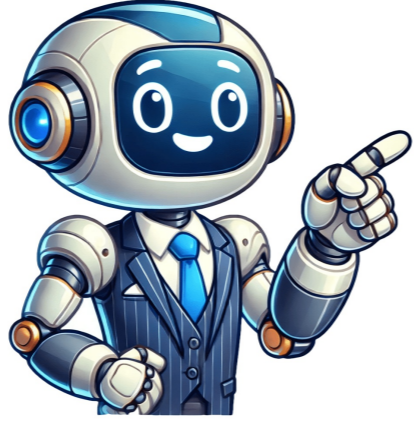


I'm not a robot



The Gluteal tendons are a tough band of tissue that connects the deep buttock muscles (gluteus medius and minimus) to the hip bone at a site, known as the greater trochanter. The condition is therefore sometimes referred to as Greater Trochanteric Pain Syndrome (GTPS). The gluteal tendons transfer the force produced by your gluteal muscles to the thigh. The deep gluteal muscles lift your leg out to the side (Figure 1) and stop your pelvis dropping when walking and running (Figure 2). They also play a major role in activities such as squatting, climbing stairs and getting out of a chair. Figure 1 Figure 2

Gluteal Tendinopathy is a term that describes any problem with the Gluteal Tendons. In this condition the tendons are not normally inflamed. This explains why the typical approach of rest and anti-inflammatory medication fails to resolve the issue in many cases. Most experts accept that the problem is degenerative, which sounds scary, however for most people it is a rectifiable issue. Put simply, the body is constantly being strained (causing wear) with activity and repaired during rest. If the rate of wear becomes faster than the rate of repair, then healthy tendons can start to become weaker, until the point they become painful. Many issues affect this wear and repair process such as exercise loads, fitness levels, body fat, hormonal changes, stress, postures and limb alignment, and previous injuries. Therefore gradual re-introduction of activity alone does not always work and more specific rehabilitation is needed. This rehabilitation will look to identify the factors contributing to the problem and build a specific exercise programme to strengthen the gluteal muscles and tendon, to improve their tolerance to activity. The rehabilitation process often takes months as tendons do not have a rich blood supply, meaning adaptation to exercise can be slow. In the majority of cases however, if you are compliant with the exercise programme and patient, this approach is successful and leads to long-term successful outcomes. Symptoms

When suffering with Gluteal tendinopathy you may experience different symptoms, but the most common are pain in the outside of your hip, sometimes spreading down the outside of your thigh. Symptoms are often felt following a long period of rest, when lying on the painful side, during activities that require deep squatting, stair climbing or during and after impact exercise. Symptom relief Postures which compress the sensitive tendon into the bone it attaches to, can be painful. Avoidance of these postures in the early stages of your recovery can provide some relief and ensure your recovery is smoother: Avoiding or decreasing the activities which cause your pain. Strengthening the muscles which support the hip. Spreading your weight evenly across both feet and not leaning on just one leg. Avoiding low chairs. Avoid sitting with your legs crossed. Losing weight if you are overweight. Using a handrail when going up or down stairs. Avoid sleeping on the painful side. Try lying on your back with a pillow under your knees or lie on your good side with a pillow between your legs to keep them in line with your hip joints. Avoid the following positions

Hanging on the hip Sitting cross-legged Lying with the painful leg across the other leg Try the following positions

Tips A progressive strengthening programme slowly increases the tolerance of the tendon to load. Depending on how long you have had tendinopathy, it can take 6-12 months for symptoms to resolve with exercise therapy. Resting decreases the tendons ability to take load and affects the muscle Exercise is safe and pain does not mean harm. Carry out exercise even if there is mild discomfort that eases after exercise. Pain is a tendons way of telling you its irritated and if you regularly push into moderate to severe pain that continues for extended times and disturbs sleep you may be doing too much

Massaging the gluteal muscles can help provide symptom relief Deep pressure over the sore spot on the outside of your hip can make your pain worse. Try to avoid massaging the sensitive area. Avoid the aggravating postures identified in the pictures as much as possible in the early stages. Stretching increases the compression of the tendon and can irritate it if done repeatedly. Adopting a healthy diet and reducing excess weight can improve tendon health. Look at the NHS UK website or ask your GP if you need further advice and help. Injections with steroid can be useful for confirming diagnosis and treating severe cases. Their affect is usually short lived but can give you help getting started with exercises. Repeated injections are often not advised as they could cause further weakening of the tendon in the long term. More information Contact the Physiotherapy Department on 0121 728 9442

The gluteal region is an anatomical area located posteriorly to the pelvic girdle, at the proximal end of the femur. The muscles in this region move the lower limb at the hip joint. The muscles of the gluteal region can be broadly divided into two groups: Superficial abductors and extensors group of large muscles that abduct and extend the femur. Includes the gluteus maximus, gluteus medius, gluteus minimus and tensor fascia lata. Deep lateral rotators group of smaller muscles that mainly act to laterally rotate the femur. Includes the quadratus femoris, piriformis, gemellus superior, gemellus inferior and obturator internus. The arterial supply to these muscles is mostly via the superior and inferior gluteal arteries/branches of the internal iliac artery. Venous drainage follows the arterial supply. In this article, we shall examine the two groups of gluteal muscles their attachments, innervations and actions. We shall also look at the clinical consequence of gluteal muscle disorders. The superficial muscles in the gluteal region consist of the three glutei and the tensor fascia lata. They mainly act to abduct and extend the lower limb at the hip joint. Gluteus Maximus The gluteus maximus is the largest of the gluteal muscles. It is also the most superficial, producing the shape of the buttocks. Attachments: Originates from the gluteal (posterior) surface of the ilium, sacrum and coccyx. The fibres slope across the buttock at a 45 degree angle and insert onto the iliotibial tract and gluteal tuberosity of the femur. Actions: It is the main extensor of the thigh, and assists with lateral rotation. However, it is only used when force is required, such as running or climbing. Innervation: Inferior gluteal nerve. Fig 1 The superficial muscles of the gluteal region. The gluteus maximus and medius have been partly removed. Gluteus Medius The gluteus medius muscle is fan-shaped and lies between to the gluteus maximus and the minimus. It is similar in shape and function to the gluteus minimus. Attachments: Originates from the gluteal surface of the ilium and inserts into the lateral surface of the greater trochanter. Actions: Abduction and medial rotation of the lower limb. It stabilises the pelvis during locomotion, preventing dropping of the pelvis on the contralateral side. Innervation: Superior gluteal nerve. Gluteus Minimus The gluteus minimus is the deepest and smallest of the superficial gluteal muscles. It is similar in shape and function to the gluteus maximus. Attachments: Originates from the ilium and converges to form a tendon, inserting to the anterior side of the greater trochanter. Actions: Abduction and medial rotation of the lower limb. It stabilises the pelvis during locomotion, preventing dropping of the pelvis on the contralateral side. Innervation: Superior gluteal nerve. Tensor Fascia Lata Tensor fasciae latae is a small superficial muscle which lies towards the anterior edge of the iliac crest. It functions to tighten the fascia lata, and so abducts and medially rotates the lower limb. Attachments: Originates from the anterior iliac crest, attaching to the anterior superior iliac spine (ASIS). It inserts into the iliotibial tract, which itself attaches to the lateral condyle of the tibia. Actions: Assists the gluteus medius and minimus in abduction and medial rotation of the lower limb. It also plays a supportive role in the gait cycle. Innervation: Superior gluteal nerve. The superior gluteal nerve innervates the gluteus medius and the gluteus minimus. These muscles have an important role in stabilising the pelvis during locomotion. In the standing position, the gluteus minimus and medius contract when the contralateral leg is raised, preventing the pelvis from dropping on that side. If the superior gluteal nerve is damaged, the previously described muscles are paralysed and the pelvis becomes unsteady. A characteristic finding of gluteal muscle weakness is the Trendelenburg sign. Trendelenburg Sign The Trendelenburg sign is produced when the patient is asked to stand unassisted on each leg in turn. In a positive sign, pelvic drop will occur on the unsupported leg. Pelvic drop can be recognised by observing the level of the iliac crest on both sides. For example, if the left gluteal muscles are weak, the right side of the pelvis will drop when the patient stands on their left leg (and the right leg is unsupported). Fig 2 Positive Trendelenburg sign, characteristic of left superior gluteal nerve palsy. The sacrotuberous ligament and surrounding structures The sacrotuberous ligament and surrounding structures The deep gluteal muscles are a set of smaller muscles, located underneath the gluteus minimus. The general action of these muscles is to laterally rotate the lower limb. They also stabilise the hip joint by pulling the femoral head into the acetabulum of the pelvis. Piriformis The piriformis muscle is a key landmark in the gluteal region. It is the most superior of the deep muscles. Attachments: Originates from the anterior surface of the sacrum. The fibres travel inferiorly and laterally through the greater sciatic foramen to insert onto the greater trochanter of the femur. Actions: Lateral rotation and abduction. Innervation: Nerve to piriformis. Obturator Internus The obturator internus forms the lateral walls of the pelvic cavity. In some texts, the obturator internus and the gemelli muscles are considered as one muscle the triceps coxae. Attachments: Originates from the pubis and ischium at the obturator foramen. It travels through the lesser sciatic foramen, and attaches to the greater trochanter of the femur. Actions: Lateral rotation and abduction. Innervation: Nerve to obturator internus. Fig 3 The deep muscles of the gluteal region. The Gemelli Superior and Inferior The gemelli are two narrow and triangular muscles. They are separated by the obturator internus tendon. Attachments: The superior gemellus muscle originates from the ischial spine, the inferior from the ischial tuberosity. They both attach to the greater trochanter of the femur. Actions: Lateral rotation and abduction. Innervation: The superior gemellus muscle is innervated by the nerve to obturator internus, the inferior gemellus is innervated by the nerve to quadratus femoris. Quadratus Femoris The quadratus femoris is a flat, square-shaped muscle. It is the most inferior of the deep gluteal muscles, located below the gemelli and obturator internus. Attachments: Originates from the lateral aspect of the ischial tuberosity and attaches to the quadratus tuberosity on the intertrochanteric crest. Actions: Lateral rotation. Innervation: Nerve to quadratus femoris. The piriformis is an important anatomical landmark in the gluteal region. As the muscle travels through the greater sciatic foramen, it effectively divides the gluteal region into an inferior and superior part. This division determines the name of the vessels and nerves that supply the area. The superior gluteal nerve and vessels emerge into the gluteal region superiorly to the piriformis (and vice versa for the inferior gluteal nerve). In addition, the piriformis can be used to locate the sciatic nerve (a major peripheral nerve of the lower limb). The sciatic nerve enters the gluteal region directly inferior to the piriformis, and is visible as a flat band, approximately 2cm wide. Fig 4 The piriformis as an anatomical landmark in the gluteal region. Muscles of the gluteal region: The gluteal region is located posteriorly to the pelvic girdle, at the proximal end of the femur. It can be described as an area of buttocks. There are two gluteal regions, left and right. The muscles in the gluteal region move the lower limb at the hip-joint. The muscles of the gluteal region broadly classified into two groups: Superficial abductors and extensors Muscles that abduct and extend the femur. Superficial group muscles are- gluteus maximus, gluteus medius, gluteus minimus and tensor fascia lata. Deep lateral rotators- Muscles that largely act to laterally rotate the femur. Deep lateral rotators muscles are- piriformis, gemellus superior, gemellus inferior, quadratus femoris and obturator internus. Superficial Muscles- Gluteus Maximus: The gluteus maximus is the main extensor muscle of the hip. The gluteus maximus is the largest and most superficial gluteal region muscles. Its thick fleshy mass, in a quadrilateral shape, makes the distinction of the buttocks. Origin: Outer slope of the dorsal segment of the iliac crest/ Gluteal surface of ilium/ Dorsal surface of the sacrum/ Side of coccyx/ Sacrotuberous ligament/ Insertion: Gluteal tuberosity/ Iliotibial tract/ Nerve supply: Inferior gluteal nerve/ Action: Chief extensor of the thigh/ Essential for maintaining an erect posture/ Lateral rotation of the thigh/ Abduction of the thigh/ Gluteus Medius: The gluteus medius is a broad, thick, radiating muscle, situated on the outer surface of the pelvis. The gluteus medius posterior third is covered by the gluteus maximus, its anterior two-thirds by the gluteal aponeurosis. Origin: Gluteal surface of ilium between the anterior and posterior gluteal line/ Insertion: Lateral surface of greater trochanter of the femur/ Nerve supply: Superior gluteal nerve/ Action: Powerful abductors of the thigh/ Gluteus Minimus: The gluteus minimus is the tiniest of the three gluteal muscles, the gluteus minimus muscle is situated immediately beneath the gluteus medius. Origin: Gluteal surface of ilium between the anterior and inferior gluteal line/ Insertion: Anterior surface of the greater trochanter of the femur/ Nerve supply: Superior gluteal nerve/ Action: Powerful abductors of the thigh/ Tensor Fasciae latae: The tensor fasciae latae is a tiny muscle. It is associated with the gluteus maximus in function and structure and is continuous with the iliotibial tract, which connects to the tibia. This band, also described the IT band located in the thigh and knee. The muscle assists in preserving the balance of the pelvis while walking, standing, or running. Origin: Anterior surface of the outer lip of iliac crest up to the tubercle/ Insertion: Iliotibial tract 3-5cm below the level of the greater trochanter/ Nerve supply: Superior gluteal nerve/ Action: Abductor of thigh/ Medial rotator of thigh/ Extensor of knee joint/ Deep Muscles- Piriformis: The piriformis is a muscle in the gluteal region. The piriformis muscle is one of six deep lateral rotators of the hip including is one of only three muscles that attach the legs to the spine. Origin: Pelvic surface of the sacrum/ Upper margin of the greater sciatic notch/ Insertion: Apex of the greater trochanter of the femur/ Nerve supply: Ventral rami of S1, S2/ Action: Lateral rotation of the thigh/ Gemellus Superior: The Gemellus superior, the smaller of the two gemelli muscles. The gemellus superior and gemellus inferior help to laterally rotate the extended thigh. Origin: Upper part of the lesser sciatic notch/ Insertion: Medial surface of greater trochanter of the femur/ Nerve supply: Nerve to obturator internus/ Action: Lateral rotator of thigh at hip joint/ Gemellus Inferior: The Gemellus inferior originates from the upper part of the tuberosity of the ischium. The gemellus superior and the gemellus inferior aid to laterally rotate the extended thigh. Origin: Lower part of the lesser sciatic notch/ Insertion: Medial surface of greater trochanter of the femur/ Nerve supply: Nerve to obturator internus/ Action: Lateral rotator of thigh at hip joint/ Obturator Internus: The obturator internus muscle arises on the medial surface of the obturator membrane, the ischium near the membrane, and the rim of the pubis. Origin: Pelvic surface of obturator membrane/ Insertion: Medial surface of the greater trochanter of the femur/ Nerve supply: Nerve to obturator internus/ Action: Lateral rotator of thigh at hip joint/ Obturator Externus: The obturator externus muscle is a flat, triangular muscle, which covers the outer surface of the anterior wall of the pelvis. Origin: Outer surface of obturator membrane/ Insertion: Medial surface of the greater trochanter/ Nerve supply: Posterior division of obturator nerve/ Action: Lateral rotator of thigh at hip joint/ Quadratus Femoris: The quadratus femoris is a plane, quadrilateral muscle. Positioned on the back side of the hip joint, it is a powerful external rotator and adductor of the thigh but additionally acts to stabilize the femoral head in the Acetabulum. Origin: Upper part of the outer border of the ischial tuberosity/ Insertion: Quadrate tubercle/ Nerve supply: Nerve to quadratus femoris/ Action: Lateral rotator of thigh at hip joint/ Hip Movements- Hip Flexion: Forward and upward movement from the femur through the hip happens in the sagittal plane about a medial-lateral axis. Hip Flexor Muscles- Iliopsoas, rectus femoris, sartorius, pectineus. Hip Extension: Upward movement toward the rear of the body of the femur at the hip occurring in the sagittal plane. Hip Extensor Muscles- gluteus Maximus; semimembranosus, semitendinosus and biceps femoris (the hamstrings). Hip Abduction: Movement of the femur on the hip in a direction away from the midline of the body in the frontal plane. Hip Adductor Muscles- adductors longus, brevis and magnus, pectineus, and gracilis. Hip Internal Rotation: Rotation of the femur toward the midline of the body in the transverse plane. Hip Internal Rotator Muscles- anterior fibers of gluteus medius and minimus, tensor fascia latae. Hip External Rotation: Rotation of the femur away from the midline of the body in the transverse plane. Hip External Rotator Muscles- biceps femoris, gluteus maximus, helped by the obturators, gemelli and quadratus femoris. Author: Gordana Senti, MD/ Reviewer: Sophie Stewart/ Last reviewed: October 30, 2023/ Reading time: 9 minutes/ The gluteal muscles, also referred to as glutes or buttock muscles, are a muscle group consisting of the gluteus maximus, gluteus medius, gluteus minimus and tensor fasciae latae muscles. They are found in the gluteal, or buttock region, overlying the posterior aspect of the pelvic girdle and the proximal part of the femur. In terms of function, the gluteal muscles act on the hip joint, mainly to facilitate abduction and extension of the thigh but some also assist in the adduction, external rotation and internal rotation of the thigh. Thus, the gluteal muscles are important for a variety of activities including walking, standing on one leg, and walking up the stairs. This article will discuss the anatomy and functions of the gluteal muscles. Key facts about the gluteal muscles Definition The gluteal muscles are a superficial group of hip muscles that are situated in the gluteal region, overlying the posterior aspect of the pelvic girdle. Gluteus maximus Origin: Lateroposterior surface of sacrum and coccyx. gluteal surface of ilium (behind posterior gluteal line), thoracolumbar fascia, sacrotuberous ligament/ Insertion: Iliotibial tract, gluteal tuberosity of femur/ Innervation: Inferior gluteal nerve/ Blood supply: Inferior gluteal and superior gluteal arteries/ Function: Extension, external rotation, abduction and adduction of the thigh/ Gluteus medius Origin: Gluteal surface of ilium (between anterior and posterior gluteal lines)/ Insertion: Lateral aspect of greater trochanter of femur/ Innervation: Superior gluteal nerve/ Blood supply: Superior gluteal artery/ Function: Abduction and internal rotation of thigh; pelvis stabilization/ Gluteus minimus Origin: Gluteal surface of ilium (between anterior and inferior gluteal lines)/ Insertion: Anterior aspect of greater trochanter of femur/ Innervation: Superior gluteal nerve/ Blood supply: Superior gluteal artery/ Function: Abduction and internal rotation of thigh; pelvis stabilization/ Tensor fasciae latae Origin: Anterior superior iliac spine, outer lip of iliac crest/ Insertion: Iliotibial tract/ Innervation: Superior gluteal nerve/ Blood supply: Lateral circumflex femoral artery/ Function: Internal rotation of thigh, external rotation of leg; hip and knee joint stabilization/ The gluteal muscles are the most superficial group of the posterior hip and thigh muscles. This muscle group consists of the gluteus maximus, gluteus medius, gluteus minimus and tensor fasciae latae. These four muscles fill the gluteal (buttock) region and provide it with shape and form. The gluteal region refers to the general region of the buttocks that is situated on the posterior aspect of the pelvic girdle. It is bounded anteriorly by the pelvic girdle, superiorly by the iliac crest and inferiorly by the gluteal folds. Roughly speaking, all of the gluteal muscles have a common origin on the ilium and insertion on the femur, as well as their own additional attachments. They are also all innervated by branches of the sacral plexus. More specifically, the gluteus maximus is innervated by the inferior gluteal nerve, while the gluteus medius, gluteus minimus and tensor fasciae latae receive their nervous supply from the superior gluteal nerve. The gluteal muscles are vascularized by branches of the internal iliac artery, namely the superior and inferior gluteal arteries. The exception is the tensor fasciae latae muscle, which receives blood supply from the ascending branch of the lateral circumflex femoral artery. Test yourself on the anatomy of the gluteal muscles and the other muscles of the hip and thigh in this interactive quiz. Learning the attachments, innervation and function of all the 600+ muscles in the body can look quite daunting. Learn the muscle facts faster with our muscle anatomy reference charts! The gluteus maximus is the largest and most superficial of the gluteal muscles, providing the majority of the shape to the buttock region. This muscle has a large site of origin, spanning across the thoracolumbar fascia, gluteal surface of the ilium, posterolateral aspect of the sacrum and coccyx, sacrotuberous ligament, and gluteal aponeurosis. Its muscle fibers converge inferolaterally to insert on two sites: the upper, superficial portion of muscle fibers insert on the iliotibial tract, while the lower, deeper fibers insert on the gluteal tuberosity of the femur. The gluteus maximus muscle receives its innervation from the inferior gluteal nerve (L5-S2), a branch of the sacral plexus. The blood supply to this muscle stems from the muscular branches of the inferior gluteal and superior gluteal arteries. The main function of the gluteus maximus is to extend and abduct the thigh at the hip joint. It also assists in the external rotation and adduction of the thigh. The gluteus medius is found deep to the gluteus maximus and superficial to the gluteus minimus. It originates on the gluteal surface of the ilium between the anterior and posterior gluteal lines. The muscle then descends anteroinferiorly to insert onto the lateral side of the greater trochanter of femur. The gluteus medius is innervated by the superior gluteal nerve (L4, S1), and vascularized by the deep branch of the superior gluteal artery. The function of the gluteus medius is to abduct and internally rotate the thigh at the hip joint. The muscle also contributes to the stabilization of the pelvis and trunk during the gait cycle. The gluteus minimus is the smallest and deepest of the gluteal muscles. It arises on the gluteal surface of the ilium, between the anterior and inferior gluteal lines. The muscle descends anteroinferiorly to insert on the anterolateral aspect of the greater trochanter of the femur. Just like the gluteus medius, the gluteus minimus receives its nervous supply from the superior gluteal nerve (L4, S1), and its blood supply from the deep branch of the superior gluteal artery. The gluteus minimus acts in synergy with the gluteus medius to abduct and internally rotate the thigh, and contributes to the stabilization of the pelvis. Tensor fasciae latae is a fusiform muscle located in the anterolateral aspect of the thigh. It originates from the outer lip of the anterior iliac crest and the anterior superior iliac spine. It then runs distally to insert on the fascia lata. The tensor fasciae latae, together with the gluteus maximus muscle and the gluteal aponeurosis, form a horizontal band known as the iliotibial tract. The iliotibial tract extends to insert onto the lateral condyle of the tibia and lateral patellar retinaculum. The tensor fasciae latae is innervated by the superior gluteal nerve (L4, S1). Its blood supply stems from the ascending branch of the lateral circumflex femoral artery. The function of the tensor fasciae latae is to abduct the thigh at the hip joint, and to externally rotate the leg at the knee joint. Since the tensor fasciae latae crosses the hip and knee joints, it contributes to the stabilization of both. All content published on Kenhub is reviewed by medical and anatomy experts. The information we provide is grounded on academic literature and peer-reviewed research. Kenhub does not provide medical advice. You can learn more about our content creation and review standards by reading our content quality guidelines. Moore, K. L., Dalley, A. F., & Agur, A. M. R. (2014). Clinically Oriented Anatomy (7th ed.). Philadelphia, PA: Lippincott Williams & Wilkins. Palastanga, N., & Soames, R. (2012). Anatomy and human movement: structure and function (6th ed.). Edinburgh: Churchill Livingstone. Stranding, S. (2016). Gray's Anatomy (41st ed.). Edinburgh: Elsevier Churchill Livingstone. Netter, F. (2014). Atlas of Human Anatomy (6th ed.). Philadelphia, PA: Saunders. Gluteal muscles: want to learn more about it? Our engaging videos, interactive quizzes, in-depth articles and HD atlas are here to get you top results faster. What do you prefer to learn with? would honestly say that Kenhub cut my study time in half. Read more. Kim Bengochea, Regis University, Denver Unless stated otherwise, all content, including illustrations are exclusive property of Kenhub GmbH, and are protected by German and international copyright laws. All rights reserved. Della Barnes, an MS Anatomy graduate, blends medical research with accessible writing, simplifying complex anatomy for a better understanding and appreciation of human anatomy. The gluteal region, or buttock, refers to the area of the body located behind the pelvis and beneath the iliac crest. The muscles located in this region are collectively referred to as the gluteal muscles. In a narrower sense, gluteal muscles, or glutes, often refer only to the three large muscles that shape the buttocks: the gluteus maximus, medius, and minimus. In broader anatomical terms, the gluteal muscles include all the muscles situated in the gluteal region. These muscles help stabilize the pelvis and hips while also playing a crucial role in movements of the hip joint, enabling activities such as walking, running, and more. Based on their depth, the gluteal muscles are grouped into two layers: the superficial and the deep gluteal muscles. Gluteal Muscles It is a group of four muscles that form the superficial layer of the buttocks and is primarily responsible for their shape and contour. They act primarily to abduct the thigh at the hip joint. Except for the gluteus maximus, the other superficial gluteal muscles also medially rotate the thigh at the hip joint. By attaching to both the ilium and the proximal femur, they also play a crucial role in stabilizing the pelvis and hips, which is essential for maintaining posture and facilitating movement. Here is a list of the muscles in the superficial gluteal region, with their basic anatomy and functions:

Muscle/Origin/Insertion/Action/Innervation/Blood Supply/Gluteus maximus (The largest muscle in the body) Gluteal surface of the ilium between the iliac crest and the posterior gluteal line Posterolateral surface of sacrum and coccyx Thoracolumbar fascia Sacrotuberous ligament Iliotibial tract Gluteal tuberosity of the femur Extending, abducting, and externally rotating the thigh at the hip joint Inferior gluteal nerve (L5-S2) Superior and inferior gluteal arteries Gluteus medius Gluteal surface of the ilium, between the iliac crest and anterior gluteal line Greater trochanter of the femur Abducting and internally rotating the thigh at the hip joint Stabilizing the pelvis and hips Superior gluteal nerve (L4-S1) Superior gluteal artery Tensor fasciae latae Anterior superior iliac spine Outer lip of the iliac crest Gerdy's tubercle via the iliotibial tract Abducting, medially rotating, and flexing the thigh at the hip joint Externally rotating the lower leg at the knee joint Stabilizing the hip and knee Superior gluteal nerve (L4-S1) Lateral circumflex femoral artery Superior gluteal artery The deep gluteal region consists of five small and medium-sized muscles situated beneath the gluteus maximus. These muscles primarily act as lateral rotators of the thigh at the hip joint, but they also contribute to stabilizing the head of the femur within the acetabulum during movement. Here is a list of the muscles in the deep gluteal region, with their location, functions, and anatomy:

Muscle/Origin/Insertion/Action/Innervation/Blood Supply Piriformis Anterior surface of sacrum (S2-S4) Greater trochanter of the femur Laterally rotating the thigh at the hip joint Stabilizing the hip joint Abducting the thigh when the hip is flexed Nerve to Piriformis (S1-S2) Inferior and superior gluteal arteries Internal pudendal artery Lateral sacral artery Obturator internus Ischiopubic ramus Posterior surface of the obturator membrane Trochanteric fossa of the femur Laterally rotating the thigh at the hip joint Stabilizing the hip joint Abducting the thigh when the hip is flexed Nerve to obturator internus (L5-S2) Inferior gluteal artery Superior gemellus Posterior surface of the ischial spine Trochanteric fossa via the obturator internus tendon Helping the obturator internus in its actions Nerve to obturator internus (L5-S2) Inferior gluteal artery Inferior gemellus Superior-posterior surface of the ischial tuberosity Trochanteric fossa via the obturator internus tendon Helping the obturator internus in its actions Nerve to quadratus femoris (L4-S1) Inferior gluteal artery Medial circumflex femoral artery Nerve: Although the obturator externus also acts as a lateral rotator of the thigh, it is anatomically part of the medial compartment of the thigh and is therefore not included in the list of gluteal region muscles above. All the muscles in the gluteal region receive innervation from branches of the sacral plexus, and their blood supply comes primarily from branches of the internal iliac artery. An exception is the quadratus femoris, which also receives blood from the medial circumflex femoral artery, a branch of the deep femoral artery. Several important nerves and blood vessels pass through the greater sciatic foramen to enter the gluteal region. These include the sciatic nerve, superior and inferior gluteal nerves and vessels, and the posterior cutaneous nerve of the thigh, among others. The piriformis muscle serves as a landmark, with some structures emerging above it, while others pass below. Della Barnes, MS Anatomy/UX/UI Designer at Adobe Skip to content The 5 Main Muscles of Movement. Anatomy in detail. The left and right gluteus maximus muscles are the largest skeletal muscles of the body, forming the superficial muscle layer of the buttocks, gluteus maximus keeping it simple The gluteus maximus muscles attach to multiple structures, many more than the current standard description covers. Attachments: The ilium of the pelvis. Posterior to the posterior gluteal line (attaching to a narrow, semi-lunar area with a rough surface), and the posterior superior iliac crest. The sacrum (posterior inferior edge). The coccyx (lateral sides of the posterior surface). The aponeurotic fascia of the gluteus medius muscle. The sacrotuberous ligament (posterior surface). The tuberoiliac ligament (part of the long posterior (dorsal) sacroiliac ligament). The thoraco-lumbar fascia. (Through its attachment to the raphe of the thoracolumbar fascia, the gluteus maximus is coupled to the ipsilateral multifidus muscle and to the contralateral latissimus dorsi muscle). The iliotibial tract. Three-quarters of the fibres form a superficial lamina (layer) which narrows and attaches between the two layers of the tensor fascia latae, forming part of the iliotibial tract. (a.k.a. iliotibial band.) Gluteal tuberosity of the femur. Via an aponeurosis (thin sheet of strong connective tissue) formed from the deeper muscle fibres. (The gluteus maximus attaches between the attachment sites of the vastus lateralis and adductor magnus). The shape of the gluteus maximus differs between male and female. The female pelvis is wider than the male, and thus the female gluteus maximus is also wider, and rounder in shape. The gluteus maximus muscles provide stability to the posterior pelvis and upper leg, and are important to prevent excess stress on other structures in the area. A lot of complicated anatomy lies deep to the gluteus maximus. Several smaller muscles (including the piriformis, gluteus minimus and gluteus medius), and a complex web of connective tissues, which are prone to stress and pain when the gluteus maximus is not adequately utilised. Working in conjunction with the rectus femoris at the anterior of the femur, the gluteus maximus and its vertically orientated attachment to the posterior femur (at the gluteal tuberosity), correctly positions the femur to the torso, connecting the legs to Base-Line support. Back To Top

Many algae can reproduce both sexually and asexually true false.

- duwi
- <https://tragwerkstatt.info/userfiles/files/be4db754c415f415f8e59d0a0be0a0ddfd.pdf>
- myuolale
- https://drapikowski.pl/uploaded/tck_files/file/jopjavugi.pdf
- yavatojo