

# Evidence Discussion (Imaging Techniques MS-2)

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MRI is an excellent advanced imaging modality for musculoskeletal conditions. It is highly sensitive and specific for evaluation of soft tissue secondary to its superior soft tissue contrast resolution [1]. It is highly sensitive for detection of occult fractures. MRI also carries the benefit of no ionizing radiation exposure. MRI is limited by its longer acquisition times, limited availability, distortion artifacts and incompatibility with some implantable devices and metallic objects [2]. There is lack of high level evidence to support positional MRI [13, 14]

Currently, there is inadequate high level scientific evidence to support the medical necessity of delayed gadolinium enhanced Magnetic Resonance Imaging of Cartilage (dGEMRIC) [7, 8, 9]. As such, it should be considered not medically necessary for the diagnosis and surveillance of, or preoperative planning related to chondral pathology.

CT is preferred for the evaluation of cortical bone anatomy. CT has the advantage of being widely available, especially in acute care settings. CT does carry the risk of ionizing radiation and it is estimated that 2% of all cancers in the United States may be attributable to radiation exposure from CT scans. [3] Positional CT has been shown to be useful in the evaluation of foot and ankle conditions, however, there is insufficient evidence to support the use of positional CT for other anatomic areas. [4, 5, 6]

FDG-PET/CT scan is highly sensitive (81-100%) and specific (87-100%) for the detection of osteomyelitis (10). However, FDG is the only indicated radiotracer for use with PET/CT in the imaging of musculoskeletal conditions. [10, 11, 12]

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