

# PTA/OTA 106: Human Regional Anatomy and Physiology

## Study guide Unit #1: Head and Neck Region

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1. Review and make sure you can differentiate the topographical landmarks, bones, and bony landmarks from Lab 1.
2. Review and make sure you can differentiate the muscles, origins, insertions, innervations, and actions from Lab 2.
3. Be able to identify/locate the organs of the digestive system and their associated structures on charts, models, pictures and where indicated microscope slides, also be able to explain/describe their functions:
  - a. **Oral cavity and Pharynx:** Superior labial frenulum, Gingivae, Palatoglossal arch, Palatopharyngeal arch, Hard palate, Soft palate, Uvula, Cheek, Inferior labial frenulum, Vestibule, Oropharynx, Nasopharynx, Laryngopharynx, Epiglottis, Esophagus
  - b. **Tonsils:** Lingual tonsils, Pharyngeal tonsils, and Palatine tonsils
  - c. **Salivary Glands:** Parotid glands, Stensen's duct, submandibular glands, Wharton's duct, Sublingual glands, Rivinus' duct,
  - d. **Tongue:** Body, root, dorsum, apex, margin, Lingual frenulum,
  - e. **Teeth:** Types and numbers of teeth (primary and secondary dentition)
4. Explain/describe the physiology of deglutition and the three stages. (voluntary, Pharyngeal, and Esophageal)
5. Be able to identify/locate organs and ducts of the respiratory systems on charts and models. Also be able to explain/describe their functions:
  - a. **Nose and Nasal cavity:** external nares, nostrils, internal nares, nasal septum, vestibule, olfactory epithelium, nasal cochae (superior, middle, inferior), nasal meatuses (superior, middle, inferior), internal nares, pharyngeal tonsil, nasopharynx, orifice of eustachian tube, paranasal sinuses (frontal, sphenoidal, ethmoidal, maxillary), uvula, hard palate, soft palate, palatine tonsil, oropharynx, external nose (root, apex, dorsum nasi, external naris, bridge)
  - b. **Larynx:** rima glottidis, laryngopharynx, ventricular folds (false vocal cord), laryngeal sinus, vocal fold (true vocal cord), thyroid cartilage, cricoid cartilage, epiglottis, corniculate cartilage, arytenoid cartilage,
  - c. **Trachea:** tracheal cartilage, trachealis muscle, carina, pseudostratified ciliated columnar, seromucous gland, hyaline cartilage
6. Be able to identify/locate the following arteries and veins. Also be able to explain/describe blood flow patterns. (Remember you must label all vessels as left or right)
  - a. **Major Arteries:** Superficial Temporal, Maxillary, Facial, Occipital, Internal Carotid, External Carotid, Vertebral, Common Carotid, Subclavian, Brachiocephalic trunk

- b. Major Veins:** Superior sagittal sinus, Transverse sinus, Sigmoid sinus, Temporal, Occipital, Facial, Maxillary, External Jugular, Internal jugular, Vertebral, Brachiocephalic
7. Be able to identify/locate the endocrine glands on charts and models, also explain/describe hormones produced by each gland, the effect of these hormones, their target tissue and disorders associated with increased or decreased production..
- Hypothalamus:** neurosecretory cells, infundibulum  
**Hormones:** regulatory hormones (TRH, CRH, GnRH), ADH, oxytocin
  - Pituitary gland:** posterior pituitary (neurohypophysis), anterior pituitary (adenohypophysis), acidophils, basophils  
**Hormones:** ACTH, TSH, GH, PRL, FSH, LH, MSH
  - Thyroid glands:** follicular cells, thyroid follicles, parafollicular cells  
**Hormones:** T4, T3, calcitonin
  - Parathyroid glands:** chief cells  
**Hormones:** PTH
  - Pineal gland**  
**Hormones:** Melatonin and Serotonin.
8. Be able to identify/locate and explain/describe the structures associated with embryonic development of the brain: (primary and secondary vesicles):  
**Primary:** prosencephalon, mesencephalon, rhombencephalon  
**Secondary:** telencephalon, diencephalon, metencephalon, myelencephalon
9. Be able to explain/describe where cerebrospinal fluid (CSF) is produced, how CSF contributes to homeostasis, and the circulation pathway for CSF. Be sure you can identify/locate the following structures: ependymal cells, choroid plexuses, Lateral ventricles, Interventricular foramina, Third ventricle, Cerebral aqueduct, Fourth ventricle, Central canal, Subarachnoid space, Arachnoid villi, Superior sagittal sinus
10. Be able to identify/locate the following structures associated with the brain stem, and explain/describe their function:  
**Medulla Oblongata:** cardiovascular center, medullary rhythmicity area, cranial nerves (IX, X, XI, XII)  
**Pons:** pneumotaxic area, apneustic area, cranial nerves (V, VI, VII, VIII)  
**Mesencephalon:** cerebral peduncles, corpora quadrigemina (superior and inferior colliculi), substantia nigra, reticular formation, reticular activating system.
11. Be able to identify/locate the following structures associated with the Diencephalon and explain/describe their function.  
**Pineal gland:** melatonin  
**Thalamus:** intermediate mass, medial geniculate nucleus (hearing), lateral geniculate nucleus (vision), ventral posterior nucleus (taste), cognition  
**Hypothalamus:** mammillary bodies and infundibulum, and the chief functions of the hypothalamus
12. Be able to identify/locate the following structures associated with the cerebellum and explain/describe basic function of the cerebellum: arbor vitae, inferior, middle, and superior cerebellar peduncles
13. Be able to identify/locate the following structures associated with the Cerebrum and explain/describe their function:  
**Surface anatomy:** cerebral cortex, gyri, sulci, longitudinal fissure, falx cerebri,

central sulcus, precentral gyrus, postcentral gyrus, lateral cerebral sulcus, transverse fissure, parieto-occipital sulcus

**Meninges:** dura, epidural, subdural space, arachnoid, subarchnoid space, pia

**Lobes:** frontal, parietal, temporal, occipital, insula

**Functional Areas:** primary auditory area, auditory association area, primary visual area, visual association area, somatosensory association area, primary somatosensory area, primary motor area, premotor area

**Internal anatomy:** corpus callosum, septum pellucidum

Know the basic functions of the Basal ganglia and limbic system.

14. Be able to identify/locate the 12 pairs of cranial nerves by name, number, and location and cervical spinal nerves and related structures. Also be able to explain/describe each nerve's function

\*\* Lab Handouts are part of study guide.