Hamstring Strain

MICHAELA FERRERO, CHUCK RUOT, LINDSAY SPINDLER

Human Performance Laboratory; Department of Kinesiology, Health, and Recreation; Hardin Simmons University, Abilene, TX

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Advisor / Mentor: Ruot, Chuck (cruot@hsutx.edu); Spindler, Lindsay (Lindsay.spindler@hsutx.edu)

ABSTRACT

CLINICAL PRESENTATION & EXAM: During the physical examination, the patient can recall the moment that the injury occurred. The patient will typically complain of a sudden or severe pain in the posterior thigh during exercise. Runners often notice a popping or tearing sensation at the time of the strain. Posterior thigh pain and tenderness will develop immediately after the incident. Depending on the severity of the strain the athlete may start showing signs of discoloration of the skin and swelling distal to the glutes. A simple palpation test of the semimembranosus, semitendinosus, and bicep femoris muscles is used in the physical examination to determine the exact area of the strain. **ANATOMY & PATHOLOGY**: The semimembranosus, semitendinosus, and bicep femoris (hamstrings) are a group of powerful skeletal muscle fibers that are long and predominantly composed of type II fibers. The hamstrings extend from the ischial tuberosity, cross the knee joint posteriorly, and attach to either side of the tibia. The hamstrings, therefore, cross the hip and knee joint which can lead to other pathologies in these areas. A hamstring strain typically comes from muscle overload during eccentric contraction. In a hamstring strain there is either a partial or complete tear of the muscle fibers. The strain can occur in either the muscle belly or where the fibers join the tendon. **DIAGNOSTIC TESTING & CONSIDERATIONS**: The initial diagnosis is completed with a simple palpation test which will determine if imaging needs to occur. Hamstring strains are graded as I, II and III. A grade I injury is a mild muscle strain or a pull of the muscle. A grade II injury is a partial muscle tear in one of the three hamstring muscles, and a grade III injury is a complete tear of the muscle. An X-ray and an MRI are on occasion used to determine the diagnosis. The X-ray films would be expected to show an avulsion fracture. An MRI would be taken to determine the grade of muscle strain as well as the extent of the injury. **TREATMENT & RETURN TO ACTIVITY**: Conservative treatment for a hamstring strain is usually successful, though the strain can reoccur. Inflammation may be controlled with resting the leg, ice, compression, and elevation as well as anti-inflammatory medication. Also, therapeutic stretching and strengthening exercises are routinely prescribed for hamstring strains. Occasionally, a grade III strain will require a surgical repair. The surgical repair involves the pulling of the hamstring tendon back into place. The tendon is reattached with devices called anchors. In any treatment, patient compliance is crucial for successful results, and the injury usually improves when the activity that aggravates the area is limited.