
MRI FOR TECHNOLOGISTS

Peggy Woodward and Roger Freimarck, Editors. New York, NY: McGraw Hill, Inc.; 1995; 335 pages; \$48.00 US, soft cover; ISBN 0-07-022149-9.

This book aims to cover both the physical principles and clinical practice of magnetic resonance imaging (MRI). The editors do so in a fairly comprehensive manner and in reasonable depth, considering its 335-page scope. As the premier text devoted to technologists, it certainly delivers a long-awaited contribution to the ever-increasing list of MRI textbooks. The book is an "all-encompassing review of MRI," according to its publisher. The level and scope of the text is commensurate with a technologists' educational background. *MRI for Technologists* includes 20 chapters, written by various experts and educators, concerning daily technical practices. A comprehensive glossary and a list of symbols and abbreviations also is included.

The book covers the various topics of MRI in a refreshing style and understandable manner. It starts out, in the first chapter, with an interesting overview of the historic developments in MRI before embarking on the more technical aspects and clinical utility. This chapter provides a good chronology of the evolution of nuclear magnetic resonance in medical imaging. The physics treatment is simple and straight forward. This section introduces the requisite physical concepts of MRI, including instrumentation and pulse sequences. The latter part of the book deals with topics such as MR angiography, breast imaging, contrast agents, safety and patient care. A useful aspect of this book, which is not available in others, is the chapter on fundamentals of image interpretation for technologists. This coverage will be of great help to nuclear medicine technologists who must reorient themselves with MRI's high-resolution region-specific images that are vastly different from the organ-specific scintigraphs.

I highly recommend this book as a starting point for nuclear medicine technologists interested in learning about MRI. Practicing MRI technologists may find this text helpful in

preparing for the ARRT MRI certification at a reasonable cost. If complemented with ample exercises and practice problem sets, the book also can be used in focused teaching of the subject to technical students.

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TECHNICAL MAGNETIC RESONANCE IMAGING

John A. Markisz and Michael Aquilia. Stamford, CT: Appleton and Lange; 1996; 287 pages; \$39.00 US, soft cover; ISBN 0-8385-8836-0.

According to the authors, Markisz and Aquilia, *Technical Magnetic Resonance Imaging* was written to "provide those directly involved with MRI, technologists and radiologists, with a practical discussion of the technical aspects involved in actually performing MRI." While it successfully fulfills its goal, the book can serve as a well-illustrated and concise introduction to MRI for the beginning nuclear medicine technologist as well. The book contains a prologue and 12 chapters. General topics include magnetism and magnetic properties of matter, images and image quality, magnetic resonance and imaging, instrumentation, pulse sequencing and scanning parameters, special procedures and techniques, biological effects and safety precautions, artifacts, quality control and patient care. In all of these areas, the authors discuss both theoretical and practical information needed for understanding MRI, drawing on a wide base of referenced materials. In general, the explanations are clear and well illustrated, especially in the early physics chapters that deal with material unfamiliar to many technologists.

A unique feature of this book is the well-outlined summary, at the end of each chapter, that the authors call "Points to Ponder." The strength of this book is its ability to introduce the complex aspects of MRI in a simple yet concise manner. It provides well-prepared coverage of the technical aspects of MR and how it relates to

image acquisition and formation. Another unique part of this book is its chapter on quality control. This chapter is well written and covers most of the routine tests in an understandable fashion. The high-quality images of the different phantoms used in MRI quality control will prove useful for technologists and other professionals involved with MRI.

This book provides three value-added appendices. The first appendix lists a useful bibliography divided into six sections: principles of MRI, biological effects and safety, quality assurance, image artifacts, patient care and anatomy. The second and third appendices contain a glossary and a list of abbreviations and acronyms, respectively.

This book is useful for technologists who are about to embark on a career in MRI. It covers the different aspects of MRI physics and clinical applications in a clear and practical manner. The experienced reader will find a great deal of useful information, in particular practical hints, such as how to set up a quality control program.

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MRI BASIC PRINCIPLES AND APPLICATIONS

Mark A. Brown and Richard C. Semelka. New York, NY: Wiley-Liss; 1995; 149 pages; \$29.95 US, paperback; ISBN 0-471-12825-2.

This book is a brief and concise introduction to the principles and practice of MRI in 13 chapters. The first three chapters introduce the nuclear magnetic resonance phenomenon and the sources of intrinsic contrast in MRI. This section includes well-presented macro- and microscopic illustrations of protons in the presence of an external magnetic field. Chapter 3 introduces the basics of relaxation time constants (T_1 , T_2 and T_2^*) and a brief discussion of the spin-echo pulse sequence. Chapters 4 through 6, according to the authors, describe the "concepts of spatial localization and various imaging techniques that are commonly used." Topics included