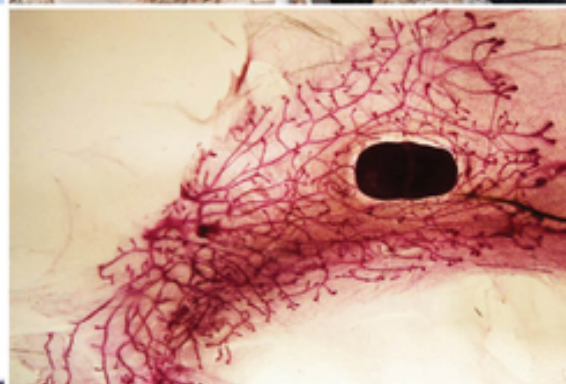
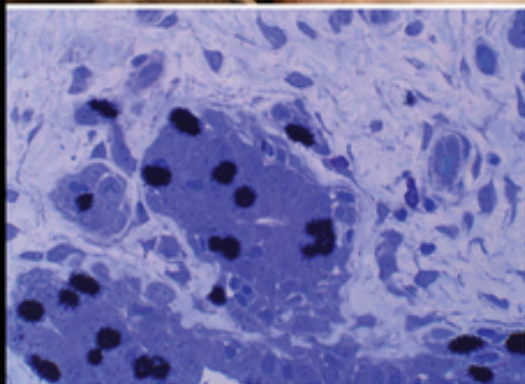
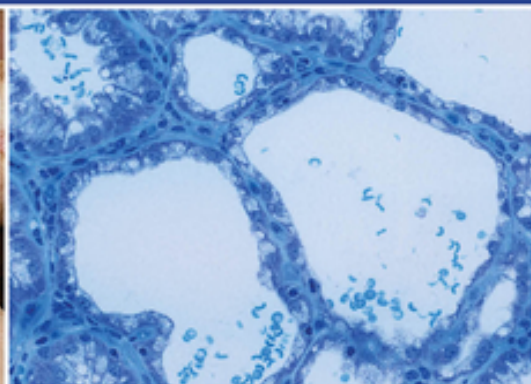


THIRD EDITION

ANATOMY and PHYSIOLOGY of Domestic Animals

R. Michael Akers • D. Michael Denbow



WILEY

Table of Contents

[Cover](#)

[Table of Contents](#)

[Title Page](#)

[Copyright Page](#)

[Preface to the Third Edition](#)

[Preface to the Second Edition](#)

[Preface to the First Edition](#)

[About the Companion Website](#)

[1 Introduction to Anatomy and Physiology](#)

[Anatomy and Physiology](#)

[Levels of Organization](#)

[Homeostasis](#)

[Feedback Systems](#)

[Anatomical Nomenclature](#)

[References](#)

[2 The Cell: The Common Physiological Denominator](#)

[Cells: A Common Denominator](#)

[Water: The Universal Solvent](#)

[Cellular Organelles](#)

[Cell Growth and Differentiation](#)

[Macromolecules and Cellular Physiology](#)

[Cellular Biochemistry](#)

[Extracellular Environment and Cell Function](#)

[Chapter Summary](#)

[References](#)

3 Fundamental Biochemical Pathways and Processes in Cellular Physiology

Metabolism and Energetic Definitions

Production of ATP

Glycolysis

Krebs Cycle

Intermediary Metabolism: Processing and Pathways

Lipogenesis and Lipolysis

Interconversions and Catabolism of Proteins

Structure and Function of DNA and RNA

Food for Thought

Chapter Summary

References

4 Tissue Structure and Organization

Introduction

Microscope General Points

Terminology and Definitions

Epithelial Tissue

Connective Tissue

Muscle Tissue

Nervous Tissue

Chapter Summary

References

5 Integumentary System

Overview of Skin Structure

Epidermis

Dermis

Specialized Structures

[Biochemical Properties of Skin](#)
[Nails, Claws, Hoofs, and Feathers](#)
[Horns](#)
[Feathers](#)
[Leather](#)
[Food for Thought](#)
[Chapter Summary](#)
[References](#)

[6 Bones and Skeletal System](#)

[Bones](#)
[Bone Structure](#)
[Bone Development](#)
[Bone Growth, Remodeling, and Repair](#)
[Homeostatic Imbalances of Bone](#)
[Bones and Skeleton](#)
[Axial Skeleton](#)
[Appendicular Skeleton](#)
[Avian Skeleton](#)
[Joints](#)
[Specific Joints](#)
[Chapter Summary](#)
[Bone Structure](#)
[Bone Development](#)
[Bone Growth, Remodeling, and Repair](#)
[Homeostatic Imbalances of Bone](#)
[Bones and Skeleton](#)
[Axial Skeleton](#)
[Appendicular Skeleton](#)

References

7 Muscular Tissue

Muscle Tissue Overview

Skeletal Muscle

Contraction of Skeletal Muscle

Cardiac Muscle

Smooth Muscle

Muscle System

Major Skeletal Muscles

Chapter Summary

Skeletal Muscle

Smooth Muscle

Muscle Systems

References

8 Introduction to the Nervous System

Organization of the Nervous System

The Neuron

Supportive Cells

Neurophysiology

Synaptic Transmission

Chapter Summary

9 Central Nervous System

Embryonic Development

Organization of the Brain

Organization of the Spinal Cord

Protection of the Central Nervous System

Food for Thought Chapter 9

Chapter Summary

References

10 The Peripheral and Autonomic Nervous System

Nerves and Ganglia

Sensory Receptors

Reflexes

Autonomic Nervous System

Chapter Summary

References

11 Special Senses

Olfaction: The Sense of Smell

Gustation: The Sense of Taste

Vision

Hearing and Balance

Chapter Summary

Olfaction: The Sense of Smell

Gustation: The Sense of Taste

Vision

Hearing and Balance

References

12 Endocrine System

Introduction and Overview

Cell Signaling

The Hypophyseal-Pituitary Axis

Hormones of the Anterior Pituitary

Thyroid Gland

Adrenal Gland

Endocrine Pancreas

Other Hormones and Growth Factors

[IGF Family](#)

[EGF Family](#)

[FGF Family](#)

[TGF- \$\beta\$ Family](#)

[Leptin](#)

[Chapter Summary](#)

[Cell Signaling](#)

[Major Hormones](#)

[References](#)

[13 Cardiovascular System](#)

[Functions and Composition of Blood](#)

[Hemostasis](#)

[Blood Groups and Crossmatching](#)

[The Heart](#)

[Blood Vessels and Hemodynamics](#)

[Factors Affecting Blood Flow](#)

[Chapter Summary](#)

[Functions and Composition of Blood](#)

[Hemostasis](#)

[Blood Groups and Cross Matching](#)

[The Heart](#)

[Blood Vessels and Hemodynamics](#)

[Factors Affecting Blood Flow](#)

[References](#)

[14 Respiratory System](#)

[Introduction](#)

[Functional Anatomy: Nose and Paranasal Sinuses](#)

[Conducting Pathway Anatomy](#)

[Respiratory Anatomy of the Lungs and Pleural Membrane](#)

[Blood Supply to the Lungs](#)

[Pulmonary Ventilation](#)

[Exchange of Oxygen and Carbon Dioxide](#)

[Transport of Oxygen and Carbon Dioxide](#)

[Control of Respiration: Neural Mechanisms](#)

[Chemoreceptors](#)

[Avian Respiration](#)

[Defense Mechanisms of the Respiratory System](#)

[Chapter Summary](#)

[Functional Anatomy](#)

[Blood Supply to the Lungs](#)

[Pulmonary Ventilation](#)

[Exchange of Oxygen and Carbon Dioxide](#)

[Transport of Oxygen and Carbon Dioxide](#)

[Control of Respiration-Neural Mechanisms](#)

[Chemoreceptors](#)

[Avian Respiration](#)

[References](#)

[15 Immunity](#)

[Introduction](#)

[Innate or Nonspecific Defenses](#)

[Specific Immunity](#)

[Lymphatic System](#)

[Chapter Summary](#)

[References](#)

[16 Urinary System](#)

[Anatomy of the Urinary System](#)

[Nephron Structure](#)

[Mechanisms of Urine Formation](#)

[Renal Clearance](#)

[Kidney Excretion of Wastes and Control of pH](#)

[Excretion of Nitrogenous Wastes](#)

[Comparative Urinary Physiology and Function](#)

[Chapter Summary](#)

[References](#)

[17 Digestive System](#)

[Digestive System Overview](#)

[Histology of the Digestive Tract](#)

[Enteric Nervous System](#)

[Functional Anatomy of the Digestive System](#)

[Chapter Summary](#)

[Introduction](#)

[Histology of the Digestive Tract](#)

[Enteric Nervous System](#)

[Functional Anatomy of the Digestive System](#)

[References](#)

[18 Lactation](#)

[Introduction](#)

[Overview of Mammary Development](#)

[Milk Synthesis and Secretion](#)

[Chapter Summary](#)

[References](#)

[19 Reproduction](#)

[Introduction](#)

[Overview of the Female Reproductive Tract](#)

[Puberty in Females](#)

[Estrous Cycles, Estrus, and Ovulation](#)

[Fertilization and Pregnancy](#)

[Parturition](#)

[Overview of Male Reproductive Tract](#)

[Reproduction in Birds](#)

[Reproductive Technologies](#)

[Chapter Summary](#)

[References](#)

[Glossary](#)

[Index](#)

[End User License Agreement](#)