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Section: A

Paper: Human Anatomy

Q3: Write the Extraocular muscles. Enlist both voluntary and involuntary?

Ans: Extraocular muscles:

The extraocular muscles are the six muscle that control the movement of the eye for reason we don't fully understand these muscles can be particularly affected by myasthenia usually our eye movements are synchronized to double vision.

Details of these muscles are show below:

Medial Rectus:

- This moves the eye inwards the nose.

Lateral rectus:

Moves the eye outwards, away from the nose.

Superior Rectus:

- Moves the eye upwards
- Rotates the top of the eye away from the nose
- Moves the eye inwards

Inferior Rectus:

- Moves the eye downwards
- Rotates the top of the eye away from the nose
- Moves the eye inwards

Superior oblique:

- Rotates the top of the eye towards the nose
- Moves the eye downwards
- Moves the eye inwards

Inferior oblique:

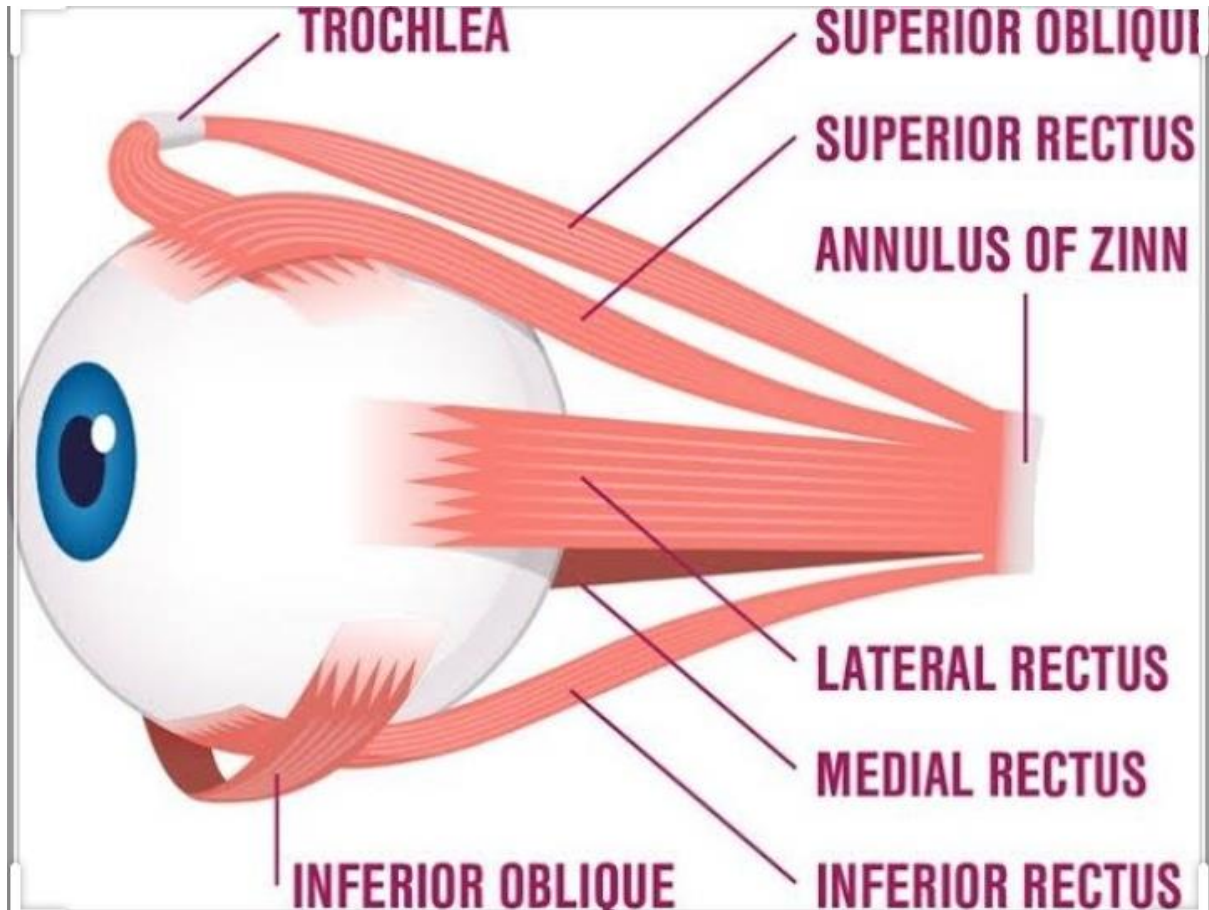
- Rotates the top of the eye away from the nose
- Moves the eye upwards
- Moves the eye outwards

Involuntary muscles:

- Superior tarsal or Muller muscles
- Inferior tarsal muscles

There are also small muscles that control the eyelids when they become fatigued drooping eyelids ptosis can occur.

Diagram:



Q2: Define the following

(a) Endocrine gland

(b) Exocrine gland

(c) Thalamus

(d) femoral triangle

(A)Endocrine glands:

These type of glands which secrete their secretion directly into the blood stream without a duct called endocrine gland. It is also called ductless gland. because it has no duct. These secretion of such gland are collectively called hormones.

Name of endocrine glands:

- Pituitary gland
- Thyroid gland
- Parathyroid gland
- Adrenal gland
- Pancreas
- Gonads
- Antidiuretic hormones
- Oxytocin

(B) Endocrine gland:

It is also called ducted glands. These type of glands secrete their secretion outside the body or into the digestive cavity through a duct called Endocrine glands
E.g. sweat gland, mammary gland e.t.c

(C)Thalamus: The thalamus is a small structure within the brain located just above the brain stem between

the cerebral cortex and the midbrain and has extensive nerve connections to both. The main function of the thalamus is to relay motor and sensory signals to the cerebral cortex. It also regulates sleep, alertness and wakefulness.

(D)Femoral triangle: The femoral triangle is a hollow area in the anterior thigh. Many large neurovascular structures pass through this area, and can be accessed relatively easily. Thus, it is an area of both anatomical and clinical importance.

In this article, we shall look at the borders, contents and clinical correlations of the femoral triangle.

Borders:

The femoral triangle is bounded:

superiorly (also known as the base) by the inguinal ligament.

medially by the medial border of the adductor longus muscle. ...

laterally by the medial border of the Sartorius muscle.

Q5: Write a note on cerebrum, its lobes and functions?

Ans: Cerebrum: The cerebrum is the largest part of the brain, located superiorly and anteriorly in relation to the brainstem. It consists of two cerebral hemispheres (left and right), separated by the falx cerebri of the dura mater. Embryologically, the cerebrum is derived from the prosencephalon. The cerebrum is located within the bony cranium. It extends from the frontal bone anteriorly to the occipital bone posteriorly. Within the skull the cerebrum fills the anterior and middle cranial fossae and is located above the tentorium cerebellum inferiorly.

Lobes of the cerebrum:

The cerebral cortex is classified into four lobes, according to the name of the corresponding cranial bone that approximately overlies each part. Each lobe contains various cortical association areas – where information from different modalities are collated for processing. Together, these areas function to give us a meaningful perceptual interpretation and experience of our surrounding environment.

Frontal Lobe:

The frontal lobe is located beneath the frontal bone of the calvaria and is the most anterior region of the cerebrum. It is separated from the parietal lobe

posteriorly by the central sulcus and from the temporal lobe inferoposteriorly by the lateral sulcus.

Parietal Lobe:

The parietal lobe is found below the parietal bone of the calvaria, between the frontal lobe anteriorly and the occipital lobe posteriorly, from which it is separated by the central sulcus and parieto-occipital sulcus, respectively. It sits superiorly in relation to the temporal lobe, being separated by the lateral sulcus.

Temporal Lobe:

The temporal lobe sits beneath the temporal bone of the calvaria, inferior to the frontal and parietal lobes, from which it is separated by the lateral sulcus.

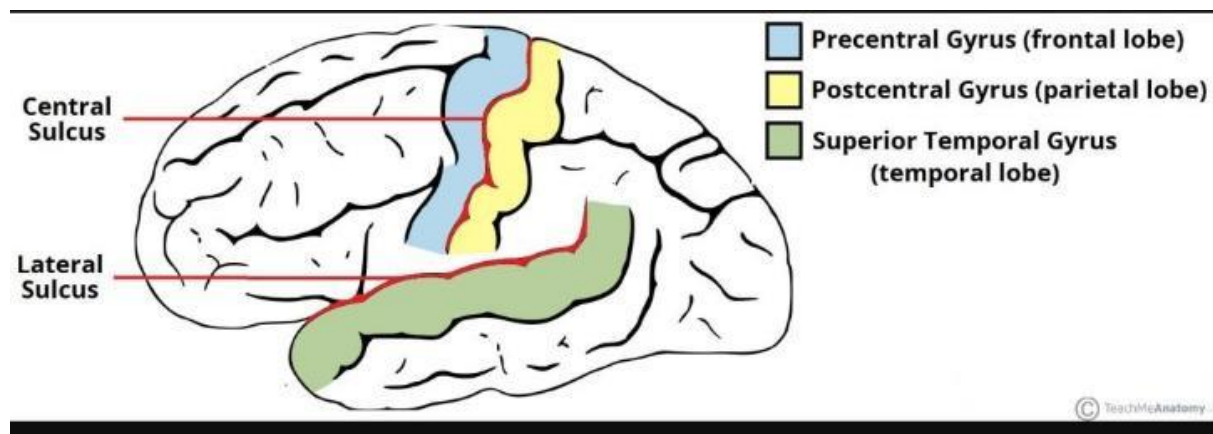
Occipital Lobe:

The occipital lobe is the most posterior part of the cerebrum situated below the occipital bone of the calvaria. Its inferior aspect rests upon the tentorium cerebelli, which segregates the cerebrum from the cerebellum. The parieto-occipital sulcus separates the occipital lobe from the parietal and temporal lobes anteriorly.

Functions: It performs higher functions like interpreting touch, vision and hearing, as well as

speech, reasoning, emotions, learning, and fine control of movement.

Diagram:



Q1. Write anterior compartment of thigh and posterior compartment of leg muscles with origin, insertion and action?

Ans: Anterior compartment of thigh:

The anterior compartment contain the Sartorius muscles (the largest muscle of the body) and the quadriceps group which consist of the rectus femoris muscles.

Quadriceps femoris

- o Rectus femoris

Origin – anterior inferior iliac spine, margin of acetabulum

Insertion – patella and tibial tuberosity via the patellar ligament

Action – extends knee, flexes thigh

○ ***Vastus lateralis***

○ ***Vastus medialis***

○ ***Vastus intermedius***

Origin – femur

Insertion – patella and tibial tuberosity via the patellar

Action – extends knee

○ **Sartorius:**

Origin - anterior superior iliac spine

Insertion – medial tibia

Action - flex, abduct, lat rotate thigh; weak knee flexor

○ **Iliopsoas**

Origin - Iliac, sacrum, lumbar vertebrae

Insertion – lesser trochanter

Action – flexor of thigh Innervation – femoral nerve

Posterior compartment of leg muscles:

Superficial posterior compartment

Superficial Posterior Compartment

○ **Triceps surae**

○ **Gastrocnemius (2 heads)**

Origin - *medial and lateral condyles of femur*

Insertion - *posterior calcaneus via Achilles tendon*

○ **Soleus**

Origin – *tibia and fibula*

Insertion – *same as above*

Action of both – *plantarflex foot*

○ **Plantaris (variable)**

Origin – *posterior femur*

Insertion – *same as above!*

Action – *plantarflex foot, weak knee flexion*

All innervated by the *tibial nerve Deep Posterior Compartment*

○ **Popliteus**

Origin - *lateral condyle femur and lateral meniscus*

Insertion – *proximal tibia*

Action – *flex and medially rotate leg*

○ **Flexor digitorum longus**

Origin – *tibia*

Insertion - distal phalanges of toe 2-5

Action – plantarflex and invert foot, flex toe

○ **Flexor hallucis longus**

Origin – fibula

Insertion - distal phalanx of hallux

Action - plantarflex and invert foot, flex toe

○ **Tibialis posterior**

Origin – tibia, fibula, and interosseous membrane

Insertion - tarsals and metatarsals

Action - plantarflex and invert foot

All innervated by the tibial nerve.

Q4. Describe the arches of foot and functions of arches.

Ans: Arches of foot:

- Bone of the foot are arranged to form three strong arches
- Arches are fully developed by age 12 or 13
 - Two longitudinal (lateral and medial)
 - One transverse.

Function of arches:

- Arches help the foot support and distributed the weigh of the body and provide leverage during walking..

Diagram:

ARCHES OF THE FOOT

