## Mayo Clinic Advanced Body MRI Online Course

## **Activity Description**

Mayo Clinic Advanced Body MRI helps radiologists expand their knowledge of body MRI. This online course highlights state-of-the-art MR techniques in musculoskeletal, abdominal, cardiovascular, and breast imaging, with updates on PET-MRI, abdominal MRI protocols, cardiac MRI, and MR-guided prostate interventions. Designed to be practical, it features a faculty of mainly practicing radiologists.

## **Target Audience**

The course is ideal for those looking to expand or offer new clinical MRI services or improve confidence in diagnosis with some of the newer MRI techniques and pulse sequences.

## **Learning Objectives**

Upon conclusion of this activity, participants should be able to:

- Identify the presence of cardiovascular heart disease using MRI
- Recognize the rectal cancer prognosis using MRI
- Recognize pelvic masses using MRI
- Identify upper extremity sports injuries using MRI
- Recognize the economics of MRI

Attendance at this Mayo Clinic course does not indicate nor guarantee competence or proficiency in the performance of any procedures which may be discussed or taught in this course.

#### **Accreditation Statement**



In support of improving patient care, Mayo Clinic College of Medicine and Science is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC) to provide continuing education for the healthcare team.

## Credit Statement(s)

Mayo Clinic College of Medicine and Science designates this enduring material for a maximum of 21.75 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

#### Other Healthcare Professionals

A certificate of attendance will be provided to other health care professionals for requesting credits in accordance with state nursing boards, specialty societies, or other professional associations.

## **Disclosure Summary**

As a provider accredited by Joint Accreditation for Interprofessional Continuing Education, Mayo Clinic College of Medicine and Science must ensure balance, independence, objectivity and scientific rigor in its educational activities. All who are in a position to control the content are required to disclose all financial relationships with any ineligible company. Faculty will also identify any off-label and/or investigational use of pharmaceuticals or instruments discussed in their content for FDA compliance.

Listed below are individuals with control of the content of this program who have disclosed...

Relevant financial relationship(s) with ineligible companies:

Name	Nature of Relationship	Company
Kimberly Amrami, M.D.	Honoraria	GE Healthcare
Kimberly Amrami, M.D.	Honoraria	Siemens Healthineers
Kimberly Amrami, M.D.	Intellectual Property	General Electric Medical Systems - Healthcare Business (GE)
Kimberly Amrami, M.D.	Intellectual Property	Siemens Aktiengesellschaft (AG)
Stephen Broski	Honoraria	Ipsen Biopharmaceuticals, Inc.
Stephen Broski	Honoraria	Vyriad
Stephen Broski	Other	Vyriad, Vyriad SPECT/CT image review, Tuesday, May 29, 2018; <\$5K
Eric Ehman	Intellectual Property	General Electric Medical Systems - Healthcare Business (GE)
Richard Ehman	Board of Directors	Resoundant, Inc
Richard Ehman	Honoraria	Bristol-Myers Squibb Company
Richard Ehman	Honoraria	GE Healthcare
Richard Ehman	Honoraria	Isis Pharmaceuticals, Inc.
Richard Ehman	Honoraria	Time Medical Systems
Richard Ehman	Honoraria	Vertex Pharmaceuticals, Inc.
Richard Ehman	Intellectual Property	General Electric Medical Systems - Healthcare Business (GE)
Richard Ehman	Intellectual Property	Hitachi Medical Corporation
Richard Ehman	Intellectual Property	Medspira LLC
Richard Ehman	Intellectual Property	Resoundant, Inc. (subsidiary of Mayo Foundation for Medical Education & Research)
Richard Ehman	Intellectual Property	Toshiba Medical Systems Corporation
Richard Ehman	Stock Equity	Resoundant, Inc.
Joel Fletcher	Honoraria	alimentiv
Joel Fletcher	Honoraria	Boehringer Ingelheim
Joel Fletcher	Honoraria	Genentech, Inc.
Joel Fletcher	Honoraria	Janssen Pharmaceutica NV (Belgium)
Joel Fletcher	Honoraria	RedX Pharma
Joel Fletcher	Honoraria	Siemens Healthcare GmbH
Joel Fletcher	Intellectual Property	Alimentiv Inc.~Cleveland Clinic Foundation
Joel Fletcher	Intellectual Property	Siemens Healthcare GmbH (aka Siemens Healthineers)
Joel Fletcher	Intellectual Property	Siemens Medical Solutions - Germany
Matthew Frick, M.D.	Intellectual Property	Trauma Technologies, Inc.
Adam Johnson	Honoraria	Phoenix Kinetics, LLC
Tim Leiner	Honoraria	Al4Med
Tim Leiner	Honoraria	Cart-Tech
Tim Leiner	Honoraria	Guerbet
Joseph Maleszewski, M.D.	General Consulting	Edwards Scientific
Joseph Maleszewski, M.D.	Intellectual Property	Thyng, LLC

Kiaran McGee, Ph.D.	Intellectual Property	General Electric Medical Systems - Healthcare Business (GE)
Kiaran McGee, Ph.D.	Intellectual Property	Resoundant, Inc. (subsidiary of Mayo Foundation for Medical Education & Research)
Kiaran McGee, Ph.D.	Stock Equity	Resoundant
Sudhakar Venkatesh, M.D.	Honoraria	Bayer Corporation
Sudhakar Venkatesh, M.D.	Honoraria	Bayer Healthcare, LLC
Sudhakar Venkatesh, M.D.	Honoraria	GE Healthcare
Sudhakar Venkatesh, M.D.	Intellectual Property	Resoundant, Inc. (subsidiary of Mayo Foundation for Medical Education & Research)
David Woodrum, M.D.	Honoraria	Boston Scientific Corporation
David Woodrum, M.D.	Intellectual Property	General Electric Medical Systems - Healthcare Business (GE)
David Woodrum, M.D.	Users Group	BTG

All relevant financial relationships listed for these individuals have been mitigated.

# No relevant financial relationship(s) with ineligible companies:

Andrew Bowman		
Christopher Francois		
Tara Henrichsen, M.D.		
Gina Hesley		
Kelly Horst		
Ashish Khandelwal		
Avinash Nehra		
Jeffrey Payne		
Eric Reeve		
Nicholas Rhodes, M.D.		
Yasmeen Tandon		
Christin Tiegs Heiden		
Wendaline VanBuren		
Christopher Welle		
Doris Wenger, M.D.		
Eric Williamson		
Phillip Young		
Corinne Irish		
Michelle Cooper		

## References to off-label and/or investigational usage(s) of pharmaceuticals or instruments in their presentation:

Name	Manufacturer/Provider	Product/Device/Medication
Gina Hesley	Insightec	ExAblate 2100
Gina Hesley	Profound	Sonalleve
Eric Williamson	Bayer / GE / Bracco / Guerbet / Lantheus	Gadolinium-containing contrast media
Phillip Young	Gadolinium Contrast	Multiple

For disclosure information regarding Mayo Clinic School of Continuous Professional Development accreditation review committee member(s) please visit: <a href="https://ce.mayo.edu/content/disclosures">https://ce.mayo.edu/content/disclosures</a>.

#### **Disclaimer**

Participation in this Mayo Clinic educational activity does not indicate nor guarantee competence or proficiency in the performance of any procedures which may be discussed or taught in this course. You should be aware that substantive developments in the medical field covered by this recording may have occurred since the date of original release.

## **Prerequisites for Participation**

There are no prerequisites needed prior to participating in this education activity.

## **Method of Participation**

Participation in this activity consists of reviewing the educational material, completing the learner assessment and evaluation.

#### **How to Obtain Credit**

To obtain credit, complete the assessment, evaluation and submit.

## **Release and Expiration Dates**

Release Date: July 15, 2025 Renewal Date: (If applicable) Expiration Date: July 14, 2028

## **Acknowledgement of Commercial Support**

No commercial support was received in the production of this activity.

## **Faculty and Course Director Listing and Credentials**

Course Director(s)
Richard L. Ehman, M.D.
Kimberly K. Amrami, M.D.
Phillip M. Young, M.D.

Faculty
Adam C. Johnson, M.D.
Andrew W. Bowman, M.D., Ph.D.
Ashish Khandelwal, M.B.B.S., M.D
Avinash K. Nehra, M.D
Chris L. Welle, M.D
Christin A. Tiegs-Heiden, M.D.

Christopher A. Francois, M.D.

David A. Woodrum, M.D., Ph.D.

Doris E. Wenger, M.D.

Eric B. Reeve

Eric C. Ehman, M.D.

Eric E. Williamson, M.D.

Gina K. Hesley, M.D.

Jeffrey M. Payne, M.D.

Joel G. Fletcher, M.D.

Joseph J. Maleszewski, M.D.

Kelly K. Horst, M.D.

Kiaran P. McGee, Ph.D.

Kimberly K. Amrami, M.D.

Matthew A. Frick, M.D.

Nicholas G. Rhodes, M.D.

Phillip M. Young, M.D.

Richard L. Ehman, M.D.

Stephen M. Broski, M.D.

Sudhakar K. Venkatesh, M.D.

Tara L. Henrichsen, M.D.

Tim Leiner, M.D., Ph.D.

Wendaline M. VanBuren, M.D.

Yasmeen K. Tandon, M.D.

## **Bibliographic Resources**

Kennedy P, Wagner M, Castéra L, et al. Quantitative Elastography Methods in Liver Disease: Current Evidence and Future Directions. Radiology. 2018;286(3):738-763. doi:10.1148/radiol.2018170601

Petitclerc L, Gilbert G, Nguyen BN, Tang A. Liver Fibrosis Quantification by Magnetic Resonance Imaging. Top Magn Reson Imaging. 2017;26(6):229-241. doi:10.1097/RMR.00000000000149

Navin PJ, Olson MC, Knudsen JM, Venkatesh SK. Elastography in the evaluation of liver allograft. Abdom Radiol (NY). 2021;46(1):96-110. doi:10.1007/s00261-019-02400-w

Smeraldo A, Ponsiglione AM, Soricelli A, Netti PA, Torino E. Update on the Use of PET/MRI Contrast Agents and Tracers in Brain Oncology: A Systematic Review. Int J Nanomedicine. 2022;17:3343-3359. Published 2022 Jul 29. doi:10.2147/IJN.S362192

Kuhl CK. The Changing World of Breast Cancer: A Radiologist's Perspective. Plast Surg Nurs. 2016;36(1):31-49. doi:10.1097/PSN.000000000000128

Alabousi M, Ghai S, Haider MA. MRI-guided minimally invasive focal therapies for prostate cancer. Radiology 2023 Dec;309(3):e230431

## Copyright

Mayo Foundation for Medical Education and Research. All rights reserved. Copyright 2025