

Training Talk – Hamstring tension and lower back pain

Written by Dr. Lean Sirauss - Edenvale M.Tech.Hom.(Wils) - drsirauss@mweb.co.za

Our bones, joints and muscles constantly work as a team to support the body in an upright posture and allow for integrated movement, whether moving from a camping chair and extending out towards the boerewors on the braai or running an ultra distance marathon. Injury is possible during either activity. The simplest of movements requires complex coordination between all systems, being controlled by the brain via the extending network of nerves coursing through the body. Some of these nerves are directly under our control, while a myriad of others fire precisely at the right times to stabilise movement and coordination, without which we would probably struggle enormously just to move from sitting to standing and maintain balance.

The hamstrings are a group of muscles that run from the base of the pelvic bone and insert into the lower leg bones (tibia and fibula). The name 'hamstring' originates from the word 'ham' originally used to refer to the hollow behind the knee, where the tendons insert, and 'string' refers to the string-like tendons at the back of the knee. This group of muscles plays an essential part in walking, running, jumping and some movement across the upper body area. They serve to allow flexion of the lower leg and are maintained with a constant tension to stabilise balance. Tight hamstrings cause a constant downward pull on your pelvis, since the pelvis forms the foundation of your lower back and spine area, inflexible hamstrings contribute to an unstable lower back and a greater chance of intermittent spasms and strains. It has been estimated that up to 80% of cases of intermittent lower back pain is caused by tight hamstrings. The best way to assess hamstring length is to lie flat on your back and have someone slowly raise one leg. Your leg must be completely relaxed. If your hamstrings are sufficiently flexible for your height, your leg can be raised 90 degrees off the ground (straight up towards the ceiling), without feeling significant tightness from behind the knee to the pelvis. If you feel tightness before 90 degrees, it is time to start stretching.

Acute muscle strains involving the hamstring group of muscles and lower back area usually occur during intense training periods, especially with sprinting episodes in runners. As acute injury to the hamstring muscles occurs, runners may feel a sudden pain across the back of the leg, with swelling and tightness developing quickly. This acute injury is usually the result of a combination of a number of preventable factors. Passive stretching and compression will be painful. Initial measures of Rest, Ice, Compression and Elevation (RICE) should be started immediately, followed by gentle stretching exercises on days 3-5 after the muscle strain.

The likelihood of injuries to the hamstrings and lower back are increased by inadequate warming up before training as well as incorrect training programs. During training periods weakened muscular fibres are present within muscular groups as remodeling and strengthening of tissue occurs after injury. Other risk factors for injury include-

- Previous injuries or acute bruising injuries
- Increased age
- Inflexible and tight hamstrings
- Muscle ratio imbalances within the upper leg
- Inadequate warm-up/stretching
- Poor lower back flexibility
- Abnormal biomechanics (e.g., anterior pelvic tilt)

Persistent lower back pain and the tendency to spasms may also be directly associated with inflexible hamstring muscles. This is aggravated by bad postures, sitting without adequate lumbar support and running. Ironically this lower back pain leads to a reflex tightening of the hamstring muscles. This compensatory tightening of the hamstrings can progressively decrease your flexibility, thereby restricting full range motion and ultimately decrease muscular strength. Tight hamstrings result in a slight 'posterior tilt' in the pelvis, which may take a small amount of strain away from the lower back, but decreases your mobility significantly.

Regular stretching and maintaining flexibility is one of the most successful ways of avoiding muscular strains and spasms throughout the body. This is particularly relevant in runners, who are continuously at risk. Stretching the hamstring muscles periodically can help prevent muscle strains as well as protecting the lower back area.

Injury may have an insidious onset as micro-trauma occurs due to intense training programs, with and about the strained muscle groups; this type of damage may be unrecognised by the athlete and can precede serious injuries. This process is dynamic and unavoidable while working towards training goals. Safe, effective and proven support is necessary to assist the body to heal itself; preventing injury should be an essential main focus of training programs.