

Features:

- Uses a logical, organ system-based approach that clearly describes all of the mechanisms that control and regulate bodily function.
- Includes new clinical case examples, as well as In the Clinic and At the Molecular Level boxes that highlight practical aspects of this fundamental science.
- Provides key experimental observations and examples that offer a rich understanding of the body's dynamic processes.
- Discusses recent discoveries such as the role of lymphatics in the nervous system.
- Begins each chapter with a bulleted list of questions and ends with key concepts covered in that chapter.
- Enhanced eBook version included with purchase. Your enhanced eBook allows you to access all of the text, figures, and references from the book on a variety of devices.

Περιεχόμενα:**Section 1: Cellular Physiology**

- 1 Principles of Cell and Membrane Function
- 2 Homeostasis: Volume and Composition of Body Fluid Compartments
- 3 Signal Transduction, Membrane Receptors, Second Messengers, and Regulation of Gene Expression

Section 2: Neurophysiology

- 4 The Nervous System: Introduction to Cells and Systems
- 5 Generation and Conduction of Action Potentials
- 6 Synaptic Transmission
- 7 The Somatosensory System
- 8 The Special Senses
- 9 Organization of Motor Function
- 10 Integrative Functions of the Nervous System
- 11 The Autonomic Nervous System and Its Central Control

Section 3: Muscle Physiology

- 12 Skeletal Muscle Physiology
- 13 Cardiac Muscle
- 14 Smooth Muscle

Section 4: Cardiovascular Physiology

- 15 Overview of Circulation
- 16 Elements of Cardiac Function
- 17 Properties of the Vasculature

- 18 Regulation of the Heart and Vasculature
- 19 Integrated Control of the Cardiovascular System

Section 5: Respiratory Physiology

- 20 Introduction to the Respiratory System
- 21 Static Lung and Chest Wall Mechanics
- 22 Dynamic Lung and Chest Wall Mechanics
- 23 Ventilation, Perfusion, and Ventilation/Perfusion Relationships
- 24 Oxygen and Carbon Dioxide Transport
- 25 Control of Respiration
- 26 Host Defense and Metabolism in the Lung

Section 6: Gastrointestinal Physiology

- 27 Functional Anatomy and General Principles of Regulation in the Gastrointestinal Tract
- 28 The Cephalic, Oral, and Esophageal Phases of the Integrated Response to a Meal
- 29 The Gastric Phase of the Integrated Response to a Meal
- 30 The Small Intestinal Phase of the Integrated Response to a Meal
- 31 The Colonic Phase of the Integrated Response to a Meal
- 32 Transport and Metabolic Functions of the Liver

Section 7: Renal Physiology

- 33 Elements of Renal Function
- 34 Solute and Water Transport Along the Nephron: Tubular Function
- 35 Control of Body Fluid Osmolality and Volume
- 36 Potassium, Calcium, and Phosphate Homeostasis
- 37 Role of the Kidneys in the Regulation of Acid-Base Balance

Section 8: Endocrine Physiology

- 38 Introduction to the Endocrine System
- 39 Hormonal Regulation of Energy Metabolism
- 40 Hormonal Regulation of Calcium and Phosphate Metabolism
- 41 The Hypothalamus and Pituitary Gland
- 42 The Thyroid Gland
- 43 The Adrenal Gland
- 44 The Male and Female Reproductive Systems

Index