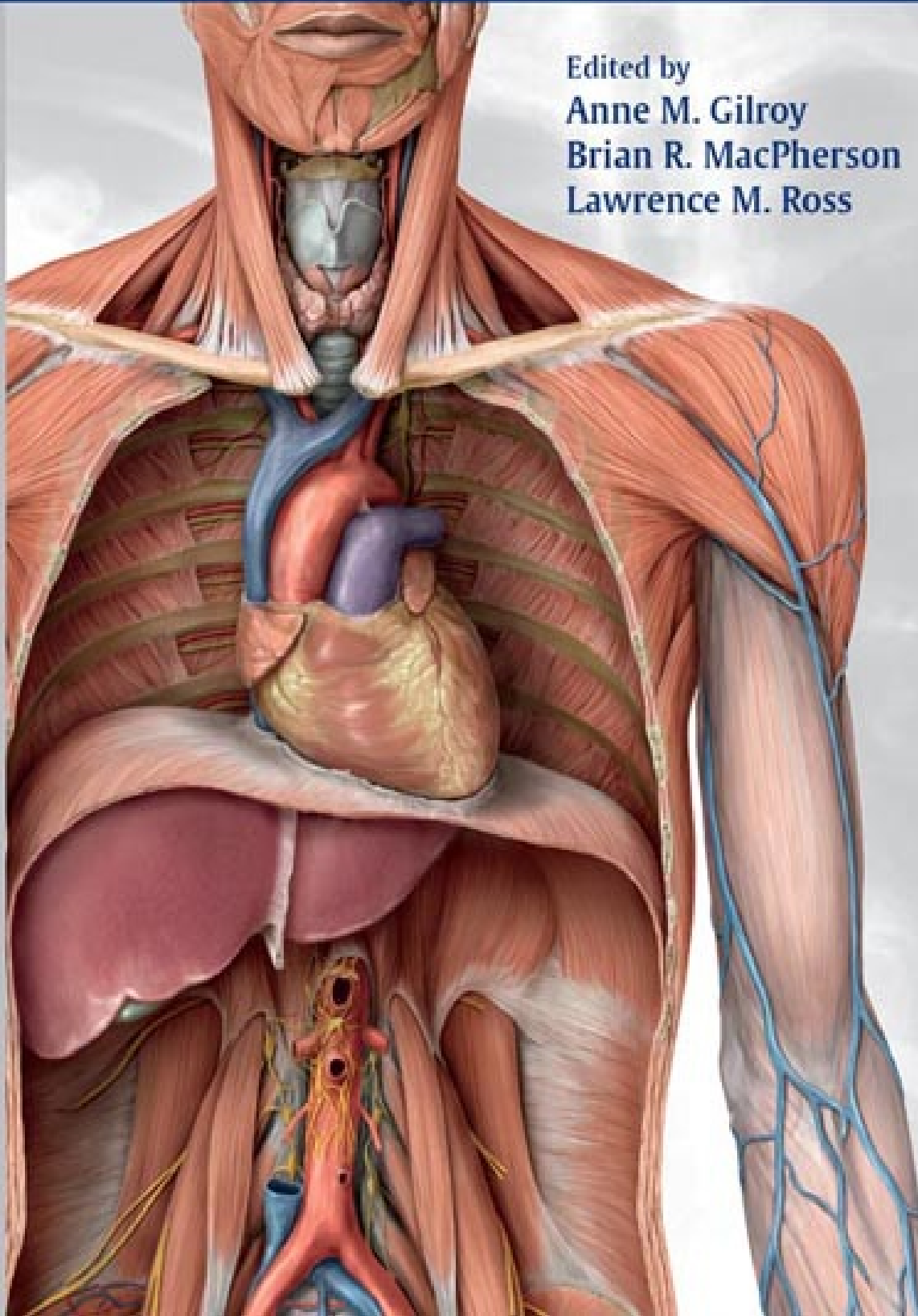


Atlas of Anatomy

Edited by
Anne M. Gilroy
Brian R. MacPherson
Lawrence M. Ross

Based on the work of
Michael Schuenke
Erik Schulte
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Illustrations by
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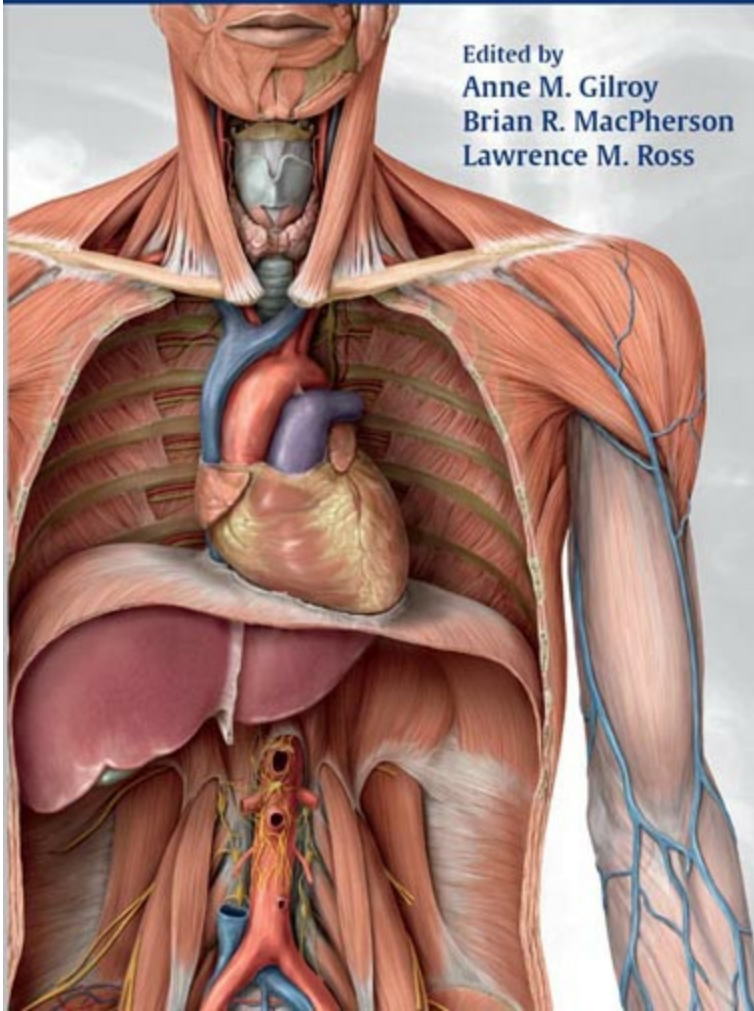
 **Thieme**

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Dedication

To my father, Francis Gilroy, whose dedication to medicine has been a greater inspiration to me than he has ever realized; to my students who lovingly tolerate, and sometimes share, my passion for human anatomy; and most of all to my sons, Colin & Bryan, whose love and support I treasure beyond all else.

To my friend and mentor, Dr. Ken McFadden of the Division of Anatomy at the University of Alberta, who ensured I received the training in gross anatomy instruction required to be successful, and to the thousands of professional students who I have taught over the past 30 years honing these skills. However, none of the success I've enjoyed during my time in academia would have been possible without the constant support, participation and encouragement of my wife, Cynthia Long.

To my wife, Irene; to the children, Chip, Jennifer, Jocelyn & Barry, Tricia, Scott, Katie & Snapper, and Trey; and to my students who have taught me so well.

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Foreword

This Atlas of Anatomy is, in my opinion, the finest single volume atlas of human anatomy that has ever been created. Two factors make it so: the images and the way they have been organized.

The artists, Markus Voll and Karl Wesker, have created a new standard of excellence in anatomical art. Their graceful use of transparency and their sensitive representation of light and shadow give the reader an accurate three-dimensional understanding of every structure.

The authors have organized the images so that they give just the flow of information a student needs to build up a clear mental image of the human body. Each two-page spread is a self-contained lesson that unobtrusively shows the hand of an experienced and thoughtful teacher. I wish I could have held this book in my hands when I was a student; I envy any student who does so now.

Robert B. Acland

Louisville,

KY

2008

Preface

Each of us was amazed and impressed with the extraordinary detail, accuracy, and beauty of the material that was created for the Thieme Atlas of Anatomy by authors Michael Schuenke, Erik Schulte, and Udo Schumacher and artists Markus Voll and Karl Wesker. We felt these atlases and their pedagogical concepts were one of the most significant additions to anatomical education in the past 50 years. It was our intent to use this exceptional material as the cornerstone of our effort to create a concise single volume Atlas of Anatomy for the curious and eager health science student.

Our challenge was first to select from this extensive collection those images that are most instructive and illustrative of current dissection approaches. Along the way, however, we realized that creating a single volume atlas was much more than choosing images: each image had to convey a significant amount of detail while the appeal and labeling needed to be clean and soothing to the eye. Therefore, hundreds of illustrations were drawn new or modified to fit the approach of this new atlas. In addition, key schematic diagrams and simplified summary-form tables were added wherever needed. Dozens of applicable radiographic images and important clinical correlates have been added where appropriate. Additionally, surface anatomy illustrations are accompanied by questions designed to direct the student's attention to anatomic detail that is most relevant in conducting the physical exam. Elements from each of these features are arranged in a regional format to facilitate common dissection approaches. Within each region the various components are examined systemically, followed by topographical images to tie the systems within the region together. In all of this, a clinical perspective on the anatomical structures is taken. The unique two facing pages "spread" format focuses the user to the area/topic being explored.

We hope these efforts, the results of close to 100 combined years of experience teaching the discipline of anatomy to bright, enthusiastic students, has resulted in a comprehensive, easy-to-use resource and reference.

We would like to thank our colleagues at Thieme Publishers who so professionally facilitated this effort. We cannot thank enough, Cathrin E. Schulz, MD, Editorial Director Educational Products, who so graciously

reminded us of deadlines, while always being available to troubleshoot problems. More importantly, she encouraged, helped, and complimented our efforts.

We also wish to extend very special thanks and appreciation to Bridget Queenan, Developmental Editor, who edited and developed the manuscript with an outstanding talent for visualization and intuitive flow of information. We are very grateful to her for catching many details along the way while always patiently responding to requests for artwork and labeling changes.

Cordial thanks to Elsie Starbecker, Senior Production Editor, who with great care and speed produced this atlas with its over 2,200 illustrations. Finally thanks to Rebecca McTavish, Developmental Editor, for joining the team in the correction phase. Their hard work has made the Atlas of Anatomy a reality.

Anne M. Gilroy

Brian R. MacPherson

Lawrence M. Ross

March 2008,

Worcester, MA, Lexington, KY, and Houston, TX

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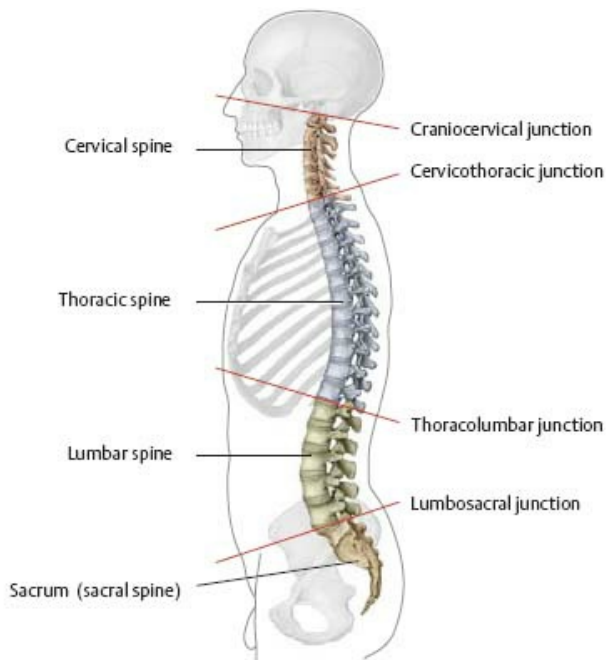
Vertebral Column: Overview



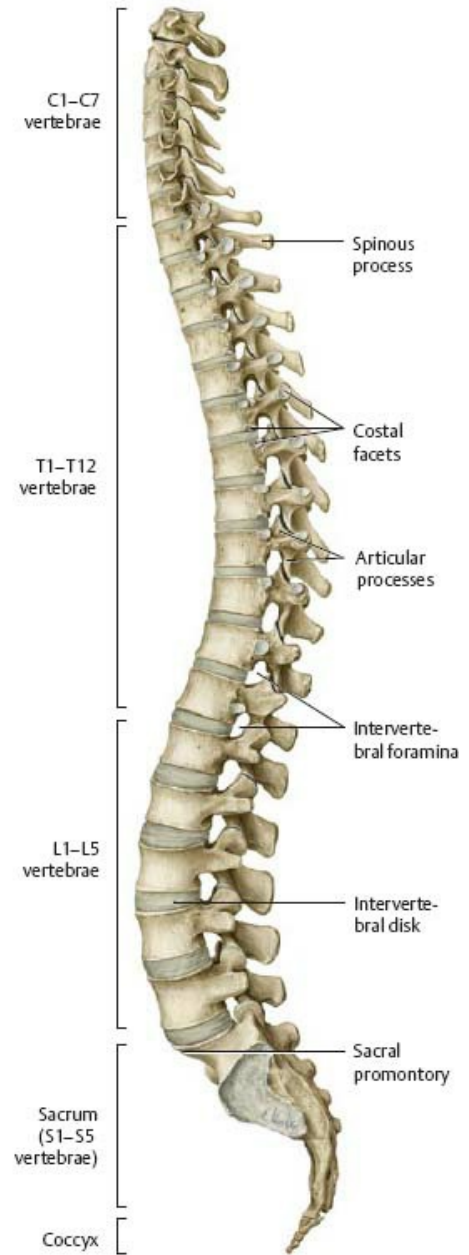
The vertebral column (spine) is divided into four regions: the cervical, thoracic, lumbar, and sacral spines. Both the cervical and lumbar spines demonstrate lordosis (inward curvature); the thoracic and sacral spines demonstrate kyphosis (outward curvature).

Fig. 1.1 Vertebral column

Left lateral view.



A Regions of the spine.



B Bony vertebral column.

Clinical

Spinal development

The characteristic curvatures of the adult spine appear over the course of postnatal development, being only partially present in a newborn. The newborn has a “kyphotic” spinal curvature (A); lumbar lordosis develops later and becomes stable at puberty (C).

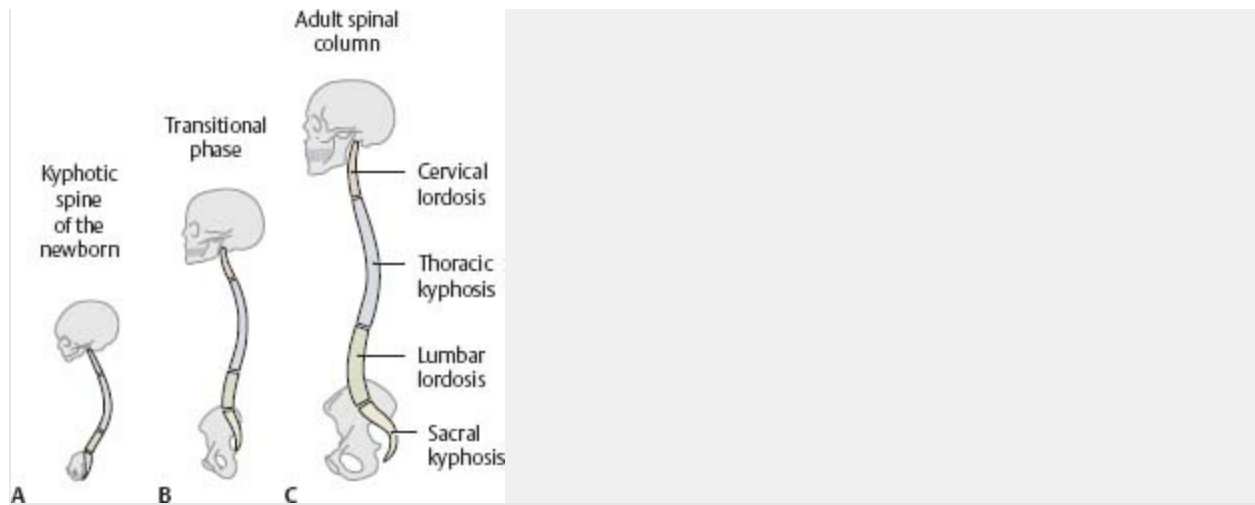
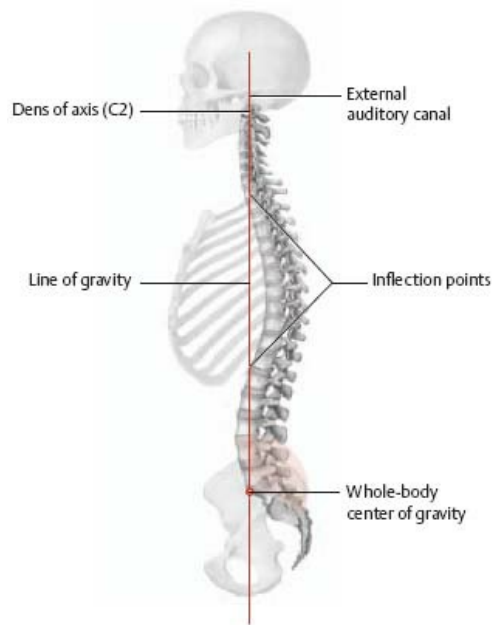
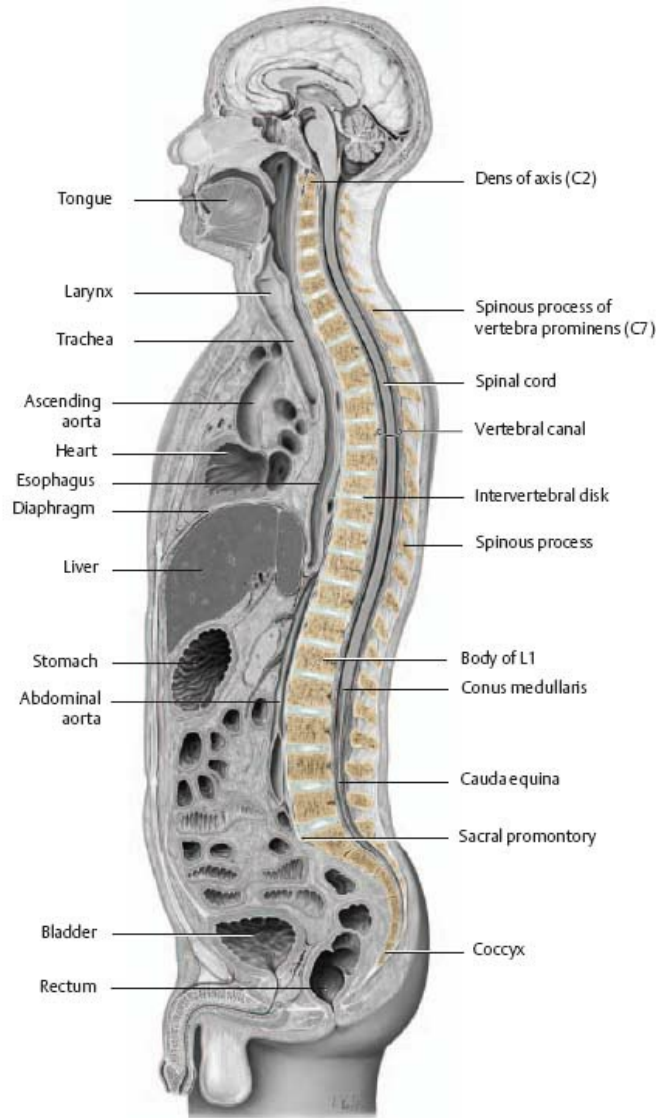


Fig. 1.2 Normal anatomical position of the spine
Left lateral view.



A Line of gravity. The line of gravity passes through certain anatomical landmarks, including the inflection points at the cervicothoracic and thoracolumbar junctions. It continues through the center of gravity (anterior to the sacral promontory) before passing through the hip joint, knee, and ankle.



B Midsagittal section through an adult male.

Vertebral Column: Elements

Fig. 1.3 Bones of the vertebral column