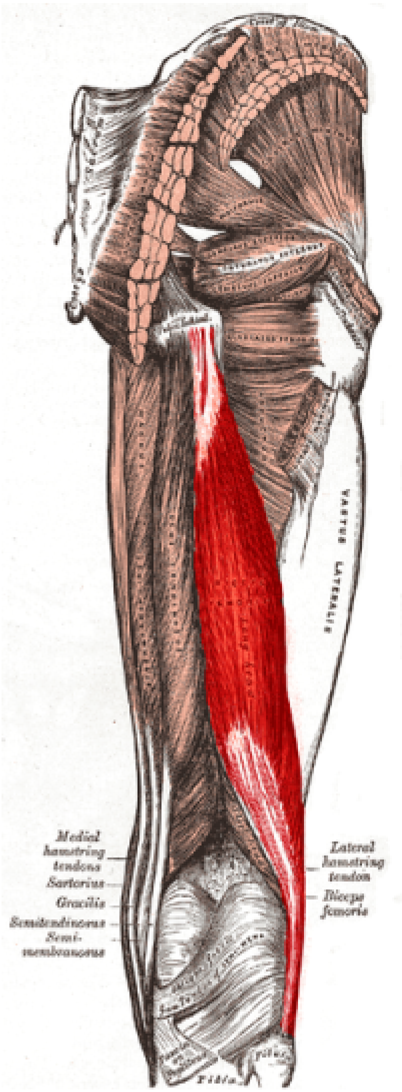
Biceps femoris muscle



The biceps femoris is a muscle of the thigh located to the posterior, or back. As its name implies, it has two parts, one of which (the long head) forms part of the hamstrings muscle group.

It has two heads of origin:

The long head arises from the lower and inner impression on the posterior part of the tuberosity of the ischium. This is a common tendon origin with the semitendinosus muscle, and from the lower part of the sacrotuberous ligament.

The short head, arises from the lateral lip of the linea aspera, between the adductor magnus and vastus lateralis extending up almost as high as the insertion of the gluteus maximus, from the lateral prolongation of the linea aspera to within 5 cm. of the lateral condyle; and from the lateral intermuscular septum.[1]

The two muscle heads joint together distally and unite in an intricate fashion. The fibers of the long head form a fusiform belly, which passes obliquely downward and lateralward across the sciatic nerve to end in an aponeurosis which covers the posterior surface of the muscle and receives the fibers of the short head. Inferiorly, the aponeurosis condenses to form a tendon which predominantly inserts onto the lateral side of the head of the fibula. There is a second small insertional attachment by a small tendon slip into the lateral condyle of the tibia.

At its insertion the tendon divides into two portions, which embrace the fibular collateral ligament of the knee-joint. Together, this joining of tendons is commonly referred to as the conjoined tendon of the knee.

From the posterior border of the tendon a thin expansion is given off to the fascia of the leg. The tendon of insertion of this muscle forms the lateral hamstring; the common fibular (peroneal) nerve descends along its medial border.

Forty individuals were divided into case (n = 20; low back pain with unilateral radiculopathy due to disc herniation), and healthy control groups (n = 20). The thickness of lumbar multifidus at L5 level, and of lower limb muscles (i.e., biceps femoris, medial gastrocnemius, and soleus) was measured during both rest and full contraction to calculate the rest/contraction ratio of these muscles. Additionally, the sciatic nerve cross-sectional area and the echogenicity of the nerve and muscles were measured based on ultrasound imaging. The association between severity of low back pain radiculopathy (i.e., pain and patients' perceived disability) and rest/contraction ratio was assessed.

Patients with sciatica showed sciatic nerve enlargement, and different contraction ratios for multifidus (at L5)/ankle plantar flexors compared to the controls. The rest/contraction ratio for biceps femoris was similar between the two groups.

According to these findings, ultrasound imaging can be considered a useful tool to detect changes in the sciatic nerve and muscles due to disc herniation. Furthermore, regarding the observation of significant changes in muscle rest/contraction ratio in the multifidus and gastrosoleus, one might attribute these changes to the nerve root compression.