

Neurologic Control of Breathing

- I. Primary functions
 - a. Supply O₂/remove CO₂ according to metabolic needs
 - b. Acid-Base homeostasis
 - c. Speech, voiding, childbirth, etc
- II. Respiratory system components
 - a. Receptors
 - b. Control center
 - c. Effectors
- III. Control objectives
 - a. Minimize WOB
 - b. Maintain ABG values
 - c. Maintain brain acid-base environment
- IV. System constraints
- V. Volitional control
- VI. Terminology
 - a. Eupnea
 - b. Apnea
 - c. Tachypnea
 - d. Bradypnea
 - e. Hyperpnea
 - f. Hypopnea
- VII. Volume and timing overview
- VIII. Receptors
 - a. Upper airway
 - b. Tracheobronchial
 - i. SAR's
 - ii. RAR's
 - iii. C fiber endings
 - iv. Others
 - c. Chemical sensing receptors
 - i. Peripheral arterial chemoreceptors
 - 1. Location
 - 2. Responses
 - ii. Central (CNS) chemoreceptors
 - 1. Medulla
 - a. DRG
 - b. VRG
 - 2. Pons
 - a. Pneumotaxic center
 - b. Apneustic center
- IX. Respiratory system responses
 - a. CO₂
 - b. O₂
 - c. Hydrogen ion

