

EDUCATIONAL AND METHODICAL COMPLEX OF DISCIPLINE
MiF1202 «Morphology and human physiology»
Course – 1 Semester – 2
Number of credits – 12
Almaty 2022

Lecture 13 The muscular system V

Muscles Acting on the Hip and Femur; Muscles Acting on the Knee

Outcomes:

1. Name and locate the muscles that act on the hip, knee joints; and Relate the actions of these muscles to the joint movements;
2. Identify the muscles from model or diagrams.

The pelvic girdle attaches the legs to the axial skeleton. The hip joint is where the pelvic girdle and the leg come together. The hip is joined to the pelvic girdle by many muscles. In the gluteal region, the psoas major and iliacus form the iliopsoas. The large and strong gluteus maximus, gluteus medius, and gluteus minimus extend and abduct the femur. Along with the gluteus maximus, the tensor fascia lata muscle forms the iliotibial tract. The lateral rotators of the femur at the hip are the piriformis, obturator internus, obturator externus, superior gemellus, inferior gemellus, and quadratus femoris. On the medial part of the thigh, the adductor longus, adductor brevis, and adductor magnus adduct the thigh and medially rotate it. The pectineus muscle adducts and flexes the femur at the hip.

The thigh muscles that move the femur, tibia, and fibula are divided into medial, anterior, and posterior compartments. The medial compartment includes the adductors, pectineus, and the gracilis. The anterior compartment comprises the quadriceps femoris, quadriceps tendon, patellar ligament, and the sartorius. The quadriceps femoris is made of four muscles: the rectus femoris, the vastus lateralis, the vastus medius, and the vastus intermedius, which together extend the knee. The posterior compartment of the thigh includes the hamstrings: the biceps femoris, semitendinosus, and the semimembranosus, which all flex the knee.

Review questions

1. Identify the muscles of from model or diagram: iliopsoas, quadratus femoris.
2. Which muscles form the quadriceps? How do they function together?

Basic literature:

1. Saladin, Kenneth S: Essentials of Anatomy & Physiology. (2018, McGraw-Hill Education)

1. Costanzo, Linda S.: BRS Physiology. Board Review Series.7 edition. -Wolters Kluwer Health, 2018.- 307p. - ISBN 1496367693, 9781496367693
2. Leslie P. Gartner: Color Atlas and Text of Histology. - 7th Edition. - Wolters Kluwer, 2017. ISBN 1496346734, 9781496346735
3. Russell K. Hobbie, Bradley J. Roth: Intermediate Physics for Medicine and Biology. - Springer, 2015. - ISBN 3319126822, 9783319126821
4. Andersson D, Medical Terminology: The Best and Most Effective Way to Memorize, Pronounce and Understand Medical Terms: Second Edition, ISBN-13 : 978-1519066626, 2016

