

Learning Objectives – Integrating Years 1 and 2

Below are essential concepts to be reviewed and integrated as you progress through the MHD Pulmonary block.

FHB Pulmonary Physiology

There will be 3 questions on the December 14, 2011 MHD 3 exam developed from the following objectives:

- Draw a typical spirometer tracing identifying the four primary lung volumes and four lung capacities.
- Define compliance and show how pulmonary versus chest wall compliance can vary in respiratory diseases.
- List and explain four different causes of arterial hypoxemia found in abnormal human physiology.
- Draw an oxyhemoglobin dissociation curve showing the relationships between oxygen partial pressure, hemoglobin saturation, and blood oxygen content.
- Show how the oxyhemoglobin dissociation curve is affected by changes in blood temperature, pH, PCO₂, and 2,3 DPG and describe a situation where such changes have important physiological consequences.
- Describe how oxygen supply and demand are balanced in the lungs and tissues in various metabolic states of activity (ie exercise, high altitude.)
- Estimate alveolar oxygen partial pressure (P_AO₂) using the alveolar gas equation.
- List the three forms of carbon dioxide carried by the blood and how they interact to form the total CO₂ dissociation curve.
- Describe the consequence of hypoxic pulmonary vasoconstriction on the distribution of pulmonary blood flow.

SHB Pulmonary Anatomy

There will be 2 questions on the December 14, 2011 MHD 3 exam developed from the following objectives.

- Summarize the anatomy of the bronchial tree.

- Describe the blood and nerve supply and lymph drainage of the lungs.
- Describe the structures in the hilum and the mediastinal relations of each lung.
- Describe a neurovascular bundle in a typical intercostal space and outline the structures its components supply.