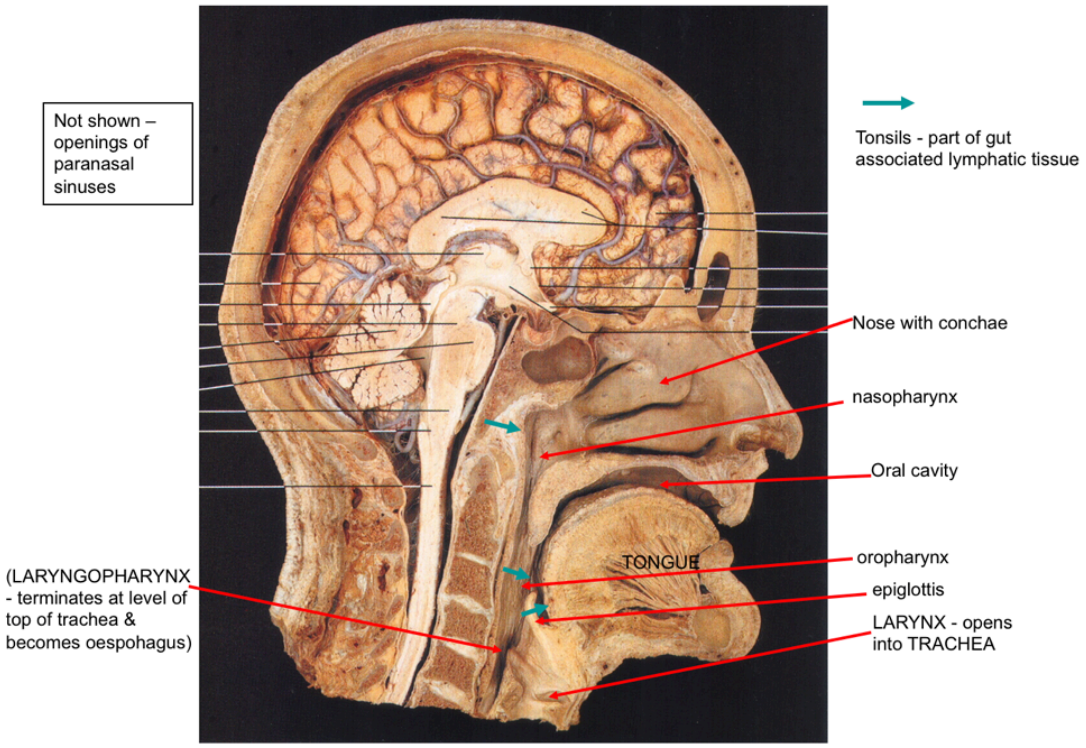
WHAT COMES WITH THESE NOTES:

- Comprehensive table of content which allows you to navigate through the course with ease
- A real visceral anatomy bible that combines content from lectures and course handbook. It contains everything you need to know for exams.
- Integrated special developmental lecture notes for ANAT3907 students.
- 65 Practice true/false and 16 short answer response questions that will prepare you for the final theory exam. These questions are made by myself with accordance to final exam theory style. Questions come with answers.

Sample pages from notes:

Lecture 8 – Respiratory System



Upper Respiratory System

- Nasal cavities separated from mouth by hard and soft palate
- Each nostril contains 3 conchae on internal lateral wall
  - Superior is small
  - Middle and inferior
    - Nasolacrimal duct drains tears from medial corner of eye to opening under inferior concha
  - Posterior openings connecting nasal cavities to the nasopharynx are called choanae
- Paranasal sinuses are associated with nose and drain into nasal cavity.
- Auditory tubes open into the lateral walls of nasopharynx
  - Connect to air filled middle ear mastoid process

Regulation of air flow

- Epiglottis closes during food swallowing and opens during respiration
- Vocal folds control air flow
- Laryngeal muscles are innervated by recurrent laryngeal branches of the vagus

Tonsils (gut associated lymphatic tissue GALT)

- Pharyngeal tonsil in the posterior wall of nasopharynx
- Lingual tonsil in the posterior part of the tongue
- A pair of palatine tonsils in the oral cavity
  - These are prone to infection and development of tonsil stones

Advanced Special Lecture 2 – Development of Lungs, Heart and Diaphragm

***mesenchyme:** connective tissue found during embryonic development

Formation of Thoracic Cavities

Week 3

- Heart tubes and blood vessels start to develop, initially ventral to pericardial cavity but then moves dorsally

Week 4-5

- Lung buds grow into lateral parts of coelom posterior to developing heart.
    - This region becomes pleuropericardialcanals when pleuropericardial folds develop in week 5. These folds fuse later to form pleuropericardial membrane separating the pleura and pericardial cavity

Week 7

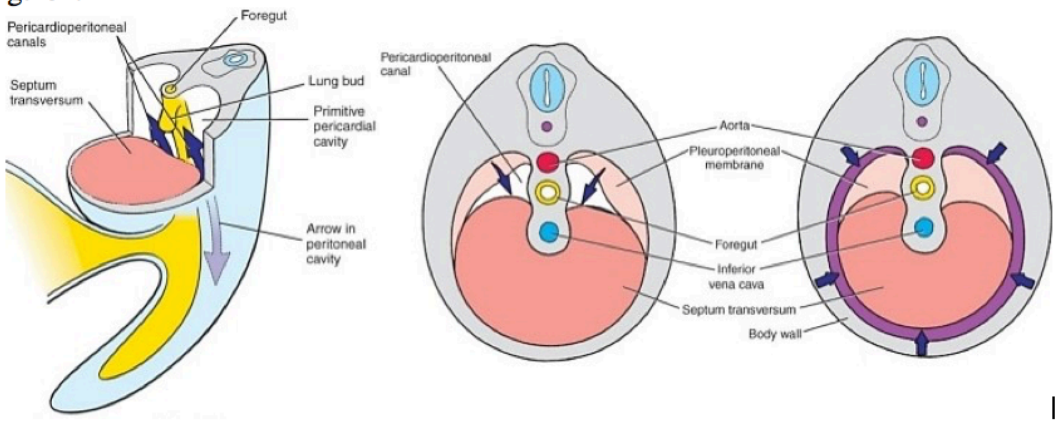
- Pleuropericardial membrane fuses with mesenchyme ventral to oesophagus to form mediastinum

Formation of Diaphragm

Weeks 3-6

diaphragm develops by fusion of four primordia (Fig.3)

- **septum transversum:** a semicircular shelf derived from the ventral body wall
- **pleuroperitoneal fold:** a pair of shelves which grow inwards from the posterolateral body wall & ultimately fuse with the septum transversum & the **dorsal mesentery** of the oesophagus
    - fusion with pleuroperitoneal fold usually occurs on the right side first. Defective formation can cause **diaphragmatic hernia**. This may result in delay in lung formation
- **myoblasts** grow into the diaphragm bringing their innervation with them – the phrenic nerve. The phrenic nerves pass through the pleuropericardial folds/membranes to reach the diaphragm.
    - Right phrenic nerve passes through caval aperture at T8 whilst left phrenic nerve at its own aperture
- Horizontal level of diaphragm descends as the upper body grows. To accompany this, phrenic nerves also lengthen.



Formation of respiratory system

- Lung bud forms ventrally from pharynx (derived from endoderm) as **laryngotracheal groove**, which develops into two bronchopulmonary buds.
- **Week 4: days 26-27**: These buds develop and branch into its corresponding pleuropericardial canals and then branch repeatedly to form bronchial trees
- **In week 8**, surrounding mesenchyme starts to differentiate to form cartilage plates
- **In week 10**, lining of trachea changes from simple to pseudostratified and grows outwards to for respiratory glands in week 12
- Alveoli proliferate late during development (~ week 24 of gestation) and continue to do so until 8-10 years after birth