

MRI FOR TECHNOLOGISTS

A Continuing Education Program

MODULE 6

BODY APPLICATIONS OF MRI

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POSTTEST and EVALUATION ONLY available online at www.icpme.us

How to Navigate this Module

MRI for Technologists: Body Applications of MRI is a certified educational program designed to meet the needs of radiologic technologists entering or working in the field of MRI.

CHAPTER FORMAT

Each chapter is a discrete unit, making it easy to divide your studying time into manageable segments. Each of the 8 chapters contains:

- **LEARNING OBJECTIVES** that designate the content you will have mastered by the end of the chapter.
- **POINTS FOR PRACTICE** that precede and follow the text, providing a study guide of especially important concepts. Points for Practice is designed for individual or group study, with answers provided at the end of each chapter.
- **IMAGES, TABLES, AND PROTOCOLS** for conceptualization of material.

MODULE FORMAT

At the end of the module, you will find:

- **CROSS VECTOR LEXICON**
- **ABBREVIATION GLOSSARY**
- **GLOSSARY**
- **INDEX**

NOTE: Bolded words and acronyms can be found in the glossary or abbreviation glossary.

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PROGRAM INFORMATION

Release Date: December 2009
Expiration Date: December 31, 2011

For information regarding expiration dates after December 2011, visit www.icpme.us.

Module Overview

Module 6: Body Applications of MRI introduces the technologist to elements of MRI important for performing high-quality diagnostic studies of the body, including the areas of breast, hepatobiliary system, adrenal glands and kidney, female pelvis, prostate, and rectal cancer MRI. The module provides instructional text, review questions and answers for each chapter, images, tables, and protocols, a cross vendor lexicon, and glossary.

Learning Objectives

At the conclusion of this activity, the reader will have a better understanding of the general approach to body MRI including bolus detection techniques, and be able to identify anatomy, apply imaging parameters, and identify MR findings in the body with a focus on the breast, hepatobiliary system, adrenal glands and kidneys, female pelvis, prostate, and rectum.

Refer to the beginning of individual chapters for learning objectives specific to each topic.

Accreditation and Credit

This educational activity has been approved by the American Society of Radiologic Technologists (ASRT) for 4.5 hours of ARRT Category A continuing education credit.

This educational activity has been approved by the State of Florida Department of Health, Bureau of Radiation Control Radiologic Technologists Program, for 4.5 hours of continuing education credit.

To Take the Posttest and Apply for Credit

- The POSTTEST and EVALUATION are required to receive credit and must be completed online.
- In order to have access to the POSTTEST and EVALUATION, you must order the print material or register for the course online at www.icpme.us.
- Read the entire activity.
- Log in to your account at www.icpme.us to complete the POSTTEST and EVALUATION, which are accessible through the course link in your account.
- A passing grade of at least 75% is required to receive credit.
- Upon receipt of a passing grade, you will receive instructions for printing a credit certificate.

Faculty Biographies

Tom Schrack is Manager of MR Education and Technical Development for Fairfax Radiological Consultants in Fairfax, Virginia. He is also an Adjunct Faculty Instructor for Northern Virginia Community College, teaching MR physics and clinical procedures. Tom is also on the Board of Examiners of the American Registry of MRI Technologists. Prior to joining Fairfax Radiological Consultants, Tom was employed by GE Healthcare in several roles, including advanced high-field applications development and as 1.5 T Marketing Manager. He is the author of *Echo Planar Imaging: An Applications Guide*, GE Healthcare, 1996; contributing author, *Magnetic Resonance Imaging in Orthopaedics & Sports Medicine* with David Stroller, MD, 1997; and co-author, *MRI for Technologists, Module 2: Technical Considerations of MRI* with International Center for Postgraduate Medical Education, 2006. Tom graduated from James Madison University in Harrisonburg VA (1981), Northern Virginia Community College (1984) and The Pittsburgh NMR Institute (1987).

Mary Perrine has been an MRI technologist since 1988. She joined Fairfax Radiological Consultants in Fairfax, Virginia, in 1994 and was promoted to senior technologist in 1998. Mary helped develop and establish the breast MRI program at FRC with Dr. Elise Berman and has worked in the role of Chief Technologist, providing oversight of the breast imaging program since the program was founded in 2005. Mary and Dr. Berman have designed and led two-day didactic and hands-on seminars on practical interpretation and intervention of breast MRI for both physicians and technologists.

Lisa K. Wall is Senior Applications Technologist at Duke University Hospital's MRI Unit. She graduated from Elon University with a BS in Radiologic Technology and shortly thereafter joined the staff at Duke, where she has worked in MRI for the past 15 years.

Disclosure Information

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FACULTY

Tom Shrack, BS, ARMRIT	No relevant conflicts of interest reported
Mary Perrine, RT (NM) (MRI)	No relevant conflicts of interest reported
Lisa K. Wall, BS, RT (R) (MR) (CV)	Has received consulting fees from Bayer HealthCare Pharmaceuticals

ADVISORS, PLANNERS, AND MANAGERS

William Badger, BS, RT (R) (MR)	No relevant conflicts of interest reported
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Victoria Phoenix, BS	No relevant conflicts of interest reported
Lisa M. Schleelein, MEd	No relevant conflicts of interest reported

The opinions and recommendations expressed by faculty and other experts whose input is included in this activity are their own. This activity is produced for educational purposes only. Use of the ICPME name implies review of educational format, design, and materials only.

PREFACE

MRI for Technologists is a six-module training program designed to meet the needs of radiologic technologists entering or working in the field of magnetic resonance imaging. The series provides instruction in basic technical concepts and physical principles of image formation; imaging procedures; data acquisition and processing; quality control issues; and patient comfort and safety. Critical thinking and problem solving are required throughout the program to ensure learners gain a practical understanding of MRI.

While this program cannot substitute for classroom or site-based training in MRI, it is designed as a practical learning tool for technologists who are completing on-the-job training, performing a preliminary study of the field before entering formal training, or reviewing concepts already learned.

- MODULE 1:** Basic Principles of MRI
- MODULE 2:** Technical Considerations of MRI
- MODULE 3:** Vascular and Cardiac MRI
- MODULE 4:** Neuroradiological Applications of MRI
- MODULE 5:** Musculoskeletal and Head & Neck Applications of MRI
- MODULE 6:** **Body Applications of MRI**

The sixth and newest module of the program, *Body Applications of MRI*, introduces the learner to the concepts and techniques specific to body imaging: breast, hepatobiliary system, adrenal glands and kidneys, female pelvis, prostate, and rectal MRI.

The technology and clinical applications of magnetic resonance imaging have undergone unprecedented growth in recent years. With the advent of new magnet designs, high-performance gradients and hardware, sophisticated ultra fast software, advanced surface coils, breath-hold imaging techniques, and user-friendly systems, the field of MRI has blossomed. Areas such as vascular, abdominal, breast, and pelvic MRI have created widespread interest among both radiologists and referring clinicians. Technological advances have opened up many new imaging avenues, resulting in new and exciting applications and diagnostic information for both the care provider and the patient.

As an MRI technologist, your professionalism and problem-solving skills are a vital link between the technical and clinical aspects of this expanding modality. Gaining a thorough understanding of the varied aspects of MRI is both rewarding and essential, enabling you to participate fully in providing the benefits of this technology to patients.

