

Module 4.0

Urinary and Respiratory Systems

Function and Structure of the Kidney
Urinary System Function
Functional Anatomy of the Urinary System
The Nephron: Functional Unit of the Kidney
The Renal Corpuscle: Bowman's Capsule
Physiology of Urine Production
Filtration
Renal Clearance
Tubular Reabsorption
Urine Concentration and Dilution
Hormonal Regulation of Urine Production
Acid/Base Balance
Buffers
Acid/Base Disturbances
The Respiratory System
Respiratory System Structure and Function
Respiratory Membrane
Respiratory pressures and Inspiration/Expiration
Alveoli and Surfactant
Pneumothorax
Pressure-Volume Loops and the Work of Breathing

Gas Exchange and Transport
Gas Laws
Partial Pressure Gradients in the Lung
Alveolar Gas Equation
Oxygen and Carbon Dioxide Transport in the Blood
Alveolar Ventilation
Ventilation/Perfusion Ratio
Chronic Bronchitis and Emphysema
Respiratory Control by the Medulla Oblongata
Chemicals that Regulate Ventilation



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