



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Lower Extremity

Clinical Guidelines for Medical Necessity Review

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Lower Extremity

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Type: Adult (18+ yo) | Pediatric (0-17yo)

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Lower Extremity

Recommended Clinical Approach

Magnetic resonance imaging (MRI) is segmented into joint and non-joint distribution and may be performed without or with contrast (intravenous or intra-articular). Metal hardware in the bone can limit certain exams and is generally inappropriate for imaging by 3 Tesla scanners. Based on the clinician and supervising radiologist's discussion, alternate modalities may sometimes be more clinically appropriate.

Medical Necessity Criteria

Indications

- **Magnetic resonance imaging (MRI), lower extremity** is considered appropriate if **ANY** of the following is **TRUE**¹⁻²³:
- ◆ Neoplastic conditions (including masses or mass-like conditions) when the arterial blood supply needs to be evaluated (e.g., for treatment planning, treatment response, or prognostication), including **ANY** of the following:
 - Malignant or aggressive primary musculoskeletal tumor¹; **OR**
 - Malignant or aggressive primary soft tissue tumor¹; **OR**
 - Malignant or aggressive bone tumor¹; **OR**
 - Nonsuperficial (deep) soft tissue mass²; **OR**
 - Soft tissue mass²; **OR**
 - A primary bone tumor is suspected with **ANY** of the following³:
 - Lesion is suspected on plain radiograph; **OR**
 - "Incidental" osseous lesion on MRI or CT of another region and not fully evaluated by other imaging; **OR**
 - Presence of a mass with **ANY** of the following²:
 - Absence of trauma; **OR**
 - Rapid growth; **OR**
 - Recurrence after prior surgery; **OR**
 - Non-diagnostic ultrasound or other inconclusive imaging; **OR**

- Follow-up exam to further characterize a bone or soft tissue lesion diagnosed on initial imaging study²⁻³; **OR**
- Known malignancy with localized lower extremity pain or swelling and **ANY** of the following are required:
 - Monitor response to treatment; **OR**
 - Surveillance after treatment or surgery; **OR**
- Persistent palpable abnormality with a non-diagnostic radiograph or ultrasound; **OR**
- Routine surveillance of known malignancy; **OR**
- ◆ Acute traumatic lower extremity injury (e.g., fracture, dislocation) that requires additional detail than is available with plain radiographs and **ANY** of the following is **TRUE**:
 - Bony injury and **ANY** of the following is **TRUE**:
 - Acute injury with occult fracture suspected; **OR**
 - Joint dislocation or instability; **OR**
 - Internal derangement; **OR**
 - Stress/insufficiency fracture (known) and follow-up imaging needed; **OR**
 - Stress/insufficiency fracture (suspected) with negative radiographs; **OR**
 - Suspected soft tissue injury (e.g., peroneal tendon injury, meniscal tear); **OR**
- ◆ Chronic injury with ongoing symptoms for greater than or equal to 6 weeks and **ALL** of the following is **TRUE**:
 - The patient has failed conservative management (e.g., rest, analgesics, physical therapy, oral or injectable corticosteroids) must be documented for a period of greater than 6 weeks; **AND**
 - Radiographs are negative for osseous injury, and an alignment injury is suspected based on physical exam, including **ANY** of the following:
 - Dislocation; **OR**
 - Syndesmotic injury; **OR**
 - Other ligamentous injury; **OR**
- ◆ Infection or an infectious disorder, including **ANY** of the following^{10,12}:
 - Septic arthritis is suspected with initial radiographs that are normal or with findings suggestive of joint effusion or soft tissue swelling¹³⁻¹⁴; **OR**

- Osteomyelitis, suspected^{13,15}; **OR**
- Soft tissue infection suspected with **ANY** of the following:
 - Normal initial radiographs or with findings suggestive of joint effusion or soft tissue swelling¹³; **OR**
 - History of puncture wound with possible retained foreign body¹³; **OR**
 - High clinical suspicion of necrotizing fasciitis¹³; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
 - Osteonecrosis, known or suspected, with negative radiographs¹⁸; **OR**
 - Vascular malformation (with or without pain) and **ANY** of the following findings of physical deformity are suspected¹⁶:
 - Diffuse or focal enlargement; **OR**
 - Discoloration; **OR**
 - Soft-tissue mass; **OR**
 - Ulceration; **OR**
 - Vascular bruit or thrill; **OR**
 - Neuropathy, nerve entrapment, or nerve lesion with **ANY** of the following¹⁷:
 - Clinically suspected nerve entrapment and **ALL** of the following are **TRUE**:
 - ◆ Abnormal EMG; **AND**
 - ◆ MRI is to assist in diagnosis and treatment options; **OR**
 - Known peripheral nerve sheath tumor or syndrome and **ANY** of the following:
 - ◆ Enlarging mass; **OR**
 - ◆ New or worsening localized pain; **OR**
 - ◆ Recurrence after prior resection; **OR**
 - Persistent symptoms following conservative treatment and localized EMG abnormality; **OR**
 - Trauma/ injury with suspected nerve injury or laceration based on site of injury and associated neurological deficits; **OR**
- ◆ Pre and post-intervention evaluation (including the diagnosis of postoperative complications) when **ANY** of the following is **TRUE**:
 - Imaging after hip arthroplasty and **ANY** of the following is **TRUE**¹⁹:

- Hardware fracture; **OR**
- Infection; **OR**
- Pain with **ANY** of the following (infection excluded):
 - ◆ Aseptic loosening; **OR**
 - ◆ Instability; **OR**
 - ◆ Osteolysis; **OR**
 - ◆ Periprosthetic fracture; **OR**
- History of acute injury; **OR**
- Metal-on-metal prosthesis with an adverse reaction to metal debris; **OR**
- Trunionosis (corrosion or metallosis), suspected; **OR**
- Imaging after knee arthroplasty and **ANY** of the following are suspected (with or without pain)²⁰:
 - Hardware fracture; **OR**
 - Infection; **OR**
 - Periprosthetic fracture; **OR**
 - Pain with **ANY** of the following (infection excluded):
 - ◆ Aseptic loosening; **OR**
 - ◆ Instability; **OR**
 - ◆ Osteolysis; **OR**
 - ◆ Acute injury with suspected extensor mechanism involvement; **OR**
- ◆ Evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable¹¹:
 - Marrow abnormalities¹⁸; **OR**
 - Pain or weakness of a lower extremity as indicated by **ALL** of the following:
 - Joint-specific orthopedic evaluation and maneuvers suggesting **ANY** of the following:
 - ◆ Tear; **OR**
 - ◆ Tendonitis; **OR**
 - ◆ Other abnormality; **OR**
 - ◆ Other injury; **AND**
 - Radiographs and/or ultrasound are nondiagnostic or indeterminate; **AND**
 - Failure of conservative management (e.g., rest, analgesics, physical therapy, oral or injectable corticosteroids) must be documented for a period of greater than 6 weeks; **AND**

- Concern for rupture or high-grade tear based on **ALL** of the following:
 - ◆ Clinical history; **AND**
 - ◆ Physical exam; **AND**
- Screening, surveillance, or follow-up of autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis)¹⁴; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

- **Magnetic resonance imaging (MRI), lower extremity** may not be considered appropriate if **ANY** of the following is **TRUE**:
- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms; **OR**
 - ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
 - ◆ The patient has metallic clips on vascular aneurysms; **OR**
 - ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
 - ◆ Metallic foreign body in orbits/other critical area(s) or within the

field of view and obscuring area of concern.

*NOTE: MRI in patients with claustrophobia should be requested at the discretion of the ordering provider.

**NOTE: MRI in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
73718	Magnetic resonance imaging (MRI) (e.g., proton), lower extremity other than joint; without contrast material(s)
73719	Magnetic resonance imaging (MRI) (e.g., proton), of lower extremity (other than joint); with contrast material(s)
73720	Magnetic resonance imaging (MRI) (e.g., proton), lower extremity other than joint; without contrast material(s), followed by contrast material(s) and further sequences
73721	Magnetic resonance imaging (MRI) (e.g., proton), any joint of lower extremity; without contrast material
73722	Magnetic resonance imaging (MRI) (e.g., proton), any joint of lower extremity; with contrast material(s)
73723	Magnetic resonance imaging (MRI) (e.g., proton), any joint of lower extremity; without contrast material(s) followed by contrast material(s) and further sequences

Medical Evidence

Drake et al. (2022) conducted a systematic review and meta-analysis of observational studies comparing medical imaging (specifically magnetic resonance imaging [MRI]) of adults with plantar heel pain (PHP). A total of 42 studies were included. Patients with PHP had higher rates of thickened plantar fascia (greater than 4 mm) as well as abnormal plantar fascia tissue, a thicker loaded plantar heel fat pad on ultrasound, and a plantar calcaneal spur on plain film x-ray. Continued research is needed on high-quality imaging to increase the accuracy of MRI.²¹

Lansdown and Ma (2020) review the clinical utility of advanced imaging of the knee. MRI excels in sensitivity and specificity for diagnosing injuries such as ligament, meniscus, and full-thickness cartilage defects in the knee. High-resolution qualitative assessment ensures accurate detection and characterization of these conditions. Utilizing compositional MRI sequences enables an assessment of the biochemical characteristics of cartilage, meniscus, and ligaments, providing additional insights into pathology beyond traditional imaging. Progress in image processing, shape modeling, and dynamic studies is an innovative approach to assess conditions of the lower extremity and to track post-treatment outcomes.²²

Warner et al. (2019) conducted a study to compare the diagnostic efficacy of injury (non-stress) and stress radiographs vs MRI to identify deep deltoid ligament ruptures among patients with operative supination-external rotation (SER) ankle fractures. The medial clear space (MCS) was considered to be positive if measurements exceeded 5 mm on either injury or stress mortise radiographs. Compared to intra-operative visualization, MCS measurements and MRI exhibited differential diagnostic capabilities for identifying deep deltoid ruptures. When MCS measured less than 5 mm on injury radiographs with subsequent stress testing, MCS assessments proved less accurate than MRI in predicting deltoid ruptures (46% vs 79%, respectively), with a notably high false positive rate (80%). An MCS exceeding 5 mm on injury radiographs strongly correlated with deep deltoid rupture diagnosis (accuracy of 95%). In contrast, to direct intra-operative visualization of the deltoid ligament, these findings advocate for surgical intervention when MCS measures greater than 5 mm on injury radiographs without necessitating additional stress tests or advanced imaging. However, MRI analysis is recommended when MCS measures less than 5 mm because of its heightened accuracy and reduced false positive rates. Enhanced diagnostic capabilities promise more effective management of patients with SER ankle fractures.²³

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Clinical Guideline Revision History/Information

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Version 2	9/5/2024	Annual review and policy restructure.