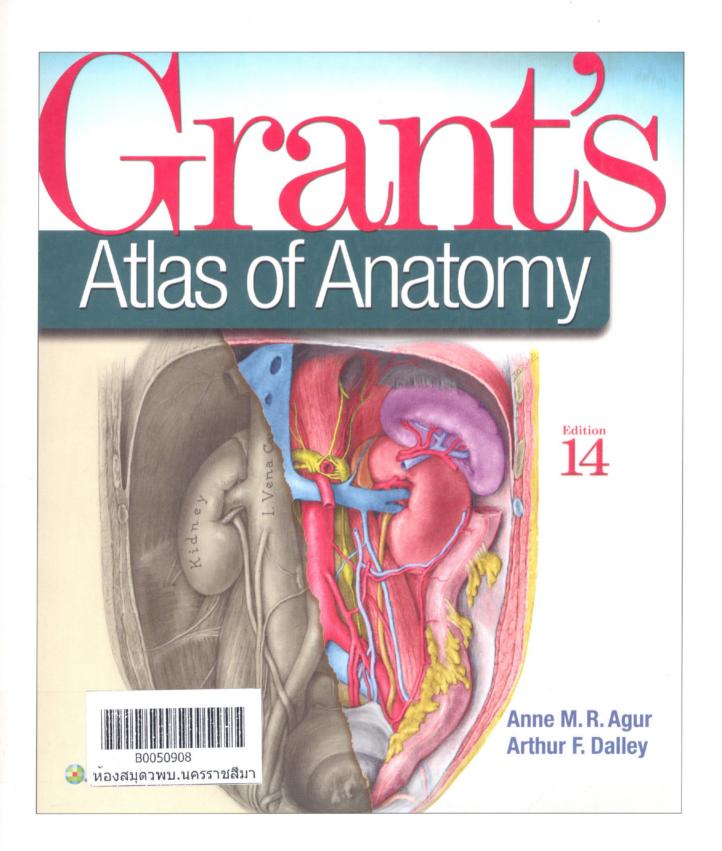
# INTERNATIONAL EDITION

Not authorised for sale in United States, Canada, Australia, New Zealand, Puerto Rico or the U.S. Virgin Islands





# Contents

Dr. John Charles Boileau Grant vi Reviewers vii Preface ix Recoloring <i>Grant's Atlas</i> x	Medial Wrist and Hand 175 Bones and Joints of Wrist and Hand 176 Function of Hand: Grips and Pinches 183 Imaging and Sectional Anatomy 184	
Acknowledgments xi	CHAPTER 3	
List of Tables xiv	Thorax	191
Figure and Table Credits xvi	Pectoral Region 192	
rigule and table credits. Avi	Breast 194	
	Bony Thorax and Joints 202	
CHAPTER 1	Thoracic Wall 209	
Back	Thoracic Contents 217	
Overview of Vertebral Column 2	Pleural Cavities 220	
Cervical Spine 8	Mediastinum 221	
Craniovertebral Joints 12	Lungs and Pleura 222	
Thoracic Spine 14	Bronchi and Bronchopulmonary Segments 228	
Lumbar Spine 16	Innervation and Lymphatic Drainage of Lungs 234	
Ligaments and Intervertebral Discs 18	External Heart 236	
Bones, Joints, and Ligaments of Pelvic Girdle 23	Coronary Vessels 246	
Anomalies of Vertebrae 29	Conduction System of Heart 250	
Muscles of Back 30	Internal Heart and Valves 251	
Suboccipital Region 40	Superior Mediastinum and Great Vessels 258	
Spinal Cord and Meninges 42	Diaphragm 265	
Vertebral Venous Plexuses 50	Posterior Thorax 266	
Components of Spinal Nerves 51	Overview of Autonomic Innervation 276	
Dermatomes and Myotomes 54	Overview of Lymphatic Drainage of Thorax 278	
Autonomic Nerves 56	Sectional Anatomy and Imaging 280	
Imaging of Vertebral Column 60		
	CHAPTER 4	
CHAPTER 2	Abdomen	287
Upper Limb 63	Overview 288	
Systemic Overview of Upper Limb 64	Anterolateral Abdominal Wall 290	
Bones 64	Inguinal Region 300	
Nerves 72	Testis 310	
Arteries 76	Peritoneum and Peritoneal Cavity 312	
Veins and Lymphatics 78	Digestive System 322	
Musculofascial Compartments 82	Stomach 323	
Pectoral Region 84	Pancreas, Duodenum, and Spleen 326	
Axilla, Axillary Vessels, and Brachial Plexus 91	Intestines 330	
Scapular Region and Superficial Back 102	Liver and Gallbladder 340	
Arm and Rotator Cuff 106	Biliary Ducts 350	
Joints of Shoulder Region 120	Portal Venous System 354	
Elbow Region 128	Posterior Abdominal Viscera 356	
Elbow Joint 134	Kidneys 359	
Anterior Forearm 140	Posterolateral Abdominal Wall 363	
Anterior Wrist and Palm of Hand 148	Diaphragm 368	
Posterior Forearm 164	Abdominal Aorta and Inferior Vena Cava 369	
Posterior Wrist and Dorsum of Hand 167 Lateral Wrist and Hand 172	Autonomic Innervation 370	

Lymphatic Drainage 376	Cranial Base and Cranial Nerves 616
Sectional Anatomy and Imaging 380	Blood Supply of Brain 622 Orbit and Eyeball 626
	Parotid Region 638
CHAPTER 5	Temporal Region and Infratemporal Fossa 640
Pelvis and Perineum 387	Temporomandibular Joint 648
Pelvic Girdle 388	Tongue 652
Ligaments of Pelvic Girdle 395	Palate 658
Floor and Walls of Pelvis 396	Teeth 661
Sacral and Coccygeal Plexuses 400	Nose, Paranasal Sinuses, and Pterygopalatine Fossa 666
Peritoneal Reflections in Pelvis 402	Ear 679
Rectum and Anal Canal 404	Lymphatic Drainage of Head 692
Organs of Male Pelvis 410	Autonomic Innervation of Head 693
Vessels of Male Pelvis 416	Imaging of Head 694
Lymphatic Drainage of Male Pelvis and Perineum 418	Neuroanatomy: Overview and Ventricular System 698
Innervation of Male Pelvic Organs 420	Telencephalon (Cerebrum) and Diencephalon 701
Organs of Female Pelvis 422	Brainstem and Cerebellum 710
Vessels of Female Pelvis 432	Imaging of Brain 716
Lymphatic Drainage of Female Pelvis and Perineum 434	
Innervation of Female Pelvic Organs 436	CHAPTER 8
Subperitoneal Region of Pelvis 440	Neck 72
Surface Anatomy of Perineum 442	Subcutaneous Structures and Cervical Fascia 722
Overview of Male and Female Perineum 444	Skeleton of Neck 726
Male Perineum 449	Regions of Neck 728
Female Perineum 458	Lateral Region (Posterior Triangle) of Neck 730
Pelvic Angiography 466	Anterior Region (Anterior Triangle) of Neck 734
	Neurovascular Structures of Neck 738
CHAPTER 6	Visceral Compartment of Neck 744
Lower Limb 467	Root and Prevertebral Region of Neck 748
Systemic Overview of Lower Limb 468	Submandibular Region and Floor of Mouth 754
Bones 468	Pharynx 758
Nerves 472	Isthmus of Fauces 764
Blood Vessels 478	Larynx 770
Lymphatics 482	Sectional Anatomy and Imaging of Neck 778
Musculofascial Compartments 484	section and an analysis of the section of the secti
Retro-Inguinal Passage and Femoral Triangle 486	CHAPTER
Anterior and Medial Compartments of Thigh 490	CHAPTER 9
Lateral Thigh 497	Cranial Nerves 783
Bones and Muscle Attachments of Thigh 498	Overview of Cranial Nerves 784
Gluteal Region and Posterior Compartment of Thigh 500	Cranial Nerve Nuclei 788
Hip Joint 510	Cranial Nerve I: Olfactory 790
Knee Region 516	Cranial Nerve II: Optic 791
Knee Joint 522	Cranial Nerves III, IV, and VI: Oculomotor, Trochlear,
Anterior and Lateral Compartments of Leg, Dorsum of Foot 536	and Abducent 793
Posterior Compartment of Leg 546	Cranial Nerve V: Trigeminal 796
Tibiofibular Joints 556	Cranial Nerve VII: Facial 803
Sole of Foot 557	Cranial Nerve VIII: Vestibulocochlear 804
Ankle, Subtalar, and Foot Joints 562	Cranial Nerve IX: Glossopharyngeal 806
Imaging and Sectional Anatomy 576	Cranial Nerve X: Vagus 808
	Cranial Nerve XI: Spinal Accessory 810
CHAPTER 7	Cranial Nerve XII: Hypoglossal 811
<b>Head</b> 581	Summary of Autonomic Ganglia of Head 812
	Summary of Cranial Nerve Lesions 813
Cranium 582 Face and Scalp 602	Sectional Imaging of Cranial Nerves 814
Meninges and Meningeal Spaces 611	INDEX 817
Meninges and Meningear Spaces Of I	HADEN OIT

# List of Tables

#### CHAPTER 1

#### Back

- 1.1 Typical Cervical Vertebrae (C3–C7)
- 1.2 Thoracic Vertebrae
- 1.3 Lumbar Vertebrae
- 1.4 Superficial and Intermediate Layers of Intrinsic Back Muscles
- 1.5 Deep Layers of Intrinsic Back Muscles

#### **CHAPTER 2**

# **Upper Limb**

- 2.1 Cutaneous Nerves of Upper Limb
- 2.2 Clinical Manifestations of Nerve Root Compression: Upper Limb
- 2.3 Dermatomes of Upper Limb
- 2.4 Anterior Axio-Appendicular Muscles
- 2.5 Arteries of Proximal Upper Limb (Shoulder Region and Arm)
- 2.6 Brachial Plexus
- Superficial Back (Posterior Axio-Appendicular) and Deltoid Muscles
- 2.8 Scapular Movements
- 2.9 Scapulohumeral Muscles
- 2.10 Arm Muscles
- 2.11 Arteries of Forearm
- 2.12 Muscles of Anterior Forearm
- 2.13 Muscles of Hand
- 2.14 Arteries of Hand
- 2.15 Muscles of Posterior Surface of Forearm
- 2.16 Lesions of Nerves of Upper Limb

#### **CHAPTER 3**

#### **Thorax**

- 3.1 Muscles of Thoracic Wall
- 3.2 Muscles of Respiration
- 3.3 Surface Markings of Parietal Pleura and Surface Markings of Lungs Covered with Visceral Pleura

#### **CHAPTER 4**

#### Abdomen

- 4.1 Principal Muscles of Anterolateral Abdominal Wall
- 4.2 Boundaries of Inquinal Canal
- 4.3 Characteristics of Inquinal Hernias
- 4.4 Terms Used to Describe Parts of Peritoneum
- 4.5 Parts and Relationships of Duodenum
- 4.6 Schema of Terminology for Subdivisions of Liver
- 4.7 Principal Muscles of Posterior Abdominal Wall
- 4.8 Autonomic Innervation of Abdominal Viscera (Splanchnic Nerves)

#### **CHAPTER 5**

#### **Pelvis and Perineum**

- 5.1 Differences Between Male and Female Pelves
- 5.2 Muscles of Pelvic Walls and Floor
- 5.3 Nerves of Sacral and Coccygeal Plexuses
- 5.4 Arteries of Male Pelvis
- 5.5 Lymphatic Drainage of Male Pelvis and Perineum
- 5.6 Effect of Sympathetic and Parasympathetic Stimulation on Urinary Tract, Genital System, and Rectum
- 5.7 Arteries of Female Pelvis (Derivatives of Internal Iliac Artery [IIA])
- 5.8 Lymphatic Drainage of Structures of Female Pelvis and Perineum
- 5.9 Muscles of Perineum

#### **CHAPTER 6**

### **Lower Limb**

- 6.1 Motor Nerves of Lower Limb
- 6.2 Nerve Lesions
- 6.3 Cutaneous Nerves of Lower Limb
- 6.4 Nerve Root (Anterior Ramus) Lesions
- 6.5 Muscles of Anterior Thigh
- 6.6 Muscles of Medial Thigh
- 6.7 Muscles of Gluteal Region
- 6.8 Muscles of Posterior Thigh (Hamstring)
- 6.9 Nerves of Gluteal Region
- 6.10 Arteries of Gluteal Region and Posterior Thigh
- 6.11 Bursae Around Knee
- 6.12 Muscles of Anterior Compartment of Leg
- 6.13 Common, Superficial, and Deep Fibular (Peroneal) Nerves
- 6.14 Arterial Supply to Dorsum of Foot
- 6.15 Muscles of Lateral Compartment of Leg
- 6.16 Muscles of Posterior Compartment of Leg
- 6.17 Arterial Supply of Leg and Foot
- 6.18 Muscles in Sole of Foot—First Layer
- 6.19 Muscles in Sole of Foot—Second Layer
- 6.20 Muscles in Sole of Foot—Third Layer
- 6.21 Muscles in Sole of Foot—Fourth Layer
- 6.22 Joints of Foot

#### **CHAPTER 7**

#### Head

- 7.1 Foramina and Other Apertures of Neurocranium and Contents
- 7.2 Main Muscles of Facial Expression
- 7.3 Nerves of Face and Scalp
- 7.4 Arteries of Superficial Face and Scalp
- 7.5 Veins of Face
- 7.6 Openings by Which Cranial Nerves Exit Cranial Cavity

- 7.7 Arterial Supply to Brain
- 7.8 Actions of Muscles of Orbit Starting from Primary Position
- 7.9 Muscles of Orbit
- 7.10 Arteries of Orbit
- 7.11 Muscles of Mastication (Acting on Temporomandibular Joint)
- 7.12 Movements of Temporomandibular Joint
- 7.13 Muscles of Tongue
- 7.14 Muscles of Soft Palate
- 7.15 Primary and Secondary Dentition

### **CHAPTER 8**

#### Neck

- 8.1 Platysma
- 8.2 Cervical Regions and Contents
- 8.3 Sternocleidomastoid and Trapezius
- 8.4 Muscles of Anterior Cervical Region
- 8.5 Arteries of Neck
- 8.6 Prevertebral and Scalene Muscles
- 8.7 Lateral Vertebral Muscles
- 8.8 Muscles of Pharynx
- 8.9 Muscles of Larynx

# **CHAPTER 9**

# **Cranial Nerves**

- 9.1 Summary of Cranial Nerves
- 9.2 Olfactory Nerve (CN I)
- 9.3 Optic Nerve (CN II)
- 9.4 Oculomotor (CN III), Trochlear (CN IV), and Abducent (CN VI) Nerves
- 9.5 Trigeminal Nerve (CN V)
- 9.6 Branches of Ophthalmic Nerve (CN V<sub>1</sub>)
- 9.7 Branches of Maxillary Nerve (CN V<sub>2</sub>)
- 9.8 Branches of Mandibular Nerve (CN V<sub>3</sub>)
- 9.9 Facial Nerve (CN VII), Including Motor Root and Intermediate Nerve
- 9.10 Vestibulocochlear Nerve (CN VIII)
- 9.11 Glossopharyngeal Nerve (CN IX)
- 9.12 Vagus Nerve (CN X)
- 9.13 Spinal Accessory Nerve (CN XI)
- 9.14 Hypoglossal Nerve (CN XII)
- 9.15 Autonomic Ganglia of Head
- 9.16 Summary of Cranial Nerve Lesions