

- **1 The Human Body: An Orientation** (p. 1)
- **An Overview of Anatomy and Physiology** (p. 2)
- **Levels of Structural Organization** (p. 2)
- **Maintaining Life** (p. 7)
- **Homeostasis** (p. 9)
- **The Language of Anatomy** (p. 11)
- **2 Basic Chemistry** (p. 21)
- **Concepts of Matter and Energy** (p. 22)
- **Composition of Matter** (p. 23)
- **Molecules and Compounds** (p. 27)
- **Chemical Bonds and Chemical Reactions** (p. 30)
- **Biochemistry: The Chemical Composition of Living Matter** (p. 36)
- **3 Cells and Tissues** (p. 55)
- **Part 1 Cells** (p. 56)
- **Overview of the Cellular Basis of Life** (p. 56)
- **Anatomy of a Generalized Cell** (p. 56)
- **Cell Physiology** (p. 66)
- **Part 2 Body Tissues** (p. 77)
- **Epithelial Tissue** (p. 78)
- **Connective Tissue** (p. 81)
- **Muscle Tissue** (p. 85)
- **Nervous Tissue** (p. 86)
- **Tissue Repair (Wound Healing)** (p. 86)
- **Developmental Aspects of Cells and Tissues** (p. 87)
- **4 Skin and Body Membranes** (p. 95)
- **Classification of Body Membranes** (p. 96)
- **Integumentary System (Skin)** (p. 98)
- **Developmental Aspects of Skin and Body Membranes** (p. 111)
- **5 The Skeletal System** (p. 116)
- **Bones: An Overview** (p. 116)
- **Axial Skeleton** (p. 124)
- **Appendicular Skeleton** (p. 138)
- **Joints** (p. 145)
- **Developmental Aspects of the Skeleton** (p. 153)
- **6 The Muscular System** (p. 161)
- **Overview of Muscle Tissues** (p. 162)
- **Microscopic Anatomy of Skeletal Muscle** (p. 166)
- **Skeletal Muscle Activity** (p. 168)
- **Muscle Movements, Types, and Names** (p. 175)
- **Gross Anatomy of Skeletal Muscles** (p. 181)
- **Developmental Aspects of the Muscular System** (p. 194)
- **7 The Nervous System** (p. 201)
- **Organization of the Nervous System** (p. 203)
- **Nervous Tissue: Structure and Function** (p. 204)
- **Central Nervous System** (p. 215)
- **Peripheral Nervous System** (p. 229)

- **Developmental Aspects of the Nervous System** (p. 243)
- **8 Special Senses** (p. 251)
- **The Eye and Vision** (p. 252)
- **The Ear: Hearing and Balance** (p. 264)
- **Chemical Senses: Taste and Smell** (p. 270)
- **Developmental Aspects of the Special Senses** (p. 273)
- **9 The Endocrine System** (p. 279)
- **The Endocrine System and Hormone Function--An Overview** (p. 280)
- **The Major Endocrine Organs** (p. 283)
- **Other Hormone-Producing Tissues and Organs** (p. 300)
- **Developmental Aspects of the Endocrine System** (p. 300)
- **10 Blood** (p. 307)
- **Composition and Functions of Blood** (p. 308)
- **Hemostasis** (p. 315)
- **Blood Groups and Transfusions** (p. 318)
- **Developmental Aspects of Blood** (p. 321)
- **11 The Cardiovascular System** (p. 327)
- **Cardiovascular System: The Heart** (p. 328)
- **Cardiovascular System: Blood Vessels** (p. 339)
- **Developmental Aspects of the Cardiovascular System** (p. 360)
- **12 The Lymphatic System and Body Defenses** (p. 367)
- **Lymphatic System** (p. 368)
- **Lymphatic Vessels** (p. 368)
- **Lymph Nodes** (p. 369)
- **Other Lymphoid Organs** (p. 371)
- **Body Defenses** (p. 372)
- **Nonspecific Body Defenses** (p. 373)
- **Specific Body Defenses: The Immune System** (p. 377)
- **Developmental Aspects of the Lymphatic System and Body Defenses** (p. 396)
- **13 The Respiratory System** (p. 403)
- **Functional Anatomy of the Respiratory System** (p. 404)
- **Respiratory Physiology** (p. 411)
- **Respiratory Disorders** (p. 422)
- **Developmental Aspects of the Respiratory System** (p. 424)
- **14 The Digestive System and Body Metabolism** (p. 431)
- **Part I Anatomy and Physiology of the Digestive System** (p. 432)
- **Anatomy of the Digestive System** (p. 432)
- **Developmental Aspects of the Digestive System and Metabolism** (p. 468)
- **Functions of the Digestive System** (p. 445)
- **Part II Nutrition and Metabolism** (p. 456)
- **Nutrition** (p. 456)
- **15 The Urinary System** (p. 479)
- **Kidneys** (p. 480)
- **Ureters, Urinary Bladder, and Urethra** (p. 489)
- **Fluid, Electrolyte, and Acid-Base Balance** (p. 491)
- **Developmental Aspects of the Urinary System** (p. 497)

- **16 The Reproductive System** (p. 503)
- **Anatomy of the Male Reproductive System** (p. 504)
- **Male Reproductive Functions** (p. 508)
- **Anatomy of the Female Reproductive System** (p. 511)
- **Female Reproductive Functions and Cycles** (p. 516)
- **Appendixes**
- **Mammary Glands** (p. 520)
- **Survey of Pregnancy and Embryonic Development** (p. 522)
- **Developmental Aspects of the Reproductive System** (p. 529)
- **Appendix A Word Roots, Prefixes, and Suffixes** (p. 539)
- **Appendix B Periodic Table of the Elements** (p. 542)
- **Appendix C Key Information about Vitamins and Many Essential Minerals** (p. 543)
- **Appendix D A.D.A.M. Correlations** (p. 545)
- **Photography and Art Credits** (p. 551)
- **Glossary** (p. 553)
- **Index** (p. 564)