

# GUIDE TO

## *Human Anatomy, Third Edition*

### The Third Edition—What’s New?

- New Organization
- New Science
- New Writing
- New Balance
- New Photographs
- New Art
- New Pedagogy

### A Storytelling Writing Style

- Innovative Perspectives
- Fresh Analogies

### Artwork That Piques Interest and Clarifies Ideas

- Vivid Illustrations
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- Orientation Tools

### The Art of Teaching—Pedagogical Features

- Chapters Laid Out for Preview and Review
- The Bookends of Knowledge
- Vocabulary Building
- Desktop Experiments
- Self-Assessment Tools

### Making It Relevant

Saladin’s *Human Anatomy* is more than a description of body structure. It is a story that weaves together basic science, clinical applications, the history of medicine, and the evolutionary basis of human structure. Saladin combines this humanistic perspective with vibrant photos and art to convey the beauty and excitement of the subject to beginning students.

*“Saladin’s Human Anatomy is the easiest textbook to read and comprehend on the market today. I have used this textbook for 8 semesters with all of my students. Students consistently tell me that Saladin’s Human Anatomy textbook is their favorite science textbook to read. They find it interesting and easy to understand.”*

—Mark Schlueter  
*College of Saint Mary*

## The Third Edition—What’s New?

### New Organization

The introductory chapter of the previous edition has now been substantially condensed and merged with the general orientation to the human body that formerly constituted Atlas A. Students now get a broad introduction to regional terminology in chapter 1. Cadaver photos from the former Atlas A are now combined with the former Atlas B into a single “Atlas of Regional and Surface Anatomy” (p. 329). Other chapters have also been condensed, with the result that the third edition is 32 pages shorter than the second edition.

### New Science

The third edition embraces both new findings in anatomical science and new incorporation of established knowledge, in such topics as:

- radiologic anatomy
- cardiac tamponade
- mitochondrial DNA
- basement membrane function
- tissue engineering
- albinism
- intercostal muscle function
- microglia and satellite cell functions
- vaccine for shingles
- meningitis
- empty sella syndrome
- galactorrhea
- brain natriuretic peptide
- osteocalcin
- cord blood transplants
- platelet production
- regulatory T cells
- brainstem respiratory centers
- ghrelin and appetite regulation

## New Writing

In response to feedback from anatomy instructors, reviewers, and students, Ken has paid particular attention to rewriting and clarifying many topics in this edition, including

- adipose tissue, bone, and blood (chapter 3)
- keratinocytes, skin color, and skin cancer (chapter 5)
- the pelvic girdle and pelvis (chapter 7)
- anatomical disorders of the endocrine system (chapter 18)
- RBC morphology and transfusion compatibility (chapter 19)
- the myocardial vortex and cardiac conduction system (chapter 20)
- upper respiratory anatomy (chapter 23)
- regional anatomy and histology of the GI tract (chapter 24)
- renal innervation and the nephron loop (chapter 25)
- oogenesis, folliculogenesis, and andropause (chapter 26)

*“Dr. Saladin seems very open to suggestions from instructors and users of his text for further improvement. This open attitude is very important to me as an instructor. For the students, Saladin’s text presents a significant advantage over other authors in his ease of readability and presentation. Students actually understand and comprehend passages read from his text and find it interesting!”*

—Candi K. Heimgartner  
University of Idaho

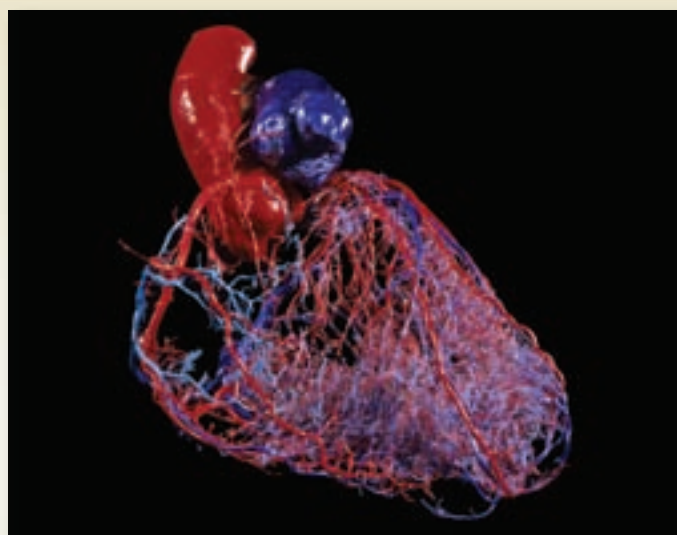
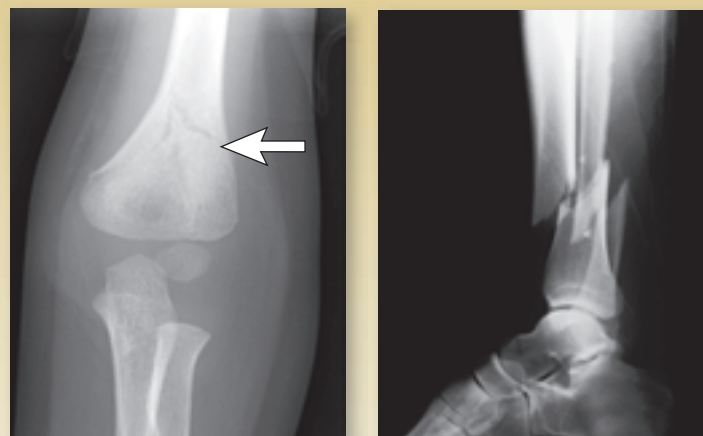
## New Balance

With the help of reviewers, Saladin has struck a new balance between anatomy and physiology—just enough physiology to lend meaning to the anatomy, but not so much as to be excessive for a textbook dedicated to anatomy.

## New Photographs

The following photographs are new to this edition.

- 3-dimensional fetal sonogram (figure 1.4)
- Wilms tumor of the kidney (figure 2.20)
- transitional epithelium (figure 3.11)
- reticular tissue (figure 3.15)
- hyaline cartilage (figure 3.19)
- elastic cartilage (figure 3.20)
- fibrocartilage (figure 3.21)
- fracture X-rays (figure 6.14)
- male and female pelvic girdles (figure 8.9)
- external anatomy of the eye (figure 17.19)
- the myocardial vortex (figure 20.6)
- endoscopic view of aortic valve (figure 20.8)
- corrosion cast of coronary blood vessels (figure 20.11)
- pulmonary histology (figure 23.10a)
- stages of folliculogenesis (figure 26.14)



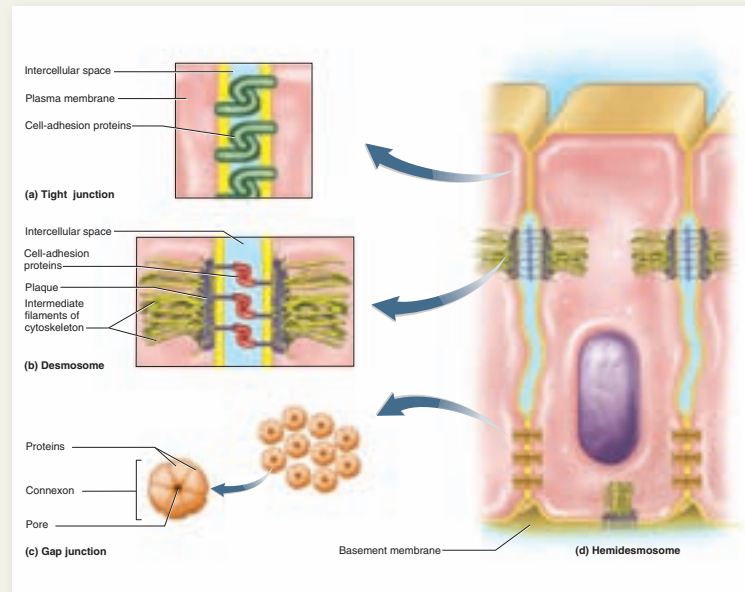
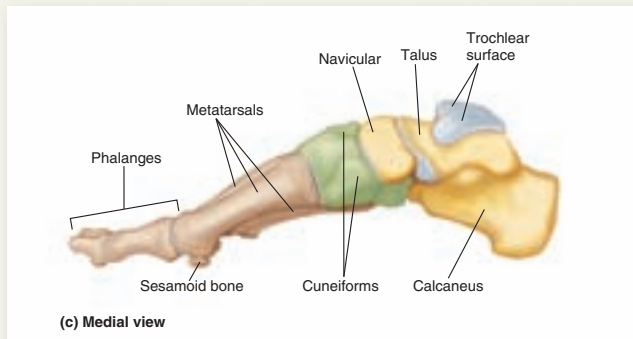
*“The illustrations and photographs in . . . Saladin are a huge improvement from our previous text. His use of dissection photos and histological photos is the best I have seen in an undergraduate text.”*

—Rachel D. Smetanka, Southern Utah University

## New Art

Many of the existing illustrations have been improved, and the following drawings are entirely new to the third edition.

- cell junctions (figure 2.14)
- the cytoskeleton (figure 2.15)
- development of exocrine and endocrine glands (figure 3.28)
- serous membrane histology (figure 3.31b)
- epidermal histology (figure 5.3)
- medial view of elbow joint (figure 8.4c)
- medial view of foot skeleton (figure 8.14c)



## New Pedagogy

The third edition features new devices, in addition to pedagogical aids used in the second edition, for more effective teaching and for student self-assessment.

**Study Guide** A renamed chapter review. When students ask instructors if they will provide a study guide for the next exam, the answer now is easy: There's already one at the end of every chapter!

**Assess Your Learning Outcomes** A chapter study outline that doesn't paraphrase the book, but prompts the student to extract, organize, and paraphrase the information for him- or herself. Discourages passivity and shortcutting and makes the student an active learner. (Chapter summaries in paraphrased form are available for those who want them at [www.mhhe.com/saladinha3](http://www.mhhe.com/saladinha3)).

**Building Your Medical Vocabulary** A new exercise at the end of each chapter serves to strengthen the student's familiarity with and application of widely used word roots in medical terminology.

### Study Guide

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Assess Your Learning Outcomes

*You should have a good understanding of this chapter if you can accurately address the following issues.*

**9.1 Joints and Their Classification (p. 205)**

1. The definition of *joint (articulation)*
2. Names of the sciences concerned with joint structure and movement
3. The general rule for how joints are commonly named
4. The criteria used to classify joints into anatomical and functional categories
5. The distinguishing characteristics of bony joints, fibrous joints, and cartilaginous joints; synonyms for these terms; and examples of joints in each category
6. The three subclasses of fibrous joints and three types of sutures, and examples of each
7. The two subclasses of cartilaginous joints, and examples of each

**9.2 Synovial Joints (p. 209)**

1. The definition of *synovial joint*
2. The anatomical features of a generalized synovial joint
3. The functions of articular discs and menisci at certain synovial joints, where they can be found, and their appearance
4. The defining characteristics of tendons, ligaments, and bursae, and the roles they play at the joints; how tendon sheaths differ from other bursae
5. The distinction between monaxial, biaxial, and multiaxial joints

6. The six types of synovial joints and where they can be found
7. The definitions of *joint flexion, extension, and hyperextension*; some everyday scenarios in which these movements occur; and the ability to demonstrate them with your own body
8. The same for *abduction, adduction, hyperabduction, and hyperadduction*
9. The same for *elevation and depression*
10. The same for *protraction and retraction*
11. The same for *circumduction*
12. The same for *medial (internal) and lateral (external) rotation*
13. The same for *supination and pronation* of the forearm
14. The same for *flexion, extension, hyperextension, and lateral flexion* of the vertebral column
15. The same for *rotation* of the head or torso
16. The same for *lateral and medial excursion* of the mandible
17. The same for wrist *flexion and extension* anteriorly and posteriorly, and *ulnar and radial flexion* from side to side
18. The same for the thumb movements of *radial abduction, palmar abduction, opposition, and reposition*
19. The same for the ankle or foot movements of *dorsiflexion, plantar flexion, inversion, and eversion*, and how several of these movements are combined in foot pronation and supination
20. How a joint's range of motion (ROM) is measured and what anatomical features govern the ROM

**9.3 Anatomy of Selected Synovial Joints (p. 219)**

1. Special functional qualities of the temporomandibular joint (TMJ); its major anatomical features; and two common disorders of the TMJ
2. Special functional qualities of the glenohumeral joint; its major anatomical features; and two of its common injuries
3. The names of the three joints that occur at the elbow; how they enable the varied movements of the forearm; and the major anatomical features of the elbow joints
4. Special functional qualities of the coxal joint; its major anatomical features; and the actions of the ligaments at this joint when a person stands
5. Special functional qualities of the tibiofemoral joint; its major anatomical features (especially its menisci and cruciate ligaments); and the common injuries of this joint
6. Special functional qualities of the talocrural joint; its major anatomical features; and the nature of sprains at this joint

**9.4 Clinical Perspectives (p. 228)**

1. The range of disorders included in the concept of rheumatism, and the related term for physicians who specialize in joint disorders
2. The general meaning of *arthritis*, and the pathology and distinctions between osteoarthritis and rheumatoid arthritis
3. Joint prostheses and arthroplasty