

**American College of Radiology
ACR Appropriateness Criteria®**

Chronic Hip Pain

Variant 1: Chronic hip pain. Initial Imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography hip	Usually appropriate	Limited	⊕⊕⊕ 1-10 mSv		9	9	0	0	0	0	0	0	0	2	13
		References		Study Quality											
		12 (12783223)		3											
		14 (12578996)		4											
		13 (22915391)		4											
		15 (11567537)		4											
Radiography pelvis	Usually appropriate	Limited	⊕⊕ 0.1-1mSv	⊕⊕ 0.03-0.3 mSv [ped]	9	9	0	0	0	0	0	0	0	6	9
		References		Study Quality											
		12 (12783223)		3											
		14 (12578996)		4											
		13 (22915391)		4											
		15 (11567537)		4											
CT arthrography hip	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0
CT hip without IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv		1	1	12	1	2	0	0	0	0	0	0
MR arthrography hip	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	0	0	0	1	0	0	0	0

MRI hip without IV contrast	Usually not appropriate	Expert Consensus	0.0 mSv	0.0 mSv [ped]	1	1	12	1	1	0	1	0	0	0	0
MRI hip without and with IV contrast	Usually not appropriate	Expert Consensus	0.0 mSv	0.0 mSv [ped]	1	1	13	1	0	1	0	0	0	0	0
Bone scan hip	Usually not appropriate	Expert Consensus	3-10 mSv		1	1	14	1	0	0	0	0	0	0	0
US hip	Usually not appropriate	Expert Consensus	0.0 mSv	0.0 mSv [ped]	1	1	11	0	1	1	2	0	0	0	0
CT hip with IV contrast	Usually not appropriate	Expert Consensus	3-10 mSv		1	1	14	1	0	0	0	0	0	0	0
CT hip without and with IV contrast	Usually not appropriate	Expert Consensus	3-10 mSv		1	1	15	0	0	0	0	0	0	0	0
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	10-30 mSv		1	1	15	0	0	0	0	0	0	0	0
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	14	1	0	0	0	0	0	0	0

Variant 2: Chronic hip pain. Suspect noninfectious extra-articular abnormality, such as tendonitis or bursitis. Radiographs negative or nondiagnostic. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI hip without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	2	1	12
		References		Study Quality											
		25 (16275576)		4											
		26 (16275579)		4											
		27 (16275574)		4											
		28 (16275584)		4											
		29 (16275577)		4											

References	Study Quality
25 (16275576)	4
26 (16275579)	4
27 (16275574)	4
28 (16275584)	4
29 (16275577)	4

58 (15800516)	2
18 (21298428)	2
65 (22933489)	3
66 (20872764)	2
67 (21048174)	2
56 (20859632)	M
16 (20716653)	3
57 (23073899)	2
59 (22878728)	2
71 (30048144)	3
53 (31023206)	3
72 (31633993)	2
52 (24656977)	2
55 (24370140)	2
54 (25022979)	2

MRI hip without IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	0	0	2	8	5
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References	Study Quality
64 (22907475)	2
69 (16530635)	4
70 (16530634)	4
68 (17114529)	2
58 (15800516)	2
47 (18984718)	4
65 (22933489)	3
48 (25558377)	3
44 (23395032)	4
45 (22985733)	2
46 (22492172)	4
42 (16211385)	4
43 (16721954)	4

		22 (23852899)	2												
		21 (15494331)	3												
		20 (-3195116)	4												
US hip	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	3	3	4	3	2	2	3	0	1	0	0
		References	Study Quality												
		41 (21381497)	3												
		17 (24071389)	2												
		39 (21136580)	4												
		73 (27405494)	2												
MRI hip without and with IV contrast	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	1	1	8	2	5	0	0	0	0	0	0
		References	Study Quality												
		64 (22907475)	2												
		34 (16275571)	4												
		61 (8657921)	3												
		62 (8451409)	4												
		63 (12606867)	4												
		65 (22933489)	3												
		66 (20872764)	2												
		67 (21048174)	2												
Bone scan hip	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0
CT hip with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		1	1	12	1	1	1	0	0	0	0	0
		References	Study Quality												
		44 (23395032)	4												
		42 (16211385)	4												
		43 (16721954)	4												
CT hip without and with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		1	1	12	2	1	0	0	0	0	0	0

			References	Study Quality											
			44 (23395032)	4											
			42 (16211385)	4											
			43 (16721954)	4											
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Limited	☹☹☹☹ 10-30 mSv		1	1	12	1	2	0	0	0	0	0	0
			References	Study Quality											
			50 (26745810)	4											
			51 (31470763)	4											

Variant 4: Chronic hip pain. Suspect labral tear. Radiographs negative or nondiagnostic. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MR arthrography hip	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	2	2	11
		References		Study Quality											
		76 (10430132)		2											
		77 (17383908)		3											
		78 (11479747)		4											
		80 (19380568)		3											
		81 (15972331)		4											
		58 (15800516)		2											
		82 (16857978)		2											
		18 (21298428)		2											
		75 (22865251)		2											
		56 (20859632)		M											
		16 (20716653)		3											
		57 (23073899)		2											
		59 (22878728)		2											

[illegible]

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MR arthrography hip	Usually	Strong	0.0 mSv	0.0 mSv	9	9	0	0	0	1	0	0	2	3	9

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
	appropriate			[ped]											
		References		Study Quality											
		89 (21822939)		4											
		95 (26001258)		4											
		52 (24656977)		2											
		55 (24370140)		2											
MRI hip without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	3	4	8
		References		Study Quality											
		98 (27325163)		4											
		93 (25352941)		3											
		91 (16037508)		1											
		18 (21298428)		2											
		89 (21822939)		4											
		85 (29843749)		2											
CT arthrography hip	May be appropriate	Strong	☢☢☢ 1-10 mSv		6	6	0	0	0	2	2	4	2	3	2
		References		Study Quality											
		93 (25352941)		3											
		90 (16242374)		3											
		91 (16037508)		1											
		92 (16990027)		2											
		18 (21298428)		2											
		89 (21822939)		4											
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	Usually not appropriate	Limited	Varies	Varies	2	2	7	1	2	2	1	1	0	1	0
		References		Study Quality											

		94 (30415421)			4											
CT hip without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		1	1	12	2	0	1	0	0	0	0	0	
MRI hip without and with IV contrast	Usually not appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	1	1	9	2	4	0	0	0	0	0	0	
		References		Study Quality												
		97 (26304042)		3												
		96 (28209142)		Inadequate												
Bone scan hip	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0	
US hip	Usually not appropriate	Expert Consensus	○ ○ mSv	○ ○ mSv [ped]	1	1	10	3	1	1	0	0	0	0	0	
CT hip with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		1	1	13	1	0	1	0	0	0	0	0	
CT hip without and with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		1	1	13	2	0	0	0	0	0	0	0	
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☹☹☹☹ 10-30 mSv		1	1	15	0	0	0	0	0	0	0	0	

Variant 6: Chronic hip pain. Radiographs suspicious for intra-articular synovial hyperplasia or neoplasia, including nodular synovitis, diffuse tenosynovial giant cell tumor, osteochondromatosis, other synovial neoplasm. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI hip without IV contrast	Usually appropriate	Expert Consensus	○ ○ mSv	○ ○ mSv [ped]	8	8	0	0	0	0	1	0	1	8	5
MRI hip without and with IV contrast	Usually appropriate	Expert Consensus	○ ○ mSv	○ ○ mSv [ped]	8	8	0	0	1	1	0	2	1	4	6
CT arthrography hip	May be appropriate	Expert Consensus	☹☹☹ 1-10 mSv		4	4	1	1	3	4	5	0	0	0	1

CT hip without IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 1-10 mSv		3	3	4	3	4	2	2	0	0	0	0
Image-guided aspiration hip	Usually not appropriate	Limited	Varies	Varies	3	3	6	0	2	3	4	0	0	0	0
		References	Study Quality												
		99 (2845469)	4												
		100 (2383449)	4												
MR arthrography hip	Usually not appropriate	Expert Consensus	○ ○ mSv	○ ○ mSv [ped]	2	2	7	2	5	1	0	0	0	0	0
Bone scan hip	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 1-10 mSv		1	1	14	1	0	0	0	0	0	0	0
US hip	Usually not appropriate	Expert Consensus	○ ○ mSv	○ ○ mSv [ped]	1	1	10	1	2	1	0	0	1	0	0
CT hip with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 1-10 mSv		1	1	13	0	0	2	0	0	0	0	0
CT hip without and with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 1-10 mSv		1	1	10	0	3	0	0	0	1	0	1
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕⊕ 10-30 mSv		1	1	13	0	0	1	0	0	1	0	0
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	14	0	1	0	0	0	0	0	0

Variant 7: Chronic hip pain with low back or knee pathology or pain. Radiographs demonstrate hip osteoarthritis. Want to quantify amount of pain related to the hip. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	Usually appropriate	Moderate	Varies	Varies	9	9	0	0	0	0	2	1	0	3	9

		References		Study Quality												
		19 (16177412)		4												
		22 (23852899)		2												
		21 (15494331)		3												
		20 (-3195116)		4												
CT arthrography hip	Usually not appropriate	Strong	☹☹☹ 1-10 mSv		1	1	11	2	2	0	0	0	0	0	0	0
		References		Study Quality												
		93 (25352941)		3												
		90 (16242374)		3												
		91 (16037508)		1												
		92 (16990027)		2												
		13 (22915391)		4												
		18 (21298428)		2												
CT hip without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		1	1	13	0	1	0	0	1	0	0	0	0
MR arthrography hip	Usually not appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	1	1	10	1	1	2	1	0	0	0	0	0
		References		Study Quality												
		13 (22915391)		4												
MRI hip without IV contrast	Usually not appropriate	Expert Consensus	○ ○ mSv	○ ○ mSv [ped]	1	1	11	2	2	0	0	0	0	0	0	0
MRI hip without and with IV contrast	Usually not appropriate	Expert Consensus	○ ○ mSv	○ ○ mSv [ped]	1	1	11	1	1	0	1	1	0	0	0	0
Bone scan hip	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		1	1	12	0	1	1	0	0	0	0	0	1
US hip	Usually not appropriate	Expert Consensus	○ ○ mSv	○ ○ mSv [ped]	1	1	13	0	1	0	1	0	0	0	0	0
CT hip with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		1	1	14	1	0	0	0	0	0	0	0	0

CT hip without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	14	1	0	0	0	0	0	0	0
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	14	0	0	0	0	0	0	0	1

Appendix Key

A more complete discussion of the items presented below can be found by accessing the supporting documents at the designated hyperlinks.

Appropriateness Category: The panel's recommendation for a procedure based on the assessment of the risks and benefits of performing the procedure for the specified clinical scenario.

SOE: Strength of Evidence. The assessment of the amount and quality of evidence found in the peer reviewed medical literature for an appropriateness recommendation.

- **References:** The citation number and PMID for the reference(s) associated with the recommendation.
- **Study Quality:** The assessment of the quality of an individual reference based on the number of study quality elements described in the reference.

RRL: Relative Radiation Level. A population based assessment of the amount of radiation a typical patient may be exposed to during the specified procedure.

Rating: The final rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Median: The median rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Final tabulations: A histogram showing the number of panel members who rated the procedure as noted in the column heading (ie, 1, 2, 3, etc.).

Additional supporting documents about the AC methodology and processes can be found at www.acr.org/ac.