

Pulmonary Function OSLHA 2008

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Anatomy & Physiology of Respiratory System

Thorax
Trachea
Epithelial Tissue
Lung
Coverings of the Lungs
Conduction vs. Respiratory Zones
Respiratory Zone
Respiration
 External respiration
 Internal respiration
Alveoli
Smoking and the Alveoli
Aquaporins
Pulmonary artery & vein
Mediastinum
Thoracic Cavity
How Lungs Expand
Diaphragm
Accessory Muscles of Inspiration
Things to Take Away

Physiology of Respiration

Breathing
Volumes (*think*: volume = quantity)
Respiration for Life
Four stage gas exchange (different from respiration)
 Ventilation - movement of air through passageways
 Distribution - getting the air throughout the lungs and to the alveoli (part of ventilation)
 Perfusion - Oxygen poor blood from pulmonary artery is delivered to capillary net around each alveoli (part of circulation)
 Diffusion - actual gas exchange across alveolar-capillary membrane
Developmental Processes in Respiration
Capacities
 Vital Capacity (*VC*)
 Functional Residual Capacity (*FRC*)
 Total Lung Capacity (*TLC*)
 Inspiratory Capacity (*IC*)
Pressures on Inspiratory System
Effects of Posture on Speech
Respiratory Cycle for Speech

Muscle Recruitment
Neurology of Swallowing

What Can Go Wrong?

Obstructive Airway Diseases
COPD
Hyperreactive Airway Disease: Asthma
Cystic Fibrosis
Upper or Large Airway Obstruction
Restrictive Lung Diseases
Interstitial diseases:
Diseases of the chest wall and pleura
Neuromuscular disorders
Congestive heart failure (CHF)

How is The Respiratory System Evaluated?

Airway Function Tests
Lung Volume & Ventilation Tests
Diffusing Capacity Tests
Cardiopulmonary Exercise Tests

How Did We Become So Afraid of Aspiration?

Aspiration Pneumonitis in Brief
Aspiration Pneumonia
Why Can Saliva be Such a Problem?
Does Aspiration Predict Aspiration Pneumonia?
What Predicts Aspiration Pneumonia?
So, Why Doesn't Everyone Develop Pneumonia?
Will We Prevent Aspiration?
Modify Diet and Liquids?
Questions Yet to be Answered
Dehydration
Thickened Liquids and Dehydration
Free Water Protocol Summary
Oral Hygiene

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