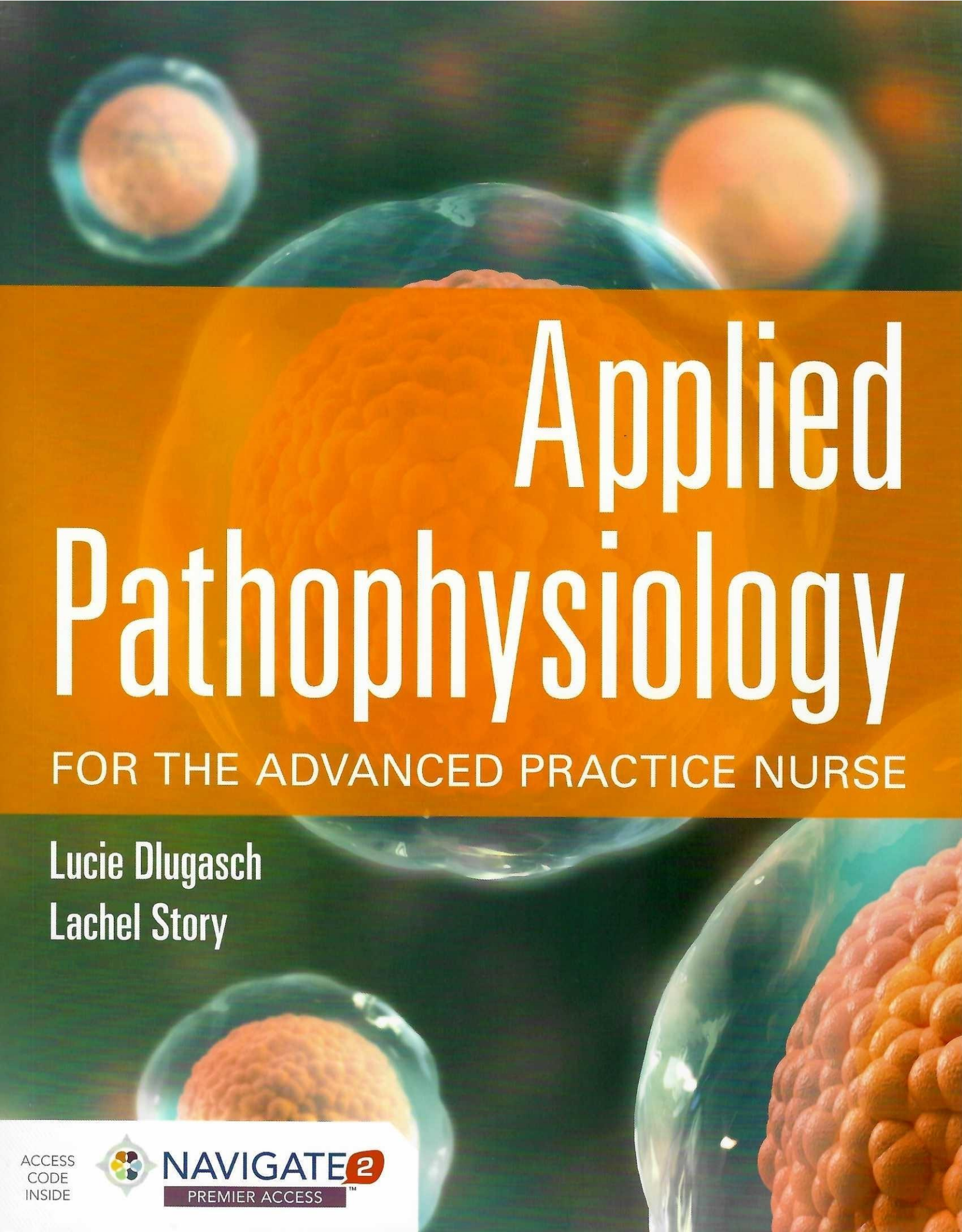




Applied Pathophysiology

FOR THE ADVANCED PRACTICE NURSE

Lucie Dlugasch
Lachel Story

ACCESS
CODE
INSIDE



NAVIGATE²
PREMIER ACCESS

Contents

Preface	ix	Hypersensitivity	58
Acknowledgments	xi	Hypersensitivity by Mechanism	58
Contributors	xii	Hypersensitivity by Antigen	61
Chapter 1 Cellular Function	1	Immunodeficiency	66
Basic Cell Function and Structure	2	Developing a Strong Immune System	73
Cellular Components	2	Chapter Summary	74
Exchanging Material	2	References and Resources	74
Energy Production	8	Chapter 3 Hematopoietic Function	77
Chromosomes, DNA, and Genes	9	Hematopoietic System	78
Replication and Differentiation	12	Hematopoiesis	79
Cellular Organization	15	Hemostasis	83
Types of Tissue	15	Lymphoid System	84
Cellular Adaptation and Damage	17	Diseases of the White Blood Cells	86
Cellular Adaptation	17	Neutrophils	86
Cellular Injury and Death	18	Eosinophils and Basophils	88
Neoplasms	22	Lymphocytes and Monocytes	88
Benign and Malignant Neoplasms	22	Lymphomas	88
Genetic and Congenital Disorders	32	Myelodysplastic Syndrome	93
Patterns of Inheritance	33	Leukemias	94
Single-Gene Disorders	34	Diseases of the Red Blood Cells	97
Chromosomal Disorders—Number		Anemia	97
or Structural	41	Polycythemia	109
Autosomal Aneuploidy	42	Iron Overload	110
X-Linked Aneuploidy	43	Diseases of the Platelets	110
Chromosomal Structural Disorders	45	Thrombocytopenia	111
Multifactorial Disorders	45	Thrombocythemia	112
Chapter Summary	46	Diseases of Coagulation or Hemostasis	112
References and Resources	46	Hemophilia	113
Chapter 2 Immunity	47	Von Willebrand Disease	113
Innate Immunity	49	Disseminated Intravascular	
Barriers	49	Coagulation	114
Inflammatory Response	50	Thrombophilia	114
Adaptive Immunity	54	Chapter Summary	116
Cellular Immunity	55	References and Resources	116
Humoral Immunity	55	Chapter 4 Cardiovascular Function	117
Vaccines	57	Anatomy and Physiology	118
Altered Immune Response	58	Heart	118

Cardiac Cycle	120	Alterations in Ventilation and Perfusion	243
Conduction System	120	Atelectasis—Restrictive	243
Blood Vessels	123	Acute Respiratory Failure	243
Blood Pressure and Cardiac Output	124	Chapter Summary	245
Lymphatic System	127	References and Resources	246
Understanding Conditions That Affect the Cardiovascular System	128	Chapter 6 Fluid, Electrolyte, and Acid-Base Homeostasis	249
Impaired Cardiac Output: Heart Disease	129	Fluid and Electrolyte Balance	250
Pericarditis	129	Distribution	250
Infective Endocarditis	130	Fluid Movement	251
Myocarditis	132	Fluid Regulation	253
Valvular Disorders	132	Electrolytes	254
Cardiomyopathy	135	Fluid and Electrolyte Imbalances	254
Electrical Alterations	140	Water, Sodium, and Chloride Relationship	255
Heart Failure	144	Fluid Excess	255
Congenital Heart Defects	148	Fluid Deficit	260
Impaired Tissue Perfusion: Vascular Disorders	152	Sodium	261
Arterial Disorders	152	Chloride	264
Arterial and Venous Disorders	170	Potassium	265
Venous Disorders	174	Calcium	267
Lymphedema	175	Phosphorus	271
Conditions Resulting in Decreased Cardiac Output and Altered Perfusion	176	Magnesium	272
Hypertension	176	Acid-Base Balance	272
Shock	181	pH Regulation	273
Chapter Summary	186	Buffers	273
References and Resources	186	Respiratory Regulation	275
Chapter 5 Pulmonary Function	189	Renal Regulation	275
Anatomy and Physiology	190	Compensation	275
Understanding Conditions That Affect the Pulmonary System	201	Metabolic Acidosis	275
Infectious Disorders	201	Metabolic Alkalosis	279
Upper Respiratory Tract Infections	201	Respiratory Acidosis	280
Lower Respiratory Tract Infections	213	Respiratory Alkalosis	280
Alterations in Ventilation	222	Mixed Disorders	281
Asthma—Obstructive	222	Arterial Blood Gas Interpretation	281
Chronic Obstructive Pulmonary Disease	226	Chapter Summary	284
Sleep Apnea—Obstructive	230	References and Resources	284
Cystic Fibrosis—Obstructive	232	Chapter 7 Urinary Function	285
Lung Cancer	234	Anatomy and Physiology	286
Pleural Effusion	236	Structure and Function	286
Pneumothorax	238	Urine Formation and Elimination	288
Acute Respiratory Distress Syndrome—Restrictive	240	Understanding Conditions That Affect the Urinary System	294
		Conditions Resulting in Altered Urinary Elimination	294
		Incontinence	294
		Neurogenic Bladder	297

Painful Bladder Syndrome/Interstitial Cystitis	298	Benign Breast Masses	362
Congenital Disorders	299	Mastitis	364
Urinary Tract Infections—Cystitis and Pyelonephritis	299	Reproductive Tract Infections	364
Urinary Tract Obstructions	303	Prostatitis	365
Tumors and Cysts	307	Epididymitis	366
Benign Prostatic Hyperplasia	312	Candidiasis	367
Conditions Resulting in Impaired Renal Function	314	Sexually Transmitted Infections	369
Polycystic Kidney Disease	314	Bacterial STIs	369
Glomerular Disorders	316	Viral STIs	376
Kidney Injury and Disease	323	Protozoan STIs	380
Chapter Summary	329	Trichomoniasis	380
References and Resources	329	Cancers	382
Chapter 8 Reproductive Function	331	Penile Cancer	382
Anatomy and Physiology	332	Prostate Cancer	383
Normal Male Reproductive System	332	Testicular Cancer	384
Normal Female Reproductive System	336	Breast Cancer	384
Congenital Disorders	343	Cervical Cancer	386
Epispadias	343	Endometrial Cancer and Uterine Sarcoma	387
Hypospadias	344	Ovarian Cancer	387
Cryptorchidism	345	Chapter Summary	388
Infertility Issues	346	References and Resources	389
Disorders of the Penis	347	Chapter 9 Gastrointestinal Function	391
Erectile Dysfunction	347	Anatomy and Physiology	392
Phimosis and Paraphimosis	348	Upper Gastrointestinal Tract	392
Priapism	349	Lower Gastrointestinal Tract	396
Disorders of the Testes and Scrotum	350	Liver	399
Hydrocele	350	Pancreas	400
Varicocele	351	Gastrointestinal Changes Associated With Aging	400
Testicular Torsion	352	Understanding Conditions That Affect the Gastrointestinal System	400
Disorders of Pelvic Support	353	Disorders of the Upper Gastrointestinal Tract and Accessory Organs	401
Clinical Manifestations	353	Congenital Defects	401
Diagnosis and Treatment	354	Cleft Lip and Cleft Palate	401
Menstrual Disorders	354	Esophageal Atresia	402
Abnormal Uterine Bleeding	354	Pyloric Stenosis	403
Amenorrhea	355	Dysphagia	404
Heavy and Intermenstrual Bleeding	356	Vomiting	406
Dysmenorrhea	356	Hiatal Hernia	407
Premenstrual Syndrome	357	Gastroesophageal Reflux Disease	408
Disorders of the Uterus	357	Gastritis	410
Endometriosis	357	Peptic Ulcers	412
Leiomyomas	358	Cholelithiasis	413
Disorders of the Ovaries	360	Disorders of the Liver	415
Ovarian Cysts	360	Hepatitis	415
Polycystic Ovary Syndrome	360		
Disorders of the Breasts	362		

Cirrhosis	418	Diagnosis and Treatment	468
Disorders of the Pancreas	423	Obesity	470
Pancreatitis	423	Clinical Manifestations	472
Disorders of the Lower		Diagnosis and Treatment	472
Gastrointestinal Tract	426	Disorders of the Thyroid	473
Diarrhea	426	Goiter and Thyroid Nodules	473
Constipation	427	Hypothyroidism	473
Intestinal Obstruction	428	Hyperthyroidism	476
Appendicitis	430	Disorders of the Parathyroid Glands ...	477
Peritonitis	431	Hypoparathyroidism	477
Celiac Disease	433	Hyperparathyroidism	478
Inflammatory Bowel Disease	434	Disorders of the Adrenal Gland	479
Crohn Disease	435	Pheochromocytoma	479
Ulcerative Colitis	437	Cushing Syndrome	480
Irritable Bowel Syndrome	438	Addison Disease	482
Diverticular Disease	439	Chapter Summary	484
Cancers	441	References and Resources	484
Oral Cancer	441		
Esophageal Cancer	441	Chapter 11 Neural Function	485
Gastric Cancer	442	Anatomy and Physiology	486
Liver Cancer	442	Central Nervous System	486
Pancreatic Cancer	443	Peripheral Nervous System	498
Colorectal Cancer	444	Autonomic Nervous System	499
Chapter Summary	445	Blood Supply to the CNS	502
References and Resources	446	Understanding Conditions That	
Chapter 10 Endocrine Function ...	447	Affect the Nervous System	504
Anatomy and Physiology	449	Congenital Neurologic Disorders	504
Hormonal Regulation	449	Hydrocephalus	504
Pituitary Gland and Hypothalamus ...	450	Spina Bifida	507
Pancreas	450	Cerebral Palsy	509
Thyroid Gland	454	Infectious Neurologic Disorders	511
Parathyroid Glands	454	Meningitis	511
Adrenal Glands	455	Encephalitis	512
Understanding Conditions That		Zika Virus Disease	513
Affect the Endocrine System	456	Traumatic Neurologic Disorders	514
Disorders of the Pituitary Gland	457	Brain Injuries	514
Hyperpituitarism	457	Increased Intracranial Pressure	518
Hypopituitarism	459	Hematomas	520
Prolactin Disorders: Prolactinemia ...	461	Diagnosis and Treatment	521
Growth Hormone Disorders	461	Spinal Cord Injuries	522
Antidiuretic Hormone (Vasopressin)		Vascular Neurologic Disorders	527
Disorders	462	Cerebrovascular Accident	527
Diabetes Mellitus	463	Cerebral Aneurysm	532
Type 1 Diabetes	463	Arteriovenous Malformations	533
Type 2 Diabetes	464	Headache Disorders	533
Gestational Diabetes	465	Migraine Headaches	534
Metabolic Syndrome	465	Tension-Type Headaches	536
Clinical Manifestations and		Cluster Headaches	536
Complications	465	Seizure Disorders	537

Clinical Manifestations	538
Diagnosis and Treatment	539
Chronic Degenerative Disorders	540
Multiple Sclerosis	540
Parkinson Disease	542
Amyotrophic Lateral Sclerosis.....	544
Clinical Manifestations	545
Diagnosis and Treatment	545
Myasthenia Gravis.....	546
Huntington Disease	547
Dementia.....	548
Alzheimer Disease	548
Vascular Dementia.....	550
Dementia With Lewy Bodies.....	551
Frontotemporal Dementia.....	552
Creutzfeldt-Jakob Disease.....	552
AIDS Dementia Complex	553
Cancers of the Nervous System.....	553
Brain Tumors.....	554
Mental Health Disorders	555
Depressive Disorders	555
Bipolar Disorders.....	560
Schizophrenia	564
Anxiety Disorders	566
Obsessive-Compulsive Disorders.....	567
Chapter Summary.....	568
References and Resources.....	568

Chapter 12 Musculoskeletal

Function	571
Anatomy and Physiology	572
Bones.....	572
Bone Remodelling.....	575
Joints.....	577
Muscles	579
Understanding Conditions That Affect the Musculoskeletal System ..	582
Congenital and Developmental Musculoskeletal Disorders.....	583
Developmental Hip Dysplasia	583
Osteogenesis Imperfecta	584
Spinal Deviations.....	585
Traumatic Musculoskeletal Disorders.....	587
Fractures	588
Dislocations	591
Sprains.....	593
Strains	595
Child Abuse.....	596
Bursitis.....	596

Anatomic-Specific Injuries	597
Low Back Pain.....	599
Metabolic Bone Disorders	603
Osteoporosis	604
Rickets and Osteomalacia	608
Paget Disease	609
Inflammatory Joint Disorders	611
Osteoarthritis.....	611
Rheumatoid Arthritis	614
Juvenile Idiopathic Arthritis	616
Gout.....	617
Ankylosing Spondylitis	619
Chronic Muscle Disorders	620
Muscular Dystrophy	621
Fibromyalgia	622
Bone and Muscle Neoplasms.....	623
Chapter Summary.....	625
References and Resources.....	625

Chapter 13 Integumentary

Function	627
Anatomy and Physiology	628
Epidermis.....	628
Dermis and Appendages	629
Subcutaneous Tissue	630
Nails.....	630
Understanding Conditions That Affect the Integumentary System	630
Congenital Integumentary Disorders ..	630
Birthmarks.....	630
Disorders of Melanin.....	633
Integumentary Changes Associated With Aging	636
Inflammatory Integumentary Disorders	637
Contact Dermatitis.....	638
Atopic Dermatitis.....	639
Urticaria.....	640
Psoriasis.....	641
Infectious Integumentary Disorders ..	644
Bacterial Infections	644
Viral Infections	647
Parasitic Infections.....	649
Traumatic Integumentary Disorders ..	651
Burns.....	651
Pressure Injuries	656
Clinical Manifestations	656
Diagnosis and Treatment.....	657
Chronic Integumentary Disorders.....	658

Acne Vulgaris.....	658	Congenital Sensory Disorders.....	676
Rosacea.....	660	Sensory Conditions Associated	
Integumentary Cancers.....	661	With Aging.....	677
Manifestations.....	662	Infectious and Inflammatory	
Hair Disorders.....	663	Sensory Disorders.....	678
Nail Disorders.....	663	Traumatic Sensory Disorders.....	684
Chapter Summary.....	664	Chronic Sensory Disorders.....	686
References and Resources.....	664	Sensory Organ Cancers.....	693
		Miscellaneous Sensory Organ	
Chapter 14 Sensory Function.....	665	Conditions.....	693
Anatomy and Physiology.....	666	Chapter Summary.....	697
Pain Mechanisms.....	667	References and Resources.....	697
Pain Transmission.....	668		
Types of Pain.....	669	Glossary.....	699
Eyes.....	671		
Ears.....	673	Index.....	709
Understanding Conditions That			
Affect the Senses.....	676		

Applied Pathophysiology

FOR THE ADVANCED PRACTICE NURSE

Lucie Dlugasch
Lachel Story

Applied Pathophysiology for the Advanced Practice Nurse answers the need for a pathophysiology text geared toward advanced practice registered nurses (APRNs). Exploring the how, when, and why of health alterations, this text serves as a bridge between nurses' clinical experience and their new advanced practice roles. It teaches students to compare and contrast presenting signs and symptoms, discern between possible diagnoses, and determine appropriate management options.

Disorders that have common presentation features are discussed together—because patients come in with symptoms, not diagnoses. ***Applied Pathophysiology for the Advanced Practice Nurse*** also features case studies based on real-life scenarios developed from the authors' and contributors' decades of experience in the field. These activities help students apply and master the competencies necessary for advanced practice clinical encounters.

Key Features:

- Covers health alterations across the lifespan, from pediatrics to gerontology and from maternal issues to mental health
- Compares and contrasts data about similar disease states to help nurses recognize symptoms and create differential diagnoses
- Explores the rationale for common diagnostic tests (i.e., labs and imaging studies) and their links to health alterations
- Discusses the influence of cultural and gender variations in the presentation of disease
- Navigate 2 Premier Access featuring a suite of instructor and student resources including an eBook, interactive lectures, test bank, and more!

INTERCEPIAG



0XYY-WWMS-Z0T4

Authentic



JONES & BARTLETT
LEARNING
— An Ascend Learning Company —
www.jblearning.com

ID 23 1000 3352
ISBN 9781284150452

+ ONLINE CARD, PATHOMD, PHYSI

ISBN: 978-1-284-15045-2



9 781284 150452

ACCESS
CODE
INSIDE



NAVIGATE²
PREMIER ACCESS

- Mobile-Ready Course Materials
- eBook with Interactive Tools

Individual Access Codes are available at www.jblearning.com, bookstores, and retailers everywhere.