

---

## Preface

In 1979, when the first edition of *Pediatric Orthopedic Radiology* was published, radiologic diagnosis relied almost entirely on radiography and occasional arthrography. Communication between radiologists and orthopedic surgeons was limited. The 1992 revision introduced ultrasound, computed tomography, and magnetic resonance imaging, but at the time these techniques were still relatively new, and their diagnostic potential not yet developed.

Medical imaging has changed a great deal since then. MRI has come to the forefront of musculoskeletal imaging, CT techniques are much more versatile and robust, many new applications for ultrasound are available, and PET-CT and molecular imaging offer a previously unimagined window into disease pathophysiology. At the same time, advances in medical research have greatly expanded our understanding of many disease processes. There is better communication between the orthopedic community and medical imagers, enabling imagers to make important contributions to patient care—not only by interpreting complex cases, but also by sharing their knowledge of radiation risks and appropriate choice of imaging modalities.

It is thus time for a new version of this text. The current volume has been retitled *Pediatric Orthopedic Imaging*, reflecting the impressive range of modalities that can be employed to answer complex orthopedic questions. Important parts of the previous version of this book have been preserved, but all the material has been updated, and much of it has been expanded. Parts of the text have been reorganized. We have endeavored to keep the book clinically relevant by soliciting input from orthopedic surgeons throughout the text.

The text begins with introductory material: Imaging Strategies addresses questions of when and how to image; the subsequent chapter provides a reference on basic *bone development and bone age assessment techniques*. The second part, Isolated Spine and Extremity Disorders: Congenital, Developmental, and Acquired, is organized according to *anatomical region*, with a pair of chapters for each area. Each extremity is divided into chapters that are centered on a joint. For example, the chapters on the upper extremity cover: (1) the shoulder, including the proximal humerus, (2) the elbow and adjacent humerus, radius, and ulna; and (3) the wrist and hand. The first chapter in each pair addresses congenital and developmental variants and abnormalities. The second addresses selected acquired pathology, focusing on

entities that are unique to each region, emphasizing those that are exclusively or principally encountered in children. These chapters only briefly address more general pathological processes, such as infection, arthritis, and tumors, which are thoroughly covered in Part III.

The third part, Generalized and Systemic Diseases, is organized by *pathology type*. Two separate chapters address *trauma*, the first covering general considerations found in the growing skeleton, and the second covering non-accidental trauma. Chapters on *generalized disorders of orthopedic significance*, *neuromuscular disorders*, and *orthopedic procedures* have been updated, and the contents expanded. Due to increased contributions of cross-sectional imaging to diagnosis and treatment, several small sections from the previous version were greatly expanded, creating separate chapters on *infection*, *arthritis*, *bone tumors*, and *soft tissue masses*. Bone Marrow Imaging and Bone Densitometry are entirely new.

It was our goal in updating this text to provide practicing radiologists with a go-to reference, as well as to provide residents and fellows with a useful means for learning pediatric musculoskeletal imaging. Each chapter is therefore generously illustrated, and references include both classic papers and current works. We hope you find this book useful as you care for your young patients.

Sacramento, CA, USA

Rebecca Stein-Wexler

Pediatric Orthopedic Imaging

Stein-Wexler, R.; Wootton-Gorges, S.L.; Ozonoff, M.B.  
(Eds.)

2015, XXIV, 971 p. 1033 illus., 38 illus. in color.,  
Hardcover

ISBN: 978-3-642-45380-9