American College of Radiology
ACR Appropriateness Criteria®

Chronic Ankle Pain

Variant 1: Chronic ankle 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 ankle	Usually appropriate	Limited	☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0
References			Study Quality												
19 (15378290)			2												
20 (26606603)			3												
CT ankle with IV contrast	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
CT ankle without IV contrast	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
CT ankle without and with IV contrast	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
MRI ankle without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
MRI ankle without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
Bone scan ankle	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0

US ankle	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	0

Variant 2: Chronic ankle pain. Multiple sites of degenerative joint disease in the hindfoot detected by ankle radiographs. Next 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 injection ankle and hindfoot	May be appropriate	Limited	Varies	Varies	6	6	0	0	0	0	0	0	0	0	0

References	Study Quality
23 (27468671)	4
24 (19321101)	3
25 (25542943)	3
11 (23487336)	4
21 (8751679)	4
22 (9240528)	4

MRI ankle and hindfoot without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	0	0	0	0	0	0

References	Study Quality
13 (11870444)	4
14 (20483139)	3
15 (19685050)	3

CT ankle and hindfoot without IV contrast	May be appropriate	Limited	☢ <0.1 mSv		4	4	0	0	0	0	0	0	0	0	0

References	Study Quality
5 (15686236)	2

CT ankle and hindfoot with IV contrast	Usually not appropriate	Limited	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0

References	Study Quality
5 (15686236)	2

CT ankle and hindfoot without and with IV contrast	Usually not appropriate	Limited	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0
References			Study Quality												
5 (15686236)			2												
Radiographic arthrography ankle and hindfoot	Usually not appropriate	Expert Consensus	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0
MRI ankle and hindfoot without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
References			Study Quality												
13 (11870444)			4												
14 (20483139)			3												
15 (19685050)			3												
Bone scan hindfoot/ankle	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	0	0	0	0	0	0	0	0	0
US ankle and hindfoot	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
CT arthrography ankle and hindfoot	Usually not appropriate	Expert Consensus	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0
MR arthrography ankle and hindfoot	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0

Variant 3: Chronic ankle pain. Ankle radiographs normal, suspected osteochondral lesion. Next study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI ankle without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0
References			Study Quality												
28 (8848747)			3												
30 (18635628)			4												

		29 (18779951)		3												
		31 (21826613)		4												
		5 (15686236)		2												
		6 (12682790)		2												
CT arthrography ankle	May be appropriate	Limited	☢ <0.1 mSv		6	6	0	0	0	0	0	0	0	0	0	
		References		Study Quality												
		6 (12682790)		2												
MR arthrography ankle	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	0	0	0	0	0	
		References		Study Quality												
		6 (12682790)		2												
Bone scan with SPECT or SPECT/CT ankle	May be appropriate (Disagreement)	Expert Opinion	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	4	1	1	4	4	3	0	0	0	
		References		Study Quality												
		32 (21300809)		3												
		33 (21477540)		2												
		34 (25920051)		3												
		8 (21321364)		3												
CT ankle without IV contrast	May be appropriate	Limited	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	4	4	0	0	0	0	0	0	0	0	0	
		References		Study Quality												
		5 (15686236)		2												
Image-guided anesthetic injection ankle	Usually not appropriate	Expert Consensus	Varies	Varies	3	3	8	0	1	3	4	1	0	0	0	
CT ankle with IV contrast	Usually not appropriate	Limited	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	
		References		Study Quality												
		5 (15686236)		2												

CT ankle without and with IV contrast	Usually not appropriate	Limited	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	
	References			Study Quality												
	5 (15686236)			2												
US ankle	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	
Radiography ankle stress views	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	
MRI ankle without and with IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	
	References			Study Quality												
	28 (8848747)			3												
	30 (18635628)			4												
	29 (18779951)			3												
	31 (21826613)			4												
	5 (15686236)			2												
	6 (12682790)			2												
Radiographic arthrography ankle	Usually not appropriate	Expert Consensus	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0	

Variant 4: Chronic ankle pain. Ankle radiographs normal or nonspecific, suspected tendon abnormality. Next study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI ankle without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0
	References			Study Quality											
	37 (15895226)			3											
	48 (21119941)			3											

US ankle	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	0	0	0	0

References	Study Quality
45 (19945971)	4
39 (8915043)	3
44 (15385290)	3
49 (21570324)	4
50 (23966263)	3
16 (3420263)	3
36 (9544608)	3
37 (15895226)	3
38 (16085620)	3
45 (19945971)	4
39 (8915043)	3
40 (11477244)	3
44 (15385290)	3
41 (26235856)	2
42 (22338951)	2
43 (25448138)	2
35 (24224598)	4
10 (23685674)	4
11 (23487336)	4

US-guided anesthetic injection ankle tendon sheath	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	0	0	0	0	0

References	Study Quality
11 (23487336)	4

MRI ankle without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	0	0	0	0	0	0	0	0	0

References	Study Quality
37 (15895226)	3
48 (21119941)	3

45 (19945971)	4
39 (8915043)	3
44 (15385290)	3
49 (21570324)	4
50 (23966263)	3
16 (3420263)	3

CT arthrography ankle	Usually not appropriate	Expert Consensus	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0
CT ankle with IV contrast	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
CT ankle without IV contrast	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
CT ankle without and with IV contrast	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
Fluoroscopy tenography ankle	Usually not appropriate	Limited	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0

References	Study Quality
51 (11159075)	4

Radiographic arthrography ankle	Usually not appropriate	Expert Consensus	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0
MR arthrography ankle	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
Bone scan ankle	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
Radiography ankle stress views	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0

Variant 5: Chronic ankle pain. Ankle radiographs normal or nonspecific, suspected ankle instability. Next study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI ankle without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0

References	Study Quality
57 (15256624)	4
54 (12616009)	3
55 (14743024)	3
56 (11128010)	4
53 (25539277)	3
52 (22078461)	3
14 (20483139)	3
15 (19685050)	3

MR arthrography ankle	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	0	0	0	0	0

References	Study Quality
12 (23622094)	4

US ankle	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	0	0	0	0	0

References	Study Quality
58 (20817846)	3
60 (7776043)	2
1 (26515772)	3
59 (24067992)	3
15 (19685050)	3

Radiography ankle stress views	May be appropriate	Strong	☢ <0.1 mSv	☢ <0.03 mSv [ped]	6	6	0	0	0	0	4	6	3	4	0

References	Study Quality
1 (26515772)	3

References	Study Quality
2 (24560546)	3
61 (26869035)	2
3 (22224329)	3
4 (20493798)	4
15 (19685050)	3

CT arthrography ankle	May be appropriate	Limited	☢ <0.1 mSv		5	5	0	0	0	0	0	0	0	0	0	0

References	Study Quality
58 (20817846)	3

CT ankle with IV contrast	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	0
CT ankle without IV contrast	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	0
CT ankle without and with IV contrast	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	0
Radiographic arthrography ankle	Usually not appropriate	Expert Consensus	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0	0
Image-guided anesthetic injection ankle	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	0	0	0	0	0	0	0	0	0	0
MRI ankle without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	0

References	Study Quality
57 (15256624)	4
54 (12616009)	3
55 (14743024)	3
56 (11128010)	4
53 (25539277)	3
52 (22078461)	3
14 (20483139)	3

		15 (19685050)		3												
Bone scan ankle	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	

Variant 6: Chronic ankle pain. Ankle radiographs normal or nonspecific, suspected ankle impingement syndrome. Next study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI ankle without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	1	0	2	2	2	1	8
		References		Study Quality											
		73 (16949527)		3											
		68 (11856682)		4											
		64 (10550534)		4											
		67 (15488852)		4											
		76 (20729435)		4											
		62 (10796931)		4											
		75 (14696227)		2											
		74 (20727312)		3											
MR arthrography ankle	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		69 (11568338)		2											
		68 (11856682)		4											
CT arthrography ankle	May be appropriate	Limited	☢ <0.1 mSv		5	5	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		77 (20489099)		2											
US ankle	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	0	0	0	0	0	0

		References	Study Quality													
		70 (9275907)	3													
		72 (18064426)	3													
CT ankle without IV contrast	May be appropriate	Limited	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	5	5	0	0	0	2	10	2	2	1	0
		References	Study Quality													
		62 (10796931)	4													
Image-guided anesthetic injection ankle	May be appropriate (Disagreement)	Expert Opinion	Varies	Varies	5	5	0	3	3	4	4	1	0	2	0
		References	Study Quality													
		78 (16362423)	4													
		79 (10847526)	3													
3-phase bone scan with SPECT or SPECT/CT ankle	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	2	0	3	3	0	0	0	0
		References	Study Quality													
		7 (23211997)	3													
MRI ankle without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	8	3	4	2	0	0	0	0	0
		References	Study Quality													
		73 (16949527)	3													
		68 (11856682)	4													
		64 (10550534)	4													
		67 (15488852)	4													
		76 (20729435)	4													
		62 (10796931)	4													
		75 (14696227)	2													
		74 (20727312)	3													
CT ankle with IV contrast	Usually not appropriate	Limited	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	14	2	0	0	0	0	0	0	0

		References		Study Quality											
		62 (10796931)		4											
CT ankle without and with IV contrast	Usually not appropriate	Limited	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	14	0	2	0	0	0	0	0	0
		References		Study Quality											
		62 (10796931)		4											
Radiography ankle stress views	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
Radiographic arthrography ankle	Usually not appropriate	Expert Consensus	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0

Variant 7: Chronic ankle pain. Ankle radiographs normal, pain of uncertain etiology. Next study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI ankle without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		82 (17015602)		3											
		80 (21343690)		4											
		81 (17099238)		4											
		13 (11870444)		4											
CT ankle without IV contrast	May be appropriate	Limited	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	5	5	0	0	0	0	11	4	2	0	0
		References		Study Quality											
		85 (15333345)		3											
		80 (21343690)		4											
Bone scan with SPECT or SPECT/CT ankle	May be appropriate (Disagreement)	Expert Opinion	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	2	3	3	2	4	3	0	0	0

		References		Study Quality												
		86 (21540716)		4												
Image-guided anesthetic injection ankle	May be appropriate	Strong	Varies	Varies	4	4	5	1	1	2	5	1	1	0	0	
		References		Study Quality												
		87 (21941219)		3												
		88 (19587626)		1												
		89 (19258984)		1												
US ankle	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	5	2	0	6	3	0	0	0	1	
		References		Study Quality												
		84 (18451390)		4												
		83 (17179329)		4												
CT arthrography ankle	Usually not appropriate	Expert Consensus	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0	
CT ankle with IV contrast	Usually not appropriate	Limited	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	16	0	0	0	0	0	0	0	0	
		References		Study Quality												
		85 (15333345)		3												
		80 (21343690)		4												
CT ankle without and with IV contrast	Usually not appropriate	Limited	☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	16	0	0	0	0	0	0	0	0	
		References		Study Quality												
		85 (15333345)		3												
		80 (21343690)		4												
Radiographic arthrography ankle	Usually not appropriate	Expert Consensus	☢ <0.1 mSv		1	1	0	0	0	0	0	0	0	0	0	
MR arthrography ankle	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	

MRI ankle without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0

References	Study Quality
82 (17015602)	3
80 (21343690)	4
81 (17099238)	4
13 (11870444)	4

Radiography ankle stress views	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0

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.**