**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