

## Hamstring Injuries

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One of the most common injuries in recreational and professional sports is the hamstring injury. It is especially important for every doctor of chiropractic to be able to make a correct differential diagnosis between sciatic neuritis and a hamstring injury. The hamstring group is made up of three muscles: the semimembranosus, semitendinosus, and the two heads of the biceps femoris. The semimembranosus and the semitendinosus are the medial hamstrings, and the two-headed biceps femoris is the lateral hamstring. Since the hamstring group is a muscle, the correct term for an injury is hamstring strain.

The location of pain may be anywhere along the entire length of the muscle, including the origin of the group on the ischial tuberosity to the pes anserinus on the medial side of the proximal tibia, and the insertion of the biceps femoris on the proximal fibular head.

Most hamstring strains are due to a biomechanical imbalance. I have rarely seen an athlete whose hamstring muscles were developed in the right proportion to the powerful anterior leg muscles, the quadriceps. Some NFL teams are now requiring their players to be able to lift 100 percent of their body weight with their quadriceps and 75 percent with their hamstrings.

I believe that the importance of the hamstring group has been overlooked in knee injuries. The hamstring group inserts on both the medial and lateral side of the knee, and therefore, is the more important knee stabilizer than the quadriceps muscle group, which only crosses the anterior knee. The hamstrings must be strengthened in almost all patients, including most low back patients. A weakness of the hamstrings will cause an anterior pelvic tilt and create a more shearing force of the lumbosacral region. In my clinic, we teach strengthening exercises of the hamstrings and abdominals to all our patients. We discourage quadriceps strengthening until the hamstrings are strengthened up to the 100-75 percent quadriceps to hamstring ratio.

Dr. Michael Yessis, a Ph.D., and the foremost expert on Soviet sports, as well as the publisher of Soviet Sports Review for the last 25 years, says that the Soviets are doing a tremendous amount of strengthening of the hamstring muscles. Of particular interest is that not only do they strengthen the lower hamstrings, but they strengthen the upper hamstrings as well. This is accomplished by having the patient in a kneeling position with the back upright and the ankles stabilized by another person. An alternate way of doing this is for the patient to kneel and place his ankles under a couch or bed for stabilization. The patient slowly leans forward without bending at the waist.

The individual hamstring strength of each patient will vary. The proper procedure is to slowly lean forward for three to five seconds and then return to the upright position. This should be repeated eight to ten times for one set. Three sets should be done in each session. Caution should be advised to all patients since even a 20 percent forward lean can cause a cramping of the upper hamstring. The optimum lean to be achieved would be between 45-75 degrees.

The treatment plan for hamstring injuries in my clinic consists of a biomechanical evaluation of the spine, pelvis, knee, ankle, and foot. The foot should be checked for overpronation.

Custom orthotics are made in the clinic if overpronation is found. At least 60 percent of the patients overpronate. Chiropractic manipulation to all subluxated joints is prescribed. Deep tissue massage therapy is recommended for the injured hamstring and the quadriceps muscles. Minimal electrical therapy is utilized along with ultrasound to the injured area. Depending upon the severity of the injury, the strengthening program is started only after the pain in the injured muscle subsides. A light quadriceps and hamstring stretching program is also started at the same time as the strengthening program.

Many sports clinics across the country focus on stretching the injured hamstring muscle as a primary means of treatment, assuming that the tight hamstring is the major cause for the injury. In my opinion, this is not correct; the cause of the injury was due to the weakness of the hamstring muscle group.

You, as a doctor of chiropractic, should be the sports medicine specialist in your community. We are the best trained physicians to diagnose and treat biomechanical injuries such as hamstring strains.

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