**Al-Balqa Applied University**

**Collage of Medicine**

**Anatomy Lab Check List**

**Block: Nervous System and Special Senses (31500311)**

**Lab Title: Orbit, Eye and Ear**

**Lab Objectives:**

* Recognize individual structures related to orbit, eye & ear.
* Observe the organization and relations of these structures.
* Compare between your understanding, your atlas and the specimens you see in the lab.

**Eye**

* Eyelids
  + Upper & lower eyelids
    - Medial & lateral angles (canthi)
    - Palpebral fissure
    - Eyelashes
  + Glands
    - Glands of Zeis (oil)- hair follicles
    - Ciliary glands/ glands of Moll (modified sweat)- between eyelashes
    - Tarsal (Meibomian) glands (modified oil)- behind eyelashes
  + Framework
    - Orbital septum
    - Tarsal plates
      * Palpebral ligaments
  + Muscles
    - Orbicularis oculi
    - Levator palpebrae superioris
  + Conjunctiva
    - Palpebral conjunctiva
    - Bulbar conjunctiva
    - Conjunctival blood vessels
    - Conjunctival fornices
    - Conjunctival sac – receive ducts of lacrimal gland
  + Medial angle (beginning of the lacrimal apparatus)
    - Lacus lacrimalis (lacrimal lake)
    - Caruncula lacrimalis
    - Papilla lacrimalis
      * Punctum lacrimalis
        + Canaliculus lacrimalis
* Lacrimal Apparatus
  + Punctum lacrimalis
  + Canaliculus lacrimalis
  + Lacrimal sac
  + Nasolacrimal duct
  + Lacrimal gland
    - Parts
      * Orbital part
      * Palpebral part
* The Orbit
  + Bones of orbital margin …..
  + Bones of orbital cavity walls ……..
  + Openings into orbital cavity
    - Optic canal
    - Supraorbital notch/foramen
    - Nasolacrimal canal
    - Anterior & posterior ethmoidal foramina
    - Inferior & superior orbital fissures
    - Infraorbital groove, canal, & foramen
* Nerves of the Orbit
  + Optic nerve
  + Trochlear nerve
  + Abducent nerve
  + Oculomotor nerve
    - Superior ramus
    - Inferior ramus
      * Branch to ciliary ganglion
  + Ciliary ganglion
    - Short ciliary nerves
  + Ophthalmic nerve
    - Frontal nerve
      * Supraorbital & Supratochlear nerves
    - Lacrimal nerve
      * Carry parasympathetic fibers to lacrimal gland via zygomaticotemporal nerve
    - Nasociliary nerve: Branches:
      * Comunicating branch to ciliary ganglion
      * Long ciliary
      * Posterior ethmoidal
      * Anterior ethmoidal
      * External nasal
      * Infratrochlear
* Ophthalmic Artery: Branches:
  + Supraorbital
  + Supratrochlear
  + Central retinal
  + Ciliary aa. (short & long)
  + Ethmoidal aa. (anterior & posterior)
  + Lacrimal
  + Dorsal nasal
* Ophthalmic Veins
  + Superior & inferior ophthalmic veins
* Eye: Muscles
  + Extrinsic muscles
    - Superior rectus
    - Inferior rectus
    - Medial rectus
    - Lateral rectus
    - Superior oblique
      * Trochlea
    - Inferior oblique
  + Intrinsic muscles
    - Ciliary - parasympathetic
    - Constrictor pupillae of the iris - parasympathetic
    - Dilator pupillae of the iris - sympathetic
* Eye: Fascia
  + Medial & lateral check ligaments
    - Suspensory ligament of the eye
* Tunics (Layers, Coats) of Eyeball
  + Fibrous Tunic
    - Cornea - anterior
    - Sclera – posterior
      * Lamina cribrosa
      * Limbus
        + Scleral venous sinus

Canal of Schlemm

* + Vascular Pigmented Tunic
    - Choroid
    - Ciliary body
      * Ciliary ring (posterior)
      * Ciliary processes
        + Folds on ciliary body

Suspensory ligaments

* + - * Ciliary muscle
    - Iris
      * Constrictor pupillae (circular)
      * Dilator pupillae (radial)
    - Pupil
  + Nervous Tunic (Retina)
    - Layers
      * Outer pigmented layer
      * Inner nervous layer
    - Parts
      * Posterior ¾ is receptor organ
      * Ora serrata
      * Anterior part (nonreceptive)
      * Covers ciliary processes & back of iris
    - Macula lutea
      * Fovea centralis
    - Optic disc (Blind spot)
      * Optic nerve
      * Central artery of the retina
* Lens
* Cavities of the Interior of Eyeball
  + Anterior cavity
    - Anterior chamber
    - Posterior chamber
  + Posterior cavity
    - Vitreous body

**Ear**

* External Ear
  + Auricle or pinna
    - Helix & antihelix
    - Tragus & antitragus
    - Lobule
    - Sacphoid fossa
    - Triangular fossa
    - Concha
  + External auditory canal
  + Tympanic membrane or eardrum
    - Flaccid part (superiorly)
    - Tense part
* Middle Ear Cavity
  + Parts
    - Epitympanic recess (superiorly)
    - Tympanic cavity proper
  + Contents
    - Auditory ossicles
      * Malleus
        + Head (for incus)
        + Neck
        + Handle (for eardrum & tensor tympani m.)
        + Anterior (for ligament) & lateral (for malleolar folds) processes
      * Incus
        + Body (for malleus)
        + Long process (for stabs)
        + Short process (for ligament)
      * Stapes
        + Head (for incus)
        + Neck (stapedius m.)
        + Limbs
        + Base (for oval window)
    - Stapedius & tensor tympani mm.
    - Chorda tympani n.
    - Tympanic plexus of nerves
  + Walls
    - Roof (tegmen tympani of petrous portion)
    - Floor
    - Anterior wall.
      * Opening to auditory tube
      * Opening of a canal for tensor tympani m.
    - Posterior wall
      * Opening to mastoid antrum
      * Pyramid
    - Lateral wall (eardrum)
    - Medial wall
      * Promontory
      * Oval window (fenestra vestibuli)
      * Round window (fenestra cochleae)
        + Secondary tympanic membrane
* Inner Ear
  + Bony labyrinth
    - Semicircular canals (superior (anterior), lateral & posterior)
    - Vestibule
      * Oval & round windows
    - Cochlea
      * Modiolus
      * Cochlear canal
        + Spiral lamina
        + Basilar membrane
        + Vestibular membrane
        + Parts

Scala vestibuli (begins at oval window)

Scala tympani (ends at round window)

Helicotrema

* + Membranous Labyrinth
    - Utricle & Saccule
      * Endolymphatic sac
      * Utriculosaccular duct
      * Otolithic organs
    - Semicircular ducts
      * Ampulla of Semicircular Ducts
        + Crista
    - Cochlear duct
      * Ductus reuniens
      * Organ of Corti
* Cranial nerves of the Ear Region
  + Vestibulocochlear nerve
    - Vestibular branch
      * Ampullary, utricular & saccular branches
      * Vestibular ganglion
    - cochlear branch
      * spiral ganglion