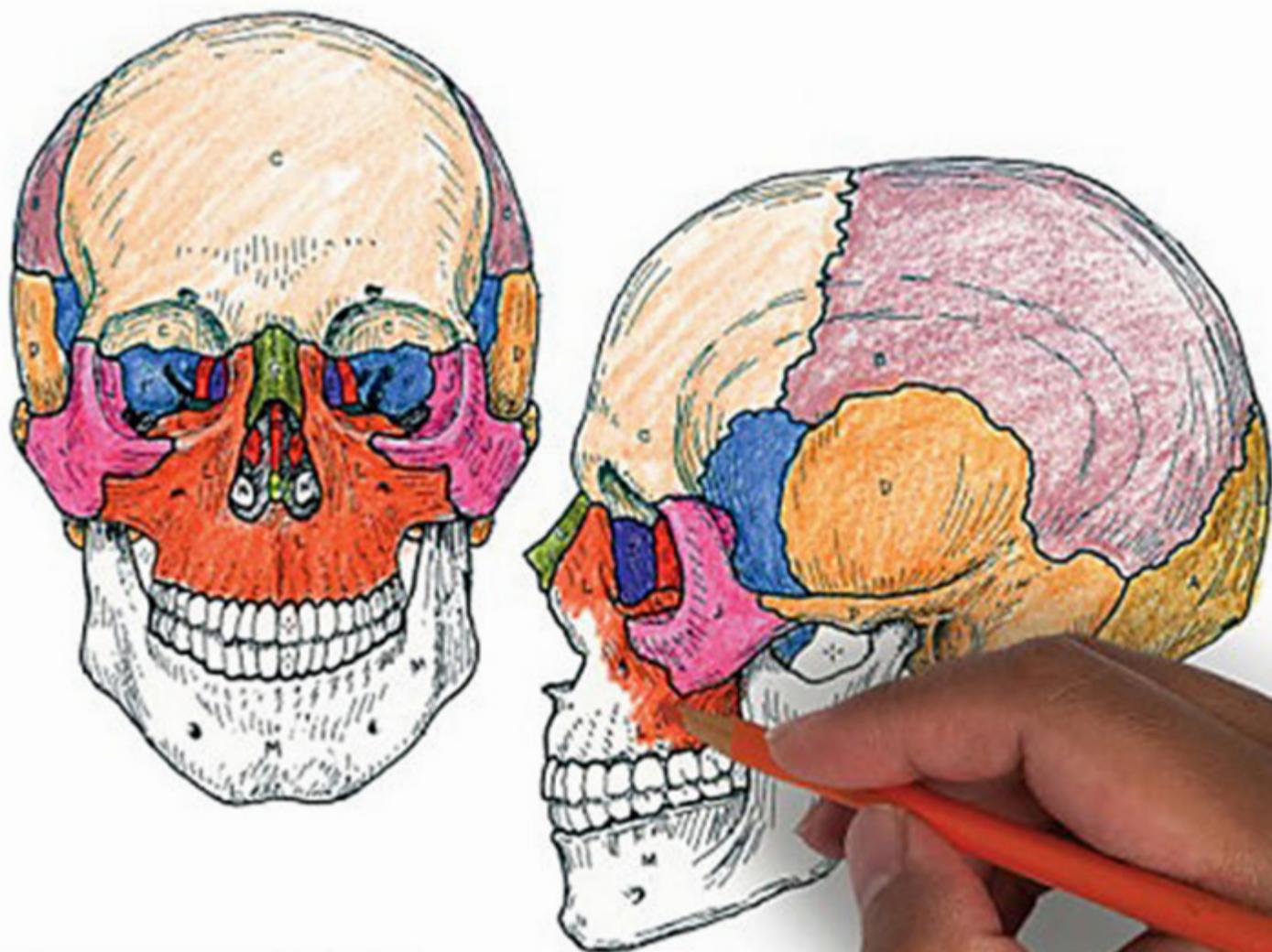


# The **ANATOMY** **COLORING BOOK**

Wynn Kapit / Lawrence M. Elson

4th Edition  
of the Classic  
Over 4 million in print



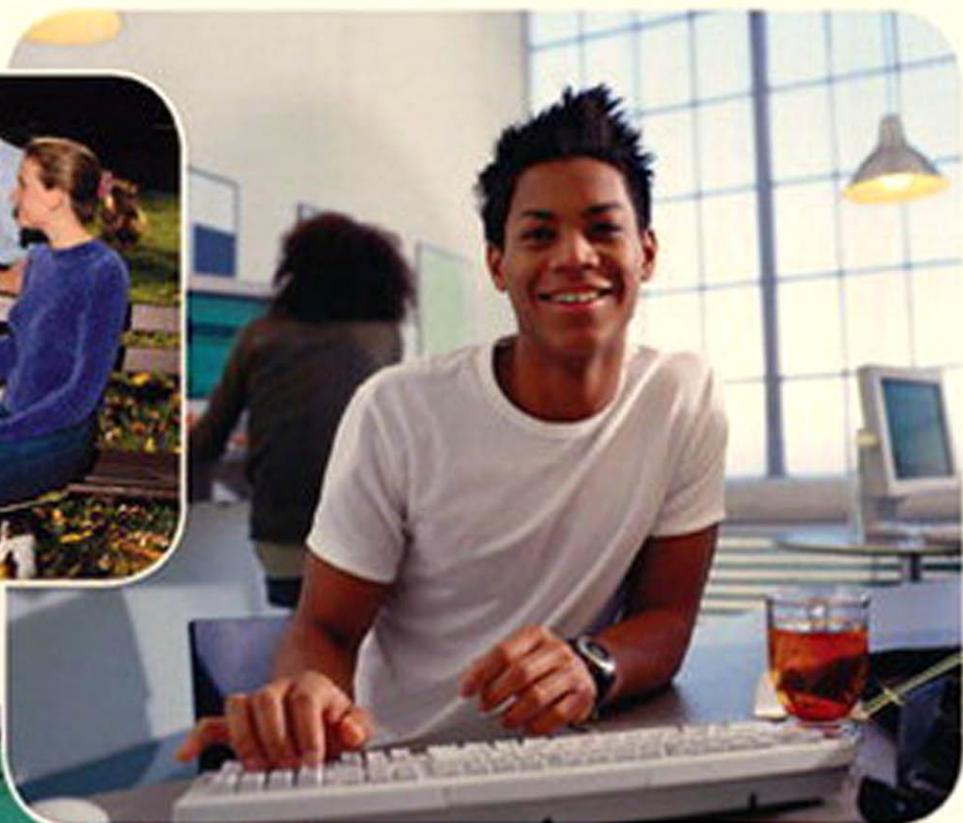
## BONES OF THE SKULL

### 8 CRANIAL

**OCCIPITAL (1)**<sub>a</sub> **PARIETAL (2)**<sub>b</sub> **FRONTAL (2)**<sub>c</sub>  
**TEMPORAL (2)**<sub>d</sub> **ETHMOID (1)**<sub>e</sub> **SPHENOID (1)**<sub>f</sub>

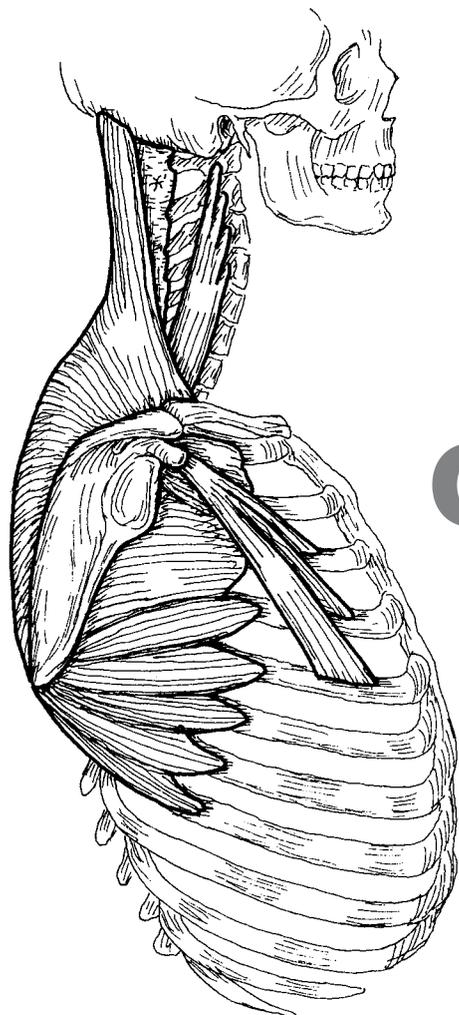
### 14 FACIAL

**NASAL (2)**<sub>g</sub> **VOMER (1)**<sub>h</sub> **LACRIMAL (2)**<sub>i</sub>  
**ZYGOMATIC (2)**<sub>j</sub> **PALATINE (2)**<sub>k</sub> **MAXILLA (2)**<sub>l</sub>  
**MANDIBLE (1)**<sub>m</sub> **INFERIOR NASAL CONCHA (2)**<sub>n</sub>



**PEARSON NEW INTERNATIONAL EDITION**

The Anatomy Coloring Book  
Wynn Kapit Lawrence M. Elson  
Fourth Edition



Wynn Kapit / Lawrence M. Elson

The **ANATOMY**  
**COLORING BOOK**

FOURTH EDITION

**PEARSON**

Boston Columbus Indianapolis New York San Francisco Upper Saddle River  
Amsterdam Cape Town Dubai London Madrid Milan Munich Paris Montréal Toronto  
Delhi Mexico City São Paulo Sydney Hong Kong Seoul Singapore Taipei Tokyo

Editor-in-Chief: Serina Beauparlant  
Associate Editor: Nicole McFadden  
Director of Development: Barbara Yien  
Text Permissions Associate Project Manager: Michael Farmer  
Text Permissions Specialist: S4 Carlisle  
Senior Managing Editor: Deborah Cogan  
Production Project Manager: Caroline Ayres/Michael Penne  
Copyeditor: Brooke Graves/Graves Editorial Service  
Production Management and Composition: Integra  
Design Manager: Marilyn Perry  
Interior Designer: Howie Severson  
Cover Designer: Wynn Kapit, Riezebos Holzbaur Design Group  
Senior Manufacturing Buyer: Stacey Weinberger  
Marketing Manager: Derek Perrigo

### Library of Congress Cataloging-in-Publication Data

Kapit, Wynn.

The anatomy coloring book/Wynn Kapit, Lawrence M. Elson.—4th ed.

p.; cm.

Includes bibliographical references and index.

ISBN 978-0-321-83201-6

I. Elson, Lawrence M., 1935- II. Title.

[DNLM: 1. Anatomy—Atlases. 2. Anatomy—Terminology—English. QS 15]

611—dc23

2012029126

Copyright © 2014, 2002, 1995, 1977 by Wynn Kapit and Lawrence M. Elson.  
Published by Pearson Education, Inc., 1301 Sansome St., San Francisco, CA 94111.  
All rights reserved. Manufactured in the United States of America. This publication is  
protected by Copyright and permission should be obtained from the publisher prior  
to any prohibited reproduction, storage in a retrieval system, or transmission in any  
form or by any means, electronic, mechanical, photocopying, recording, or likewise.  
To obtain permission(s) to use material from this work, please submit a written request  
to Pearson Education, Inc., Permissions Department, 1900 E. Lake Ave., Glenview, IL  
60025. For information regarding permissions, call (847) 486-2635.

Many of the designations used by manufacturers and sellers to distinguish their  
products are claimed as trademarks. Where those designations appear in this book,  
and the publisher was aware of a trademark claim, the designations have been printed  
in initial caps or all caps.

1 2 3 4 5 6 7 8 9—EBM—18 17 16 15 14 13

**PEARSON**

www.pearsonhighered.com

ISBN-13: 978-0-321-83201-6

ISBN-10: 0-321-83201-9

# DEDICATION

*For my wife, Lauren, and sons, Neil and Eliot.*

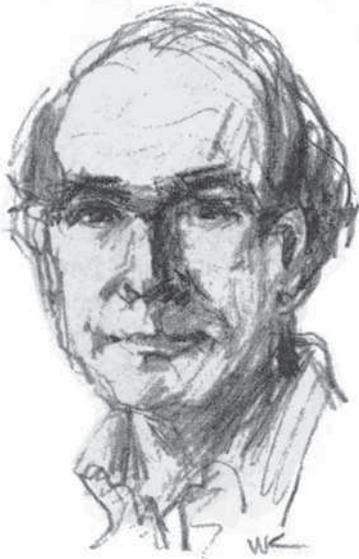
—WYNN KAPIT

*This edition is dedicated to the millions of students of anatomy, and their teachers, who have used this book in the pursuit of visualizing and understanding the structure and function of the human body by “hands on” coloring of structure, related nomenclature, and structural and functional relationships. Their diligent and successful acquisition of anatomic knowledge, and its application to their professional and personal lives, gives evidence of the value of kinesthetic (tactile) learning. May their new insights make the world a better place.*

—LARRY ELSON

# ABOUT THE AUTHORS

## WYNN KAPIT



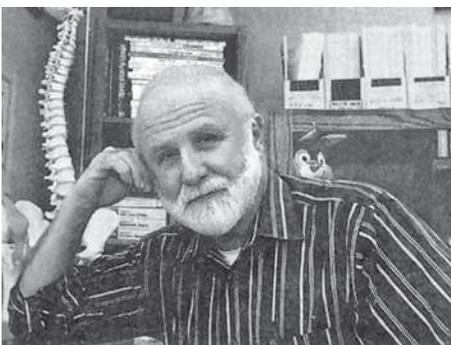
Wynn Kapit, the designer and illustrator of this book, has had careers in law, graphic and advertising design, painting, and teaching.

In 1955, he graduated from law school, with honors, from the University of Miami and was admitted to the Florida Bar. He practiced law both before and after military service. Four years later, he decided to pursue a childhood ambition and enrolled at what is now the Art Center College in Los Angeles, where he studied graphic design. Afterwards, he worked in the New York advertising world for six years as a designer and art director. He “dropped out” in the late 1960s, returned to California, and began painting. His numerous exhibitions included a one-man show at the California Palace of the Legion of Honor in 1968. He returned to school and received a master’s degree in painting from the University of California at Berkeley in 1972.

Kapit was teaching figure drawing in Adult Ed in San Francisco in 1975 when he decided he needed to learn more about bones and muscles. He enrolled in Dr. Elson’s anatomy class at San Francisco City College. While he was a student, he created the word-and-illustration coloring format that seemed to be a remarkably effective way of learning the subject. He showed some layouts to Dr. Elson and indicated his intention to do a coloring book on bones and muscles for artists. Immediately recognizing the potential of this method, Dr. Elson encouraged Kapit to do a “complete” coloring book on anatomy and offered to collaborate on the project. The first edition of *The Anatomy Coloring Book* was published in 1977, and its immediate success inspired the development of a completely new field of publishing: educational coloring books.

Kapit went on to create *The Physiology Coloring Book* with the assistance of two professors who were teaching at Berkeley: Dr. Robert I. Macey and Dr. Esmail Meisami. That book was published in 1987 and has gone through two editions. In the early 1990s, Kapit wrote and designed *The Geography Coloring Book*, now in its second edition.

## LAWRENCE M. ELSON



Lawrence M. Elson, PhD, planned the content and organization, provided sketches, and wrote the text for the book. This is his seventh text, having authored *It’s Your Body* and *The Zoology Coloring Book* and co-authored *The Human Brain Coloring Book* and *The Microbiology Coloring Book*. He received his BA in zoology and pre-med at the University of California at Berkeley and continued there to receive his PhD in human anatomy. Dr. Elson was assistant professor of anatomy at Baylor College of Medicine in Houston, participated in the development of the Physician’s Assistant Program, lectured and taught dissection anatomy at the University of California School of Medicine in San Francisco, and taught general anatomy, from protozoons to humans, at City College of San Francisco.

In his younger days, Dr. Elson trained to become a naval aviator and went on to fly dive-bombers off aircraft carriers in the Western Pacific. While attending college and graduate school, he remained in the Naval Air Reserve and flew antisubmarine patrol planes and helicopters. His last position in his 20-year Navy career was as commanding officer of a reserve antisubmarine helicopter squadron.

Dr. Elson is a consultant to insurance companies and personal injury and medical malpractice attorneys on causation-of-injury/death issues, a practice that has taken him throughout the United States and Canada. He has testified in hundreds of personal injury trials and arbitrations. His research interests are focused on the anatomic bases of myofascial pain arising from low velocity accidents.

You can contact him at [docelson@gmail.com](mailto:docelson@gmail.com).

# TABLE OF CONTENTS

- x PREFACE
- xi ACKNOWLEDGMENTS
- xii INTRODUCTION TO COLORING

## **ORIENTATION TO THE BODY**

- 1 Anatomic Planes & Sections
- 2 Terms of Position & Direction
- 3 Systems of the Body (1)
- 4 Systems of the Body (2)
- 5 Cavities & Linings

## **CELLS & TISSUES**

- 6 The Generalized Cell
- 7 Cell Division / Mitosis
- 8 Tissues: Epithelial
- 9 Tissues: Fibrous Connective Tissues
- 10 Tissues: Supporting Connective Tissues
- 11 Tissues: Muscle
- 12 Tissues: Skeletal Muscle Microstructure
- 13 Tissues: Nervous
- 14 Integration of Tissues

## **INTEGUMENTARY SYSTEM**

- 15 The Integument: Epidermis
- 16 The Integument: Dermis

## **SKELETAL & ARTICULAR SYSTEMS**

- 17 Long Bone Structure
- 18 Endochondral Ossification
- 19 Axial / Appendicular Skeleton
- 20 Classification of Joints
- 21 Terms of Movements
- 22 Bones of the Skull (1)
- 23 Bones of the Skull (2)
- 24 Temporomandibular Joint (Craniomandibular)
- 25 Vertebral Column
- 26 Cervical & Thoracic Vertebrae
- 27 Lumbar, Sacral, & Coccygeal Vertebrae
- 28 Bony Thorax
- 29 Upper Limb: Pectoral Girdle & Humerus
- 30 Upper Limb: Glenohumeral Joint for B and C (Shoulder joint)
- 31 Upper Limb: Bones of the Forearm
- 32 Upper Limb: Elbow & Related Joints
- 33 Upper Limb: Bones / Joints of the Wrist & Hand
- 34 Upper Limb: Bones / Joints in Review
- 35 Lower Limb: Hip Bone, Pelvic Girdle, & Pelvis
- 36 Lower Limb: Male & Female Pelves
- 37 Lower Limb: Sacroiliac & Hip Joints

- 38 Lower Limb: Bones of the Thigh & Leg
- 39 Lower Limb: Knee Joint
- 40 Lower Limb: Ankle Joint & Bones of the Foot
- 41 Lower Limb: Bones & Joints in Review

## **MUSCULAR SYSTEM**

- 42 Introduction to Skeletal Muscle
- 43 Integration of Muscle Action
- 44 Head: Muscles of Facial Expression
- 45 Head: Muscles of Mastication
- 46 Neck: Anterior & Lateral Muscles
- 47 Torso: Deep Muscles of the Back & Posterior Neck
- 48 Torso: Muscles of the Bony Thorax & Posterior Abdominal Wall
- 49 Torso: Muscles of the Anterior Abdominal Wall & Inguinal Region
- 50 Torso: Muscles of the Pelvis
- 51 Torso: Muscles of the Perineum
- 52 Upper Limb: Muscles of Scapular Stabilization
- 53 Upper Limb: Muscles of the Musculotendinous Cuff
- 54 Upper Limb: Movers of the Shoulder Joint
- 55 Upper Limb: Movers of Elbow & Radioulnar Joints
- 56 Upper Limb: Movers of Wrist & Hand Joints (Extrinsics)
- 57 Upper Limb: Movers of Hand Joints (Intrinsics)
- 58 Upper Limb: Review of Muscles
- 59 Lower Limb: Muscles of the Gluteal Region
- 60 Lower Limb: Muscles of the Posterior Thigh
- 61 Lower Limb: Muscles of the Medial Thigh
- 62 Lower Limb: Muscles of the Anterior Thigh
- 63 Lower Limb: Muscles of the Anterior & Lateral Leg
- 64 Lower Limb: Muscles of the Posterior Leg
- 65 Lower Limb: Muscles of the Foot (Intrinsics)
- 66 Lower Limb: Review of Muscles
- 67 Functional Overview

## **NERVOUS SYSTEM**

- 68 Organization
- 69 Functional Classification of Neurons
- 70 Synapses & Neurotransmitters
- 71 Neuromuscular Integration

## **CENTRAL NERVOUS SYSTEM**

- 72 Development of the Central Nervous System (CNS)
- 73 Cerebral Hemispheres
- 74 Tracts / Nuclei of Cerebral Hemispheres
- 75 Diencephalon
- 76 Brain Stem / Cerebellum
- 77 Spinal Cord
- 78 Ascending Tracts (Pathways)
- 79 Descending Tracts

## **CENTRAL NERVOUS SYSTEM: CAVITIES & COVERINGS**

- 80 Ventricles of the Brain
- 81 Meninges
- 82 Circulation of Cerebrospinal Fluid (CSF)

## **PERIPHERAL NERVOUS SYSTEM**

- 83 Cranial Nerves
- 84 Spinal Nerves & Nerve Roots
- 85 Spinal Reflexes
- 86 Distribution of Spinal Nerves
- 87 Brachial Plexus & Nerves to the Upper Limb
- 88 Lumbar & Sacral Plexuses: Nerves to the Lower Limb
- 89 Dermatomes
- 90 Sensory Receptors

## **AUTONOMIC (VISCERAL) NERVOUS SYSTEM**

- 91 ANS: Sympathetic Division (1)
- 92 ANS: Sympathetic Division (2)
- 93 ANS: Parasympathetic Division

## **SPECIAL SENSES**

- 94 Visual System (1)
- 95 Visual System (2)
- 96 Visual System (3)
- 97 Auditory & Vestibular Systems (1)
- 98 Auditory & Vestibular Systems (2)
- 99 Taste & Smell

## **CARDIOVASCULAR SYSTEM**

- 100 Blood & Blood Elements
- 101 Scheme of Blood Circulation
- 102 Blood Vessels
- 103 Mediastinum, Walls, & Coverings of the Heart
- 104 Chambers of the Heart
- 105 Cardiac Conduction System & the ECG
- 106 Coronary Arteries & Cardiac Veins
- 107 Arteries of the Head & Neck
- 108 Arteries of the Brain
- 109 Arteries & Veins of the Upper Limb
- 110 Arteries of the Lower Limb
- 111 Aorta, Branches, & Related Vessels
- 112 Arteries to Gastrointestinal Tract & Related Organs
- 113 Arteries of the Pelvis & Perineum
- 114 Review of Principal Arteries
- 115 Veins of the Head & Neck
- 116 Caval & Azygos Systems
- 117 Veins of the Lower Limb
- 118 Hepatic Portal System
- 119 Review of Principal Veins

## **LYMPHATIC SYSTEM**

- 120** Lymphatic Drainage & Lymphocyte Circulation

## **IMMUNE (LYMPHOID) SYSTEM**

- 121** Introduction
- 122** Innate & Adaptive Immunity
- 123** Thymus & Red Marrow
- 124** Spleen
- 125** Lymph Node
- 126** Mucosal Associated Lymphoid Tissue (M.A.L.T.)

## **RESPIRATORY SYSTEM**

- 127** Overview
- 128** External Nose, Nasal Septum, & Nasal Cavity
- 129** Paranasal Air Sinuses
- 130** Pharynx & Larynx
- 131** Lobes & Pleura of the Lungs
- 132** Lower Respiratory Tract
- 133** Mechanism of Respiration

## **DIGESTIVE SYSTEM**

- 134** Overview
- 135** Oral Cavity & Relations
- 136** Anatomy of a Tooth
- 137** Pharynx & Swallowing
- 138** Peritoneum
- 139** Esophagus and Stomach
- 140** Small Intestine
- 141** Large Intestine
- 142** Liver
- 143** Biliary System & Pancreas

## **URINARY SYSTEM**

- 144** Urinary Tract
- 145** Kidneys & Related Retroperitoneal Structures
- 146** Kidney & Ureter
- 147** The Nephron
- 148** Tubular Function & Renal Circulation

## **ENDOCRINE SYSTEM**

- 149** Introduction
- 150** Pituitary Gland & Hypothalamus
- 151** Pituitary Gland & Target Organs
- 152** Thyroid & Parathyroid Glands
- 153** Adrenal (Suprarenal) Glands
- 154** Pancreatic Islets

## **REPRODUCTIVE SYSTEM**

- 155** Male Reproductive System
- 156** Testis
- 157** Male Urogenital Structures
- 158** Female Reproductive System
- 159** Ovary
- 160** Uterus, Uterine Tubes, & Vagina
- 161** Menstrual Cycle
- 162** Breast (Mammary Gland)

## **BIBLIOGRAPHY AND REFERENCES**

**APPENDIX A: ANSWER KEYS (TO REVIEWS ON PAGES 34, 41, 58, 66, 114, 119)**

**APPENDIX B: SPINAL INNERVATION OF SKELETAL MUSCLES**

**GLOSSARY**

**INDEX**

# PREFACE

“A picture is worth a thousand words,” states one Chinese proverb. Another says “. . . a million words.” Indeed it is! And we are proud to present our fourth edition with a new and improved design, primarily reflected in the increased size of the illustrations and the addition of a separate text page adjacent to each related illustration.

This may be your first scientific higher education (college, graduate, and professional level) coloring book. In fact, we assume it is. A look inside—at first glance—may prove daunting! Stick with us, follow our lead, and you will come away from the experience with greater understanding than you can imagine.

You have been here before perhaps: while holding a conversation with your teacher you got lost in her words. The teacher then pulled out a pad of paper, and said, as she began drawing, “Look,” and your eyes riveted on the paper before you as the illustrative explanation evolved. And, when your teacher finished her presentation, you saw the light. So, you are a visual learner! You looked at the drawing for a minute, and then said, “Can I draw what I see, and you tell me if I’m on the right track?” You took pencil in hand and illustrated your understanding, and, as you did, the meaning became even clearer. So, you are also a *kinesthetic* (hands-on) learner—you learn by doing! This book is designed for and dedicated to you.

We are offering instruction to a much broader audience than do typical texts, and there may be topics to be colored that are challenging to a first-year college student but not so challenging for a first-year medical or physical therapy student. If a page of illustration(s) confuses you, step back and look at the drawing(s) in the context of its place in the body. Keep going back to larger and more expanded views until you are comfortable with that level; then go one level deeper. Review the numerical order of coloring in the list of names; you may have missed something. Check the glossary or consult your major text or given reference. Also, if you have any suggested corrections, please let me (Elson) know. We really want you to have a positive learning experience, and have a sense of reward in seeing your completed work. After all, it’s your body!

We are grateful to the thousands of colorers who have advised and encouraged us, including coaches, trainers, teachers, paramedics, body workers, court reporters, attorneys, insurance claims adjusters, judges, students and practitioners of dentistry and dental hygiene, nursing, medicine/surgery, chiropractic, podiatry, massage therapy, myotherapy, physical therapy, occupational therapy, exercise therapy, dance, and music! More informal seekers of self-realization and those with impairments have also been drawn to *The Anatomy Coloring Book* because of its lighter, more visual approach to understanding. Truly, a picture is worth a thousand words!

Happy Coloring!

# ACKNOWLEDGMENTS

**Mary and Jason Luross:** Your advice and counsel was much appreciated and for that I thank you.

**Lindsey Fairleigh:** Thank you for editing the rough script and formatting Microsoft Word so I could develop the typescript in consistent fashion, and for just being a good “ear,” competent editor, and friend throughout the project.

**Bill Neuman, PE:** Thank you for helping me out with keystones and gravitational forces and all matters of engineering related to the human body.

**Glen Giesler, PhD:** Your contribution to the functional organization of cranial nerves was much appreciated.

**Hedley Emsley, PhD, MRCP:** Thank you for your kind review of the dermatomal map used in this book.

**Eric Ewig, PT:** Your insight on musculoskeletal function and dysfunction from the physical therapist’s clinical perspective was invaluable. You were most helpful!

And last but not least to my wife, Ellyn, without whose love and understanding this project would have never been completed.

**WYNN KAPIT**  
Santa Barbara, CA

**LARRY ELSON**  
Napa Valley, CA

# INTRODUCTION TO COLORING

(Important tips on how to get the most out of this book)

## HOW THE BOOK IS ARRANGED

The book is divided by subject matter into sections. Each section contains many topics. Each topic consists of a page of illustrations, and a column of text on the page facing it.

It is not important that you color the sections in order, but for whichever section you select *you should color the pages in order*. You may wish to read through the text before coloring, and reread it more carefully afterward; or you may choose to color first. But *always read the coloring notes (CN) before coloring*. They let you know if certain colors are required, as well as what order to color in and what to look out for.

## COLORING TOOLS

*Colored pencils are preferred*. They won't show through to the other side of the page. With colored pens, test each color on a page in the back of the book to see if it shows through. Lighter colors and water-based pens will be less likely to do so; their transparent qualities also allow details and labels on the illustration to remain visible.

At least 10 colors are necessary. One of them should be a medium gray. A single colored pencil can virtually create many colors, as varying the point pressure produces a range of light and dark values. If you purchase your colors individually, such as at stores selling art supplies, then choose mostly lighter colors. You will need red, blue, purple, yellow, gray, and black. Buying colors individually also enables replacement when a pencil is lost or used-up.

## HOW THE COLORING SYSTEM WORKS

Structures (the parts of the illustrations to be colored), are identified by names presented in outlined (colorable) lettering. Each name has a small letter (A–Z) or number (subscript, letter label) following it. This letter label connects the name with its related structure in the illustration. *Name and structure are to receive the same color*. Look at the cover for a colored example.

Boundaries of the structures are defined by dark lines. Color over everything within the boundaries. The label may be found either within the structure or connected to it by a light line. Not every structure to be colored is labeled. When structures similar in size and shape lie adjacent to each other, color them all with the same color even if some are not labeled.

*It is important to color the names*; they guide you through the order of coloring. Coloring also promotes memorization. You may also find very slight spacing between letters in the names according to syllables. These groupings, along with the glossary in the back, help with learning pronunciation of these unfamiliar words. Indentations in the list of names reflect important relationships among the structures.

A different color is required for each name and its letter label, except where different names are followed by the same letter but have different superscripts (e.g.,  $D^1$ ,  $D^2$ , shown on the opposite page). They ( $D$ – $D^2$ ) all receive the “D” color because of a close relationship between the structures to which they refer. Even when restricted to a single color you may distinguish between such related names and structures by creating different values with varying pressure on the pencil. If you run out of colors because of a very long list of names, it will obviously be necessary to repeat a color and use it on more than one name. Except where indicated, you may choose your own colors. Lighter ones are advised for large areas, and dark or bright colors for the smaller structures that are harder to see.

Red is usually associated with arteries, blue with veins, purple with capillaries, yellow with nerves, and green with lymphatics. However, on pages dealing exclusively with any of these structures, you will naturally have to use many colors for the different structures in the same group.

**SYMBOLS USED THROUGHOUT THE BOOK**

**NAME OF STRUCTURE** <sub>A</sub> (Subscript or label)  
 (Color in both name and the two structures labeled A the same color)

**NEW NAME** <sub>B</sub> (Color in new color)

**NEW NAME** <sub>C</sub> (Color in new color)

**NEW NAME** <sub>D</sub> (Color in new color)

**NEW NAME** <sub>D'</sub> (Color in both name and structure the same color as D)

**NEW NAME** <sub>D<sup>2</sup></sub> (Color in both name and structure the same color as D)

**NEW NAME** <sub>E-†</sub> (Do not color in the name, or any structure with this label)

**NEW NAME** <sub>F\*</sub> (Color in name gray, and any structure with this label gray)

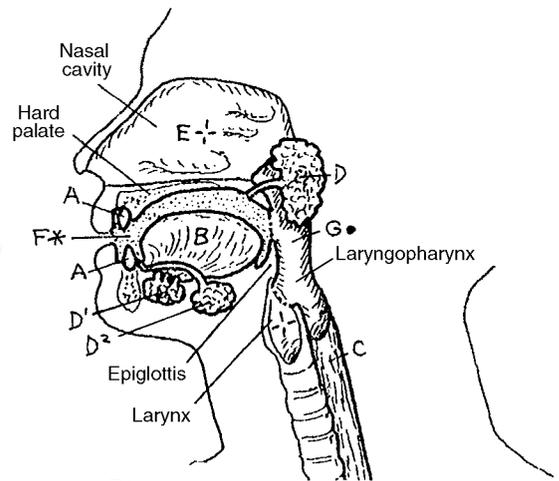
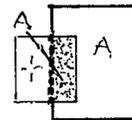
**NEW NAME** <sub>G•</sub> (Color the name or structure black)

**NEW NAME** <sub>H-</sub> (Color the name, but there is no structure to color)



(Subject matter is microscopic in size)

----- (Boundary line of structure lying beneath or behind overlying structure)



**ABBREVIATIONS**

In the text, the following abbreviations (in upper or lower case) may precede or follow the names of the structures identified due to space limitations.

e.g., Post. auricular m., Brachial a., Scalenus med. m.

- A., As. = Artery(ies)
- Ant. = Anterior
- Br., Brs. = Branch(es)
- Inf. = Inferior
- Lat. = Lateral
- Lig. = Ligament
- M., Ms. = Muscle(s)
- Med. (preceding term) = Medial
- Med. (after term) = Medius
- N., Ns. = Nerve(s)
- Post. = Posterior
- Sup. = Superior, superficial
- Sys. = System
- Tr. = Tract
- V., Vs. = Vein(s)

Study of the human body requires an organized visualization of its internal parts. Dissection (*dis*, apart; *sect*, cut) is the term given to preparation of the body for general or specific internal inspection. Internal body structure is studied in sections cut along imaginary flat surfaces called *planes*. These planes are applied to the erect, standing body with limbs extended along the sides of the body, palms and toes forward, thumbs outward. See this “anatomical position” in the following page. Views of the internal body in life and after death can be obtained by a number of techniques that produce computer-generated representational images of human structure in series (sections) along one or more planes. These anatomic images may be produced by computerized tomography (CT) and magnetic resonance imaging (MRI).

The **median plane** is the midline longitudinal plane dividing the head and torso into right and left halves. The presence of the sectioned midline of the vertebral column and spinal cord is characteristic of this plane. Planes parallel to the median plane are sagittal. Watch out! “Medial” is not a plane.

The **sagittal plane** is a longitudinal plane dividing the body (head, torso, limbs) or its parts into left and right parts (*not* halves). It is parallel to the median plane.

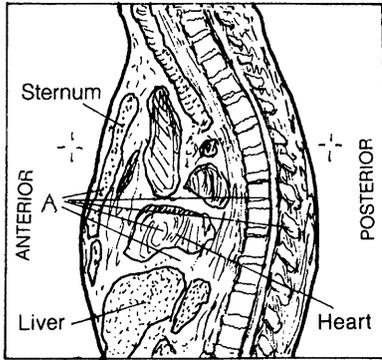
The **coronal** or **frontal plane** is a longitudinal plane dividing the body or its parts into front and back *halves* or *parts*. These planes are perpendicular to the median and sagittal planes.

The **transverse** or **cross plane** divides the body into upper and lower halves or parts (cross sections). This plane is perpendicular to the longitudinal planes. Transverse planes are horizontal planes of the body in the anatomical position.

# ORIENTATION TO THE BODY ANATOMIC PLANES & SECTIONS

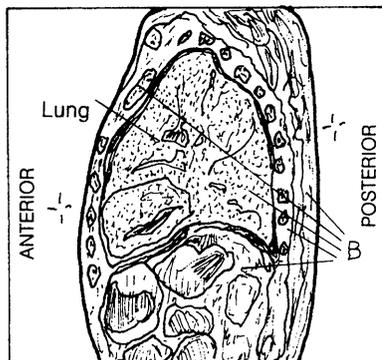
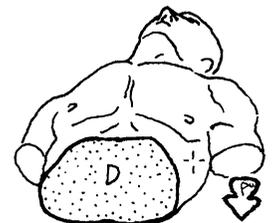
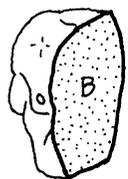
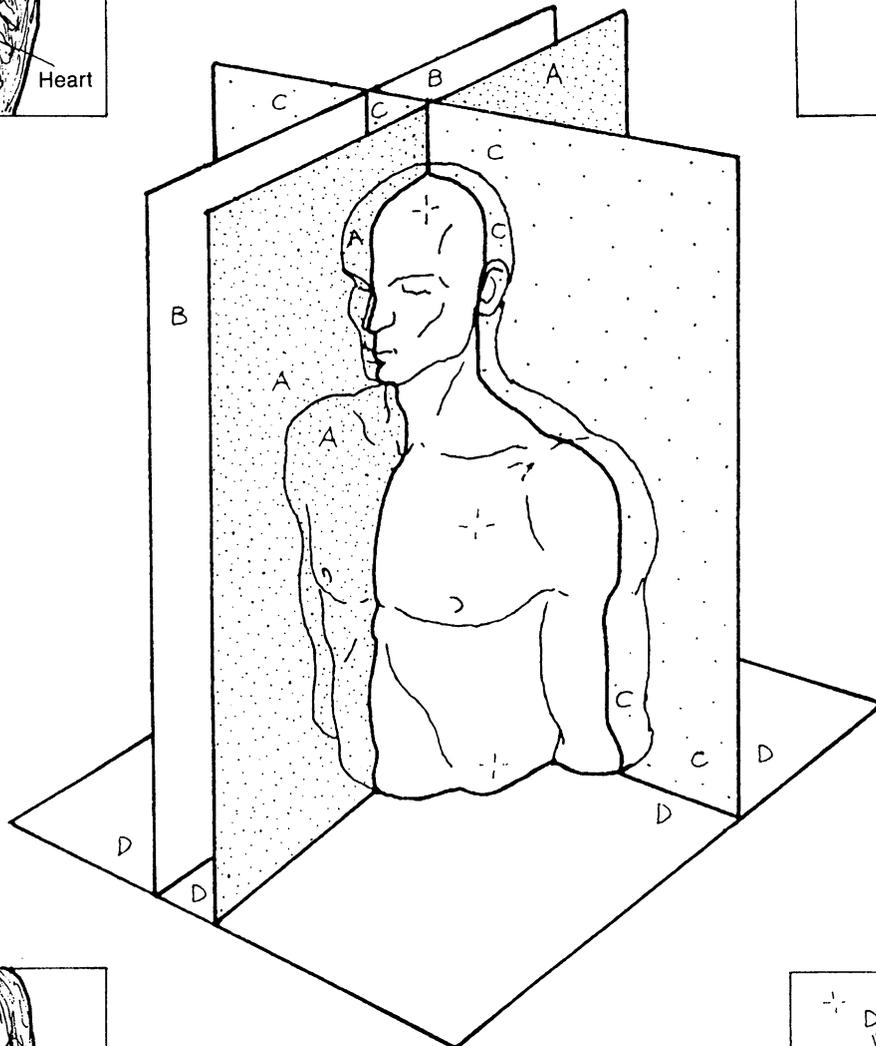
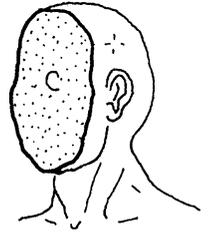
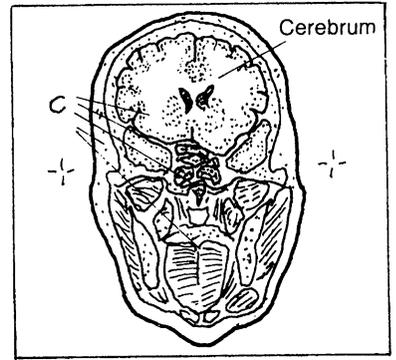
**CN:** Use your lightest colors on A-D. (1) Color a body plane in the center diagram; then color its name, related sectional view, and the sectioned body example. (2) Color everything within the dark outlines of the sectional views.

**MEDIAN<sup>A</sup>**  
**SAGITTAL<sup>B</sup>**  
**CORONAL, FRONTAL<sup>C</sup>**  
**TRANSVERSE, CROSS<sup>D</sup>**



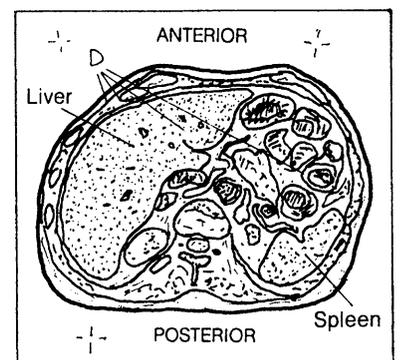
Median section through the thorax

Coronal section through the head



Sagittal section through the thorax

Cross section through the abdomen



**Terms of position and direction** describe the relationship of one structure on/in the body to another with reference to the *anatomical position*: body standing erect, limbs extended, palms of the hands forward, thumbs directed outwardly.

**Cranial** and **superior** refer to a structure being closer to the top of the head than another structure in the head, neck, or torso (excluding limbs).

**Anterior** refers to a structure being more in front than another structure in the body. **Ventral** refers to the abdominal side; in bipeds, it is synonymous with anterior. **Rostral** refers to a beak-like structure in the front of the head or brain that projects forward.

**Posterior** and **dorsal** refer to a structure being more in back than another structure in the body. *Dorsal* is synonymous with *posterior* (the preferred term) except in quadrupeds.

**Medial** refers to a structure that is closer to the median plane than another structure in the body.

**Lateral** refers to a structure that is farther away from the median plane than another structure in the body.

Employed only with reference to the limbs, **proximal** refers to a structure being closer to the median plane or root of the limb than another structure in the limb.

Employed only with reference to the limbs, **distal** refers to a structure being farther away from the median plane or the root of the limb than another structure in the limb.

**Caudal** and **inferior** refer to a structure being closer to the feet or the lower part of the body than another structure in the body. These terms are not used with respect to the limbs. In quadrupeds, *caudal* means closer to the tail.

The term **superficial** is synonymous with *external*, the term **deep** with *internal*. Related to the reference point on the chest wall, a structure closer to the surface of the body is superficial; a structure farther away from the surface is deep.

**Ipsilateral** means “on the same side” (in this case, as the reference point); **contralateral** means “on the opposite side” (of the reference point).

The **quadruped** presents four points of direction: head end (cranial), tail end (caudal), belly side (ventral), and back side (dorsal).