CONTENTS

SECTION 1

INTRODUCTION

INTRODUCTION TO CONCEPTS OF PATHOLOGY, 1

Catherine Cavallaro Goodman

Pathogenesis of Disease, 1 Concepts of Health, Illness, and Disability, 1 Theories of Health and Illness, 7 Health Promotion and Disease Prevention, 9 Genetic Aspects of Health and Disease, 11

2 BEHAVIORAL, SOCIAL, AND ENVIRONMENTAL FACTORS CONTRIBUTING TO DISEASE AND DYSFUNCTION, 16

Tamara L. Burlis, Susan S. Deusinger, Denise Gaffigan-Bender

Overview, 16 Clinical Models of Health, 17 Variations in Client Populations, 18 Lifestyle Factors That Influence Health, 24 Behavioral Influences on Health, 44 Environmental Barriers to Health Care, 52

3 THE PSYCHOSOCIAL-SPIRITUAL IMPACT ON HEALTH CARE, 54

Susan Ann Talley, Betha Anne Fisher, Kathleen J. Pantano, Darina Sargeant, Kimberly Dunleavy, Bonnie Yost

Psychologic Considerations in Health Care, 54 Effects of Trauma on Brain Development, 58 Supporting Psychologic Healing, 61 Spiritual Development in the Health Care Profession, 66 Special Role of the Physical Therapist, 69

4 ENVIRONMENTAL AND OCCUPATIONAL MEDICINE, 122

Lynzie Schulte

Introduction, 122
Environmental Medicine, 123
Occupational Injuries and Diseases, 140

5 PROBLEMS AFFECTING MULTIPLE SYSTEMS, 155

Celeste Peterson, Meredith A. Wampler, Joy C. Cohn, Lara A. Firrone

Systemic Effects of Pathology, 155
Adverse Drug Events, 157
Specific Drug Categories, 162
Radiation Injuries, 173
Chemotherapy, 182
Specific Disorders Affecting Multiple Systems, 191
Fluid and Electrolyte Imbalances, 200
Acid-Base Imbalances, 210

6 INJURY, INFLAMMATION, HEALING, AND REPAIR, 216

Rolando T. Lazaro, Annie Burke-Doe

Overview, 216 Cell Injury, 216 Cellular Aging, 221 Types of Cell Injury, 222 Inflammation, 227 Tissue Healing, 239 Phases of Healing, 246 Tissue Repair, 250

SECTION 2 CLINICAL MEDICINE

7 THE IMMUNE SYSTEM, 262

Joseph A. Fraietta, David M. Kietrys

Introduction, 262
Types of Immunity, 262
Mechanisms of Defense and Immune Responses, 264
Summary of the Immune System, 276
Factors Affecting Immunity, 276
Immunodeficiency Diseases, 279
Hypersensitivity Disorders, 299
Autoimmune Diseases, 302
Isoimmune Disease, 317

INFECTIOUS DISEASE, 318

Im Levenhagen, Celeste Peterson

sand Symptoms of Infectious Diseases, 319

and Infectious Diseases, 321

Infectious Diseases, 322

Infectious Diseases, 331

ONCOLOGY, 366

McGarvey, Lisa VanHoose, Mary Calys,

Definitions, 366

Massifications of Neoplasm, 367

Incidence, 369

Ethology, 371

Wish Factors, 372

Parhogenesis, 377

Impasion and Metastases, 383

Manifestations, 387

Medical Management of Cancer, 393

Tamcer, Physical Activity, and Exercise Training, 409

and Cancer, 414

10 THE INTEGUMENTARY SYSTEM, 416

Marriett B. Loehne, Alan W. Chong Lee

Lesions, 416

sam and Symptoms of Skin Disease, 416

Manage and the Integumentary System, 420

Common Skin Disorders, 421

Infections, 426

Sam Cancer, 431

Sim Disorders Associated With Immune

Dysfunction, 440

Thermal Injuries, 452

Miscellaneous Integumentary Disorders, 459

11 THE ENDOCRINE AND METABOLIC SYSTEMS, 471

Carrine Cavallaro Goodman, Gina Pariser

Endocrine System, 471

Specific Endocrine Disorders, 479

Metabolic System, 535

Specific Metabolic Disorders, 536

12 THE CARDIOVASCULAR SYSTEM, 538

Irina V. Smirnova

Prevalence of Cardiovascular Disease and Risk Factors, 538 Cardiovascular Disease Prevention Strategies, 538 Signs and Symptoms of Cardiovascular Disease, 538 Aging and the Cardiovascular System, 543 Gender Differences and the Cardiovascular System, 544 Diseases Affecting the Heart Muscle, 548 Disease Affecting the Cardiac Nervous System, 611 Diseases Affecting the Heart Valves, 617 Diseases Affecting the Pericardium, 628 Diseases Affecting the Blood Vessels, 630 Venous Diseases, 646 Other Cardiac Considerations, 660

13 THE LYMPHATIC SYSTEM, 666

Bonnie Lasinski

Microcirculation Unit: Principles of Fluid
Dynamics and Exchange, 666
Anatomy and Physiology of the Lymphatic System, 667
Inflammation and Infection in the Lymphatic
System, 673

14 THE HEMATOLOGIC SYSTEM, 705

Celeste Peterson, Catherine Cavallaro Goodman

Signs and Symptoms of Hematologic Disorders, 705
Aging and the Hematopoietic System, 708
Blood Transfusions, 708
Disorders of Iron Absorption, 711
Disorders of Erythrocytes, 713
Disorders of Leukocytes, 718
Neoplastic Diseases of the Blood and Lymph Systems, 721
Disorders of Hemostasis, 744

15 THE RESPIRATORY SYSTEM, 772

Lora Packel

Overview, 772
Aging and the Respiratory System, 777
Infectious and Inflammatory Diseases, 779
Obstructive Diseases, 789
Environmental and Occupational Diseases, 815
Drowning, 819
Congenital Disorders, 821
Parenchymal Disorders, 832
Disorders of the Pulmonary Vasculature, 849
Disorders of the Pleural Space, 856

16 THE GASTROINTESTINAL SYSTEM, 862

Celeste Peterson, Catherine Cavallaro Goodman

Signs and Symptoms of Gastrointestinal Disease, 862 Aging and the Gastrointestinal System, 867 The Esophagus, 867

The Stomach, 875
The Intestines, 881

The Appendix, 902

The Peritoneum, 905

The Rectum, 906

17 THE HEPATIC, PANCREATIC, AND BILIARY SYSTEMS, 908

Catherine Cavallaro Goodman, Celeste Peterson

Signs and Symptoms of Hepatic Disease, 908 Aging and the Hepatic System, 910 Liver, 911 Pancreas, 940 Biliary, 947

18 THE RENAL AND UROLOGIC SYSTEMS, 955

Michael S. Castillo, Janice T. Dinglasan, Beth Shelly, Kathleen L. Allen

Aging and the Renal and Urologic Systems, 955 Infections, 956 Renal Disorders, 960 Glomerular Diseases, 979 Disorders of the Bladder and Urethra, 981

19 THE MALE GENITAL/REPRODUCTIVE SYSTEMS, 994

Lisa A. Massa, Beth Shelly

Aging and the Male Reproductive System, 994 Disorders of the Prostate, 994 Disorders of the Testes, 1011 Penile Cancer, 1015 Erectile Dysfunction, 1016 Sexual Abuse in Men, 1019

20 THE FEMALE GENITAL/REPRODUCTIVE SYSTEM, 1020

Beth Shelly, Valerie Wang, Holly Tanner, Patricia M. King

Aging and the Female Reproductive System, 1020 Disorder of the Female Upper Genital Tract, 1034 Disorders of the Uterus and Fallopian Tubes, 1035 Disorders of the Ovaries, 1045 Pelvic Floor Disorders, 1051 Breast Disease, 1054

21 TRANSPLANTATION, 1087

Chris L. Wells, Courtney Frankel, Eva Gold, G. Stephen Morris

Incidence, 1087
Types of Transplantation, 1087
Organ Procurement and Allocation, 1089
Advances and Research in Transplantation, 1094
Biopsychosocial Implications, 1098
Posttransplantation Complications, 1100
Organ Transplantation and Exercise, Activity, and Sports, 1104
Hematopoietic Cell Transplantation, 1108
Organ Transplantation, 1118

SECTION 3

PATHOLOGY OF THE MUSCULOSKELETAL SYSTEM

22 INTRODUCTION TO PATHOLOGY OF THE MUSCULOSKELETAL SYSTEM, 1153

Kevin Helgeson

Advances in Musculoskeletal Biotechnology, 1154 Biologic Response to Trauma, 1154 Aging and the Musculoskeletal System, 1155 The Musculoskeletal System, Aging, and Exercise, 1158

23 GENETIC AND DEVELOPMENTAL DISORDERS, 1161

Allan M. Glanzman

Down Syndrome, 1161
Scoliosis, 1164
Kyphoscoliosis, 1168
Spina Bifida Occulta, Meningocele,
Myelomeningocele, 1169
Developmental Dysplasia of the Hip, 1178
Neuromuscular Disorders, 1182
Torticollis, 1199
Brachial Plexus Birth Palsy, 1202
Osteogenesis Imperfecta, 1205
Arthrogryposis Multiplex Congenita, 1209

24 METABOLIC DISORDERS, 1211

Kevin Helgeson

Osteoporosis, 1211 Osteomalacia, 1227 Paget Disease, 1229

DISEASES OF THE SYSTEM, 1234

Feigeson

1234

Prostheses and Implants, 1239

Modiskitis, 1242

Arthritis, 1244

Muscle Disease, 1246

Tuberculosis, 1248

Special Implications for the Therapist, 1251

MUSCULOSKELETAL NEOPLASMS, 1252

Helgeson

Tumors, 1252

Benign Bone Tumors, 1260

Malignant Bone Tumors, 1263

Myeloma, 1273

Soft Tissue Tumors, 1274

Memors, 1280

SOFT-TISSUE, JOINT, AND BONE DISORDERS, 1285

Helgeson

Tissue, 1285

1303

Marine, 1348

SECTION 4

PATHOLOGY OF THE NERVOUS SYSTEM

28 INTRODUCTION TO CENTRAL NERVOUS SYSTEM DISORDERS, 1371

Wanda S. Fuller

Overview, 1371

Pathogenesis, 1371

Clinical Manifestations, 1378

Diagnosis, 1395

Treatment, 1398

Prognosis, 1401

29 INFECTIOUS DISORDERS OF THE CENTRAL NERVOUS SYSTEM, 1405

Kenda S. Fuller

Overview, 1405 Meningitis, 1405 Encephalitis, 1409 Brain Abscess, 1414 Prion Disease, 1416

30 CENTRAL NERVOUS SYSTEM NEOPLASMS, 1420

Stephen A. Gudas

Introduction, 1420
Primary Brain Tumors, 1422
Specific Primary Brain Tumors, 1424
Primary Intraspinal Tumors, 1446
Metastatic Tumors, 1449
Paraneoplastic Syndromes, 1452
Leptomeningeal Carcinomatosis, 1452
Pediatric Tumors, 1452

31 DEGENERATIVE DISEASES OF THE CENTRAL NERVOUS SYSTEM, 1455

Kenda S. Fuller, Erica Demarch, Patricia A. Winkler

Amyotrophic Lateral Sclerosis, 1455 Alzheimer Disease and Variants, 1464 Dystonia, 1474 Huntington Disease, 1478 Multiple Sclerosis, 1481 Parkinsonism and Parkinson Disease, 1494

32 STROKE, 1507

Kenda S. Fuller

Stroke, 1507

Vascular Disorders of the Spinal Cord, 1530

33 TRAUMATIC BRAIN INJURY, 1535

Karen L. McCulloch, Kenda S. Fuller

Traumatic Brain Injury, 1535 Traumatic Brain Injury in Children, 1553

34 TRAUMATIC SPINAL CORD INJURY, 1556

Candy Tefertiller, Laura S. Wehrli, Kenda S. Fuller Spinal Cord Injury, 1556

35 CEREBRAL PALSY, 1576

Allan M. Glanzman

Cerebral Palsy, 1576

36 SEIZURES AND EPILEPSY, 1591

Kenda S. Fuller

Seizures and Epilepsy, 1591

37 HEADACHE, 1606

Kenda S. Fuller, Heather Campbell

Overview, 1606 Primary Headaches, 1606 Secondary Headaches, 1621

38 VESTIBULAR DISORDERS, 1631

Kenda S. Fuller

Vestibular Disorders, 1631

39 THE PERIPHERAL NERVOUS SYSTEM, 1660

Robyn Gisbert, Kenda S. Fuller

Overview, 1660 Pathogenesis, 1661 Peripheral Nervous System Changes with Aging, 1663 Diagnosis of Peripheral Nervous System Dysfunction, 1665 Classification of nerve Injury and Neuropathy, 1666 Mechanical Injuries: Compression and Entrapment Syndromes, 1668 Hereditary Neuropathies, 1681 Metabolic Neuropathies, 1683 Infections/Inflammations, 1687 Cancer Induced, 1693 Toxins, 1695 Motor End Plate Disorders, 1696 Botulism, 1698 Abnormal Response in Peripheral Nerves, 1699

40 LABORATORY TESTS AND VALUES, 1703

Glenn L. Irion

Introduction, 1703
Basic Metabolic Panel, 1704
Comprehensive Metabolic Panel, 1709
Complete Blood Count, 1711
Blood Tests, 1713
Hemostasis, 1716
Cardiovascular Lab Tests, 1718
Pulmonary Function Tests, 1722
Serum Hormones, 1725
Immunologic, 1725
Urinalysis, 1726
Drug Screening, 1727
Microbiologic Studies, 1728
Fluid Analysis, 1728

APPENDIX A: SUMMARY OF STANDARD PRECAUTIONS, 1731

Kimberly Levenhagen

APPENDIX B: GUIDELINES FOR ACTIVITY AND EXERCISE, 1739

INDEX, 1750