# Anatomy of the Hip Joint and ROM

In a human body, the hip joint is the largest joint. It is also referred to as a ball and socket joint due to the nature of its structure. The pelvis and femur or thigh bone join to form this joint. Also, muscles, ligaments, and tendons surround it. The paper thus presents an in-depth analysis of the anatomy of the hip joint and its range of motion (ROM).

The hip joint is made up of bones, ligaments of the joint capsule, muscles, tendons, and blood vessels and nerves.

*Bones.*  The bones that make the hip joint are the pelvis and femur. The head of the femur joins the pelvis at the acetabulum to form the joint. The acetabulum is a circular socket located on the outer edge of the pelvis. The head of the femur acts as the ball while the acetabulum provides the socket. The acetabulum and femoral head are enclosed by the articular cartilage which is lubricated by the synovial fluid to enable smooth movement of the bones.

*Ligaments.* The hip joint is enclosed with ligaments to provide stability. The ligaments connecting the hip joint include the ischiofemoral ligament, iliofemoral ligament, femoral arcuate ligament, and acetabular labrum. The ischiofemoral ligament emerges from the ischium behind the acetabulum and runs horizontally across the back of the femoral neck. Its function is to limit internal rotation and adduction during flexion of the hip (Berry and Lieberman 4).

The iliofemoral ligament connects the pelvis to the head of the femur at the anterior part of the joint. It is the largest and strongest ligament of the hip joint which helps to restrict extension and limit internal rotation (Berry and Lieberman 4). The femoral arcuate ligament is situated anteromedially and is attached to the superior ramus of the pubis. It connects to the neck of the femur and helps to limit abduction and external rotation. The acetabular labrum lines the acetabular socket, providing a deepened cavity that enhances stability and strength of the joint.

*Muscles and Tendons.* The iliotibial band is a long tendon which runs along the thigh bone from the hip to the knee. It acts as an attachment surface for various muscles associated with the hip movement. The muscles include gluteals, adductors, iliopsoas, rectus femoris, and hamstring muscles. The gluteals muscles attach to the back of the pelvis and insert into the greater trochanter of the thigh bone.

The adductors muscles are located in the thigh. They provide adduction by helping move the leg back towards the midline. The iliopsoas muscle is situated on the anterior part of the hip joint. It originates from the pelvis and lower back and extends to inside part of the top portion of the thigh bone. Its purpose is to provide flexion of the hip.

The rectus femoris is situated at the anterior part of the thigh and help to provide flexion of the hip joint. The hamstring muscles originate at the bottom of the pelvis and extend down the posterior part of the thigh. Their purpose is to offer an extension of the hip through a backward pull.

*Nerves and Blood Vessels.* The nerves located in the hip area include the sciatic nerve and the femoral nerve. The sciatic nerve is located at the back of the hip while the femoral nerve is situated at the front. Obturator nerve is also a useful component of the hip joint. The function of the nerves is to transport signals from the brain to the muscles to provide movement of the hip. The hip joint also has blood vessels which supply blood to the muscles. The main blood vessel found at the hip joint is the femoral artery. The artery emerges from the pelvis and runs in front of the upper thigh.

## ROM

The anatomical components of the hip joint work together to offer diverse movements of the hip. The movements include flexion, abduction, extension, adduction, hip rotation, and circumduction. The ideal functional hip ROM is 120 degrees of abduction and 20 degrees of lateral rotation (Norkin and White 295). The ROM, however, varies depending on the task associated with the movement.

## CONCLUSION

The hip joint consists of the thigh bone and the pelvis, surrounded by ligaments that provide support and restrict the range of motion. Other components of the joint include; hamstring muscles, gluteals, adductors, iliopsoas muscle, rectus femoris muscle; iliotibial tendon; nerves; and blood vessels.

## Works Cited

Berry, Daniel, and Jay Lieberman. *Surgery of the Hip*. 2012.

Norkin, Cynthia, and Joyce White. *Measurement of Joint Motion: A Guide to Goniometry*. Philadelphia: F.A. Davis Company, 2016.