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***DEP :- BS (RAD) 2ND SEMESTER SEC(A)***

***Ans no 1)***

***ANTERIOR COMPARTMENT OF THIGH MUSCLES:***

There are three major muscles in the anterior thigh. The pectineus, sartorious and quadriceps femoris. In addition to these, the end of the iliopsoas muscle passes into the anterior compartment.

QUADRICEPS FEMORIS:

It consists of four individual muscles, three vastus muscles and the rectus femoris.

They form the main bulk of the thigh, and collectively are one of the most powerful muscle in the body.

RECTUS FEMORIS:

ORIGIN: It originates from the anterior iliac spine and the area of the ilium immediately superior to the acetabulum.

INSERTION: It runs straight down the leg and attaches to the patella via the quadriceps femoris tendon.

ACTION: The only muscle of the quadriceps to cross both the hip and knee joints. It flexes the thigh and the hip joint, and extends at the knee joint.

ORIGIN:

INSERTION:

ACTION:

VASTUS LATERALIS:

From the greater trochanter and the lateral lip of linea aspera.

Patella and tibial tuberosity via the patellar.

Extends the knee joint and stabilizes the patella.

VASTUS MEDIALIS:

The intertrochanteric line and mediul lip of the linea aspera.

Patella and tibial tuberosity via the patellar.

Extends the knee joint and stabilizes the patella, particularly due to its horizontal fibers at the distal end.

VASTUS INTERMEDIUS:

Anterior and lateral surfaces of the femoral shaft.

Patella and tibial tuberosity via the patellar.

Extends the knee joint and stabilizes the patella.

SARTORIUS:

The Sartorius is the longest muscle in the body.

It is long and thin, running across the thigh in a inferomedially direction.

The Sartorius is position more superficially than the other muscles in the leg.

ORIGIN: It originates from the anterior superior iliac spine.

INSERTION: It attaches to the superior, medial surface of the tibia.

ACTION: At the hip joint, it is a flexor, abductor and lateral rotator.

At the knee joint, it is a flexor.

PECTINEUS:

The pectineus is the flat muscle that forms the base of the femoral triangle.

It has a dual innervation, and thus can be considered a transitional muscle between the anterior thigh and medial thigh compartments.

ORIGIN: It originates from the pectineal line on the anterior surface of the pelvis.

INSERTION: It attaches to the pectineal line on the posterior side of the femur, just inferior to the lesser trochanter.

ACTION: Adduction and flexion at the hip joint.

ILIOPSOAS:

The iliopsoas is actually two muscles, the psoas major and the iliacus.

Unlike many of the anterior thigh muscles, the iliopsoas does not extend the leg at the knee joint.

They originate in different areas, but come together to form a tendon and referred to as one muscle.

ORIGIN: The psoas major originates from the lumbar vertebrae.

The iliacus originates from the iliac fossa of the pelvis.

INSERTION: They insert together on to the lesser trochanter of the femur.

ACTION: Flexes the thigh at the hip joint.

***POSTERIOR COMPARTMENT OF LEG MUSCLE:***

The posterior compartment of the leg contains seven muscles, organized into two layers superficial and deep.

The two layers are separated by a band of fascia.

SUPERFICIAL MUSCLE:

The superficial muscles form the characteristic ”calf” of the posterior leg.

They all insert into the calcaneus.

GASTROCNEMIUS: The gastrocnemius is the most superficial of all the muscles in the posterior leg.

It has two heads medial and lateral, which converge to form a single muscle belly.

ORIGIN: The lateral head originate from the lateral femoral condyle.

The medial head from the medial femoral condyle.

INSERTION: The muscle belly combines with the soleus to form the calcaneal tendon.

ACTION: It plantar flexes at the ankle joint, and because it crosses the knee, it is a flexor there.

PLANTARIS: The planters is a small muscle with a long tendon.

ORIGIN: Originates from the lateral supracondylar line of the femur.

INSERTION: The muscle belly combines with the soleus to form the calcaneal tendon.

ACTION: It plantar flexes at the ankle joint, and because it crosses the knee, it is a flexor there.

SOLEUS: The soleus is located deep to the gastrocnemius.

It is large and flat.

ORIGIN: It originates from the soleal line of the tibia and proximal fibular area.

INSERTION: The muscle belly combines with the soleus to form the calcaneal tendon.

ACTION: It plantar flexes the foot at the ankle joint.

DEEP MUSCLES:

There are four muscles in the deep compartment of the posterior leg.

POPLITEUS: It is located superiorly in the leg.

ORIGIN: It originates from the lateral condyle of the femur and the posterior horn of the lateral meniscus.

INSERTION: It runs inferomedially towards the tibia.

ACTION: Unlocking the knee joint.

TIBIALIS POSTERIOR: It is the deepest out of the four muscles.

ORIGIN: Interosseous membrane between the tibia and fibula.

INSERTION: Tuberosity of the navicular bone.

ACTION: Inverts and plantar flexes the foot.

FLEXOR DIGITORUM LONGUS: It is a smaller muscle than the flexor halluces longus.

ORIGIN: From the media surface of the tibia.

INSERTION: Distal phalanx of the 2nd – 5th digits.

ACTION: Flexes the lateral for toes.

FLEXOR HALLUCIS LONGUS: It is found on the lateral side of the

Leg.

ORIGIN: It originates from the posterior surface of the fibula.

INSERTION: It attaches to the plantar surface of the phalanx of the great toe.

***ANSWER NO 2***

1. ***ENDOCRINE GLAND:-***

Endocrine glands are ductless glands of the endocrine system that secrete their products, hormones, directly into the blood. The major glands of the endocrine system include the pineal gland, pituitary gland, pancreas, ovaries, testes, thyroid gland, parathyroid gland, hypothalamus and adrenal glands. The hypothalamus and pituitary glands are neuroendocrine organs

1. ***EXOCRINE GLANDS:-***

Exocrine glands are glands that secrete substances onto an epithelial surface by way of a duct.[1] Examples of exocrine glands include sweat, salivary, mammary, ceruminous, lacrimal, sebaceous, prostate and mucous. Exocrine glands are one of two types of glands in the human body, the other being endocrine glands, which secrete their products directly into the bloodstream. The liver and pancreas are both exocrine and endocrine glands; they are exocrine glands because they secrete products—bile and pancreatic juice—into the gastrointestinal tract through a series of ducts, and endocrine because they secrete other substances directly into the bloodstream.

1. ***THALAMUS:-***

The thalamus (Greek word which mean, "chamber")[1] is a large mass of grey matter located in the dorsal part of the diencephalon (a division of the forebrain). Nerve fibers project out of the thalamus to the cerebral cortex in all directions, allowing hub-like exchanges of information. It has several functions, such as relaying of sensory signals, including motor signals to the cerebral cortex,[2][3][page needed] and the regulation of consciousness, sleep, and alertness

1. ***FEMORAL TRIANGLE:-***

The femoral triangle (or Scarpa's triangle) is an anatomical region of the upper third of the thigh. It is a subfascial space which appears as a triangular depression below the inguinal ligament when the thigh is flexed, abducted and laterally rotated

***Ans no 3)***

***EXTRAOCULAR MUSCLE:***

The extraocular muscles that controls the movements of the eyes.

There are six extraocular muscles.

***INFERIOR RECTUS:***

Depression: Moves the eye downwards.

Extorsion: Rotates the top of the eye away from the nose.

Adduction: Moves the eye inward.

SUPERIOR OBLIQUE:

Intorsion: Rotates the top of the towards the nose.

Abduction: Move the eye outwards.

INFERIOR OBLIQUE:

Extortion: Rotates the top of the eye away from the nose.

Elevation: Moves the eye upwards.

MEDIAL RECTUS:

Adduction: This move the eye inwards, towards the nose.

LATERAL RECTUS:

Abduction: Moves the eye outwards, away from the nose.

SUPERIOR RECTUS:

Elevation: Moves the eye upwards.

INTORSION: Rotates the top of the eye towards the nose.

INVOLUNTORY MUSCLES:

Superior tarsal or Muller’s muscle.

Inferior tarsal muscle.

VOLUNTARY MUSCLES:

Superior rectus.

Inferior rectus.

Medial rectus.

Lateral rectus.

Superior oblique.

Inferior oblique.

Levator palperae superioris.

***( Q No 4 Answer )***

***( Arches of the Foot )***

The foot has three arches: two longitudinal (medial and lateral) arches and one anterior transverse arch . They are formed by the tarsal and metatarsal bones, and supported by ligaments and tendons in the foot.

Their shape allows them to act in the same way as a spring, bearing the weight of the body and absorbing the shock produced during locomotion. The flexibility conferred to the foot by these arches facilitates functions such as walking and running.

In this article, we shall examine the anatomy of the arches of the foot – their bony and ligamentous structure, the supporting tendons, and their clinical correlations.

: Longitudinal Arches

There are two longitudinal arches in the foot – the medial and lateral arches. They are formed between the tarsal bones and the proximal end of the metatarsals.

Medial Arch

The medial arch is the higher of the two longitudinal arches. It is formed by the calcaneus, talus, navicular, three cuneiforms and first three metatarsal bones. It is supported by:

Muscular support: Tibialis anterior and posterior, fibularis longus, flexor digitorum longus, flexor hallucis, and the intrinsic foot muscles

Ligamentous support: Plantar ligaments (in particular the long plantar, short plantar and plantar calcaneonavicular ligaments), medial ligament of the ankle joint.

Bony support: Shape of the bones of the arch.

Other: Plantar aponeurosis.

Lateral Arch

The lateral arch is the flatter of the two longitudinal arches, and lies on the ground in the standing position. It is formed by the calcaneus, cuboid and 4th and 5th metatarsal bones. It is supported by:

Muscular support: Fibularis longus, flexor digitorum longus, and the intrinsic foot muscles.

Ligamentous support: Plantar ligaments (in particular the long plantar, short plantar and plantar calcaneonavicular ligaments).

Bony support: Shape of the bones of the arch.

Other: Plantar aponeurosis.

: Transverse Arch

The transverse arch is located in the coronal plane of the foot. It is formed by the metatarsal bases, the cuboid and the three cuneiform bones. It has:

Muscular support: Fibularis longus and tibialis posterior.

Ligamentous support: Plantar ligaments (in particular the long plantar, short plantar and plantar calcaneonavicular ligaments) and deep transverse metatarsal ligaments.

Other support: Plantar aponeurosis.

Bony support: The wedged shape of the bones of the arch.

Function Of Arches Of The Foot

They act as a weight bearing.

They act as a locomotive part of the body in walking and runing.

They provide apace in thole sole of foot to contain and protect the muscles,nerves and blood vessels of the sole

Arches help the foot support and distribute the weight of the body and provide leverage during walking

***ANSWER NO5:-***

***CEREBRUMM***

***STRUCTURE***

It is the largest part of brain

Embedded in the cerebrum in the basal ganglia

It is divided into tow halves called cerebral hemisphere.

They communicate via carpus collosioum

Cerebral cortex is the outer region of cerebrum.

***LOBES OF CEREBRUM***

1. ***Frontal lobe(motor cortex)***

Most interior portion of the cerebrum(under forehead)

Central sulcus separate frontal and partial lobe.

* Controls motor function, personality , And speech
* Like centre of reasoning, planning ,some parts of speech ,movement, emotions ,problem solving

1. ***Parietal Lobe (sensory cortex)***

The most superior portion of the cerebrum (top to head)

* Receives and interprets nerve impulses from sensory receptors and interprets language
* Receives sensory input from the skin (touch , pressure , temperature , and pain)

1. ***Occipital lobe (visual cortex)***

The most posterior portion of the cerebrum (back of the head )

* Receives input from the eye and control vision

1. ***Temporal Lobe (Auditory cortex)***

The left and right lateral portion of the cerebrum (on the sides of your head above your eyes )

* Control hearing and the smell