from a jump on firm terrain. Unlike distance athletes who have the protection of cushioned footwear, track runners are offered no impact cushioning by their spikes.

These forces are absorbed largely by the weight bearing joints of the back and pelvis, and with repeated overload an inflammatory reaction is precipitated in the joints mentioned. This inflammatory reaction results in a two fold problem:

The first is the gradual stiffening of the weight bearing joints, known as the facet joints of the lumbar spine. The results in mechanical limitation so that in practical terms, athletes find it increasingly difficult to arch backwards or to move freely, especially around the hips and pelvis and occasionally into the groin and posterior thigh.

The second and more complex problem involves the close proximity of the nerves that supply the muscles of the lower limb and pelvis, which emanate from this anatomical region

and which course through the buttock.

The inflammatory reaction does not limit itself only to the joints of the spine, but will ultimately extend and involve the nerve roots which supply the muscles of the lower limb and should, as a first point of reference, address the stiffness in the lumbar spine and the resultant inflammatory reaction.

This mechanism becomes further complicated when continuous overload irritates the nerve roots, which further stimulate the muscles of the lower limb, resulting in a relative inability to be able to fully stretch that muscle belly. A tightening of the hamstring group results in a tilting of the pelvis creating an increased predisposition to further impact.

Elite competitors obviously have access to physiotherapists and other medical staff and will often be very sensitive to changes in their muscle length. This often impacts on their speed and overall performance and so they will often seek early intervention which may involve manual techniques to the lumbar spine and pelvis, such as spinal manipulation, stretches to tight muscular structures in the buttock, and nerve stretches.

Recreational competitors will often discount this as a normal part of their post exercise soreness and will often continue until they incur a true muscle tear. Even on return they may not have achieved any real improvement in their lumbar flexibility and are quite likely to suffer numerous recurrences.

Often athletes may complain that they have strained their hamstring towards the end of a hard training session when they readily admit that they were well stretched and warmed up. This is in contrast to the popular belief that hamstring strains will only occur if an athlete is insufficiently warmed up at the start of training or competition.

This type of common hamstring or groin problem is the result of repetitive impaction on the back which reaches the point where the muscles are no longer able to function in a normal contract/relax method. To minimise these effects, each athlete needs to address the issue of supportive footwear with corrective orthotics if required.

This will help to improve the biomechanics and the weight

bearing function of the foot, especially in those athletes who have relatively flat arches. The other obvious area for preventions would be in maintaining lumbar and pelvic flexibility which would allow normal muscular function to occur in the hamstring and groin.

Some basic lumbar, pelvic and thigh stretches are shown here which should be used to complement the athlete's more extensive regular flexibility routine. When undertaken systematically as part of a post training/competition routine with reproducible flexibility targets there is clinical evidence to support a significant reduction in recurrent lumbo-pelvic and lower limb tightness and subsequent strains.

Of course, this article offers only a very rudimentary overview of the recurring problems and does not address the specific needs of individual athletes. Ideally, establishing a support network of professional, medical and allied health providers can be invaluable in helping to optimise your athlete's performance and potentially minimise time away from competition.



