

Supplementary Table 1: Agreement between local and central readings for various definitions of positive structural MRI-SIJ

		MRI Central Reading (mean of the two Central readers)					
		Definition 1: ≥ 1 erosion or ≥ 1 fatty lesion or partial or total ankylosis		Definition 2: ≥ 1 erosion		Definition 3: ≥ 2 erosions	
MRI Local Reading		+	-	+	-	+	-
Definition 1: At least unilateral grade 1 or 2	+	180	55	122	113	89	146
	-	169	260	92	337	42	387
	PPA/ NPA	61.6	69.9	54.3	76.7	48.6	80.5
	K(95%CI)	0.34 (0.27 to 0.40)		0.31 (0.24 to 0.39)		0.31 (0.24 to 0.39)	
Definition 2: At least unilateral grade 2	+	140	34	100	54	76	98
	-	209	281	114	334	55	435
	PPA/ NPA	53.5	69.8	54.3	79.9	49.8	85.0
	K(95%CI)	0.29 (0.22 to 0.35)		0.35 (0.27 to 0.43)		0.35 (0.27 to 0.43)	
Definition 3: Bilateral grade 2	+	104	17	78	33	63	58
	-	245	298	136	355	68	475
	PPA/ NPA	44.3	69.5	48.0	80.8	50.0	88.3
	K(95%CI)	0.24 (0.18 to 0.29)		0.31 (0.24 to 0.39)		0.38 (0.30 to 0.47)	
		Definition 4: ≥ 3 erosions		Definition 5: ≥ 1 fatty lesion		Definition 6: ≥ 2 fatty lesions	
MRI Local Reading		+	-	+	-	+	-
Definition 1: At least unilateral grade 1 or 2	+	61	174	120	115	96	139
	-	25	404	74	355	36	393
	PPA/ NPA	38.0	80.2	55.9	79.0	52.3	81.8
	K(95%CI)	0.24 (0.17 to 0.30)		0.35 (0.28 to 0.43)		0.36 (0.29 to 0.43)	
Definition 2: At least unilateral grade 2	+	53	121	104	70	83	91
	-	33	457	90	400	49	441
	PPA/ NPA	40.8	85.6	56.5	83.3	54.2	86.3
	K(95%CI)	0.28 (0.20 to 0.37)		0.40 (0.32 to 0.48)		0.41 (0.33 to 0.49)	
Definition 3: Bilateral grade 2	+	48	73	82	39	72	49
	-	38	505	112	431	60	483
	PPA/ NPA	46.4	90.1	52.1	85.1	56.9	89.9
	K(95%CI)	0.37 (0.28 to 0.46)		0.38 (0.30 to 0.46)		0.47 (0.38 to 0.55)	
		Definition 7: ≥ 3 fatty lesions		Definition 8: Partial or total ankylosis.		Definition 9: ≥ 3 erosions and/or fatty lesions	
MRI Local Reading		+	-	+	-	+	-
Definition 1: At least unilateral grade 1 or 3	+	76	159	60	175	113	122
	-	13	416	101	328	50	379
	PPA/ NPA	46.9	82.9	30.3	70.4	56.8	81.5
	K(95%CI)	0.34 (0.27 to 0.41)		0.02 (-0.05 to 0.10)		0.39 (0.32 to 0.47)	
Definition 2: At least unilateral grade 3	+	66	108	44	130	97	77
	-	23	467	117	373	66	424
	PPA/ NPA	50.2	87.7	26.3	75.1	57.6	85.6
	K(95%CI)	0.40 (0.31 to 0.48)		0.01 (-0.06 to 0.09)		0.43 (0.35 to 0.51)	
Definition 3: Bilateral grade 3	+	59	62	34	87	81	40
	-	30	513	127	416	82	461
	PPA/ NPA	56.2	91.8	24.1	79.5	57.0	88.3
		0.48 (0.39 to 0.57)		0.04 (-0.04 to 0.12)		0.46 (0.38 to 0.54)	

PPA=positive percent agreement

NPA= negative percent agreement

K= Kappa

95% CI= 95% confidence interval

Kappas in bold represent Kappa > 0.40

Supplementary Table 2: Agreement between local reading and the central reader 1 for various definitions of positive structural MRI-SIJ

		MRI Central Reader 1					
		Definition 1: ≥ 1 erosion or ≥ 1 fatty lesion or partial or total ankylosis		Definition 2: ≥ 1 erosion		Definition 3: ≥ 2 erosions	
MRI Local Reading		+	-	+	-	+	-
Definition 1: At least unilateral grade 1 or 2	+	148	87	51	184	35	200
	-	129	300	31	398	21	408
	PPA/ NPA	57.8	73.5	32.2	78.7	24.1	78.7
	K(95%CI)	0.32 (0.24 to 0.39)		0.17 (0.10 to 0.24)		0.12 (0.06 to 0.18)	
Definition 2: At least unilateral grade 2	+	120	54	47	127	33	141
	-	157	333	35	455	23	467
	PPA/ NPA	53.2	75.9	36.7	84.9	28.7	85.1
	K(95%CI)	0.31 (0.24 to 0.38)		0.24 (0.16 to 0.32)		0.18 (0.11 to 0.26)	
Definition 3: Bilateral grade 2	+	93	28	37	84	27	94
	-	184	359	45	498	29	514
	PPA/ NPA	46.7	77.2	36.5	88.5	30.5	89.3
	K(95%CI)	0.29 (0.22 to 0.35)		0.26 (0.16 to 0.35)		0.22 (0.12 to 0.31)	
		Definition 4: ≥ 3 erosions		Definition 5: ≥ 1 fatty lesion		Definition 6: ≥ 2 fatty lesions	
MRI Local Reading		+	-	+	-	+	-
Definition 1: At least unilateral grade 1 or 2	+	20	215	107	128	84	151
	-	14	415	55	374	30	399
	PPA/ NPA	14.9	78.4	53.9	80.3	48.1	81.5
	K(95%CI)	0.07 (0.02 to 0.11)		0.35 (0.28 to 0.43)		0.33 (0.25 to 0.40)	
Definition 2: At least unilateral grade 2	+	19	155	90	84	72	102
	-	15	475	72	418	42	448
	PPA/ NPA	18.3	84.8	53.6	84.3	50.0	86.2
	K(95%CI)	0.11 (0.04 to 0.17)		0.38 (0.30 to 0.46)		0.37 (0.29 to 0.45)	
Definition 3: Bilateral grade 2	+	16	105	72	49	61	60
	-	18	525	90	453	53	490
	PPA/ NPA	20.6	89.5	50.9	86.7	51.9	89.7
	K(95%CI)	0.14 (0.05 to 0.22)		0.38 (0.30 to 0.46)		0.42 (0.33 to 0.51)	
		Definition 7: ≥ 3 fatty lesions		Definition 8: ankylosis.		Definition 9: ≥ 3 erosions and/ or fatty lesions	
MRI Local Reading		+	-	+	-	+	-
Definition 1: At least unilateral grade 1 or 3	+	72	163	51	184	88	147
	-	22	407	71	358	35	394
	PPA/ NPA	43.8	81.5	28.6	73.7	49.2	81.2
	K(95%CI)	0.30 (0.23 to 0.37)		0.06 (-0.01 to 0.13)		0.33 (0.26 to 0.40)	
Definition 2: At least unilateral grade 3	+	63	111	40	134	79	95
	-	31	459	82	408	44	446
	PPA/ NPA	47.0	86.6	27.0	79.1	53.2	86.5
	K(95%CI)	0.35 (0.27 to 0.43)		0.07 (-0.01 to 0.15)		0.40 (0.32 to 0.48)	
Definition 3: Bilateral grade 3	+	56	65	32	89	67	54
	-	38	505	90	453	56	487
	PPA/ NPA	52.1	90.7	26.3	83.5	54.9	89.9
	K(95%CI)	0.43 (0.34 to 0.52)		0.10 (0.01 to 0.18)		0.45 (0.36 to 0.54)	

PPA=positive percent agreement
NPA= negative percent agreement
K= Kappa
95% CI= 95% confidence interval
Kappas in bold represent Kappa > 0.40

Supplementary Table 3: Agreement between local reading and the central reader 2 for various definitions of positive MRI-SIJ

		MRI Central Reader 2					
		Definition 1: ≥ 1 erosion or ≥ 1 fatty lesion or partial or total ankylosis		Definition 2: ≥ 1 erosion		Definition 3: ≥ 2 erosions	
MRI Local Reading		+	-	+	-	+	-
Definition 1: At least unilateral grade 1 or 2	+	171	64	139	96	112	123
	-	177	252	117	312	83	346
	PPA/ NPA	58.7	67.7	56.6	74.6	52.1	77.1
	K(95%CI)	0.28 (0.22 to 0.35)		0.31 (0.24 to 0.39)		0.29 (0.22 to 0.37)	
Definition 2: At least unilateral grade 2	+	135	39	112	62	90	84
	-	213	277	144	346	105	385
	PPA/ NPA	51.7	68.7	52.1	77.1	48.8	80.3
	K(95%CI)	0.26 (0.20 to 0.32)		0.30 (0.23 to 0.38)		0.29 (0.21 to 0.37)	
Definition 3: Bilateral grade 2	+	99	22	82	39	74	47
	-	249	294	174	369	121	422
	PPA/ NPA	42.2	68.5	43.5	77.6	46.8	83.4
	K(95%CI)	0.21 (0.15 to 0.26)		0.25 (0.18 to 0.32)		0.31 (0.24 to 0.39)	
		Definition 4: ≥ 3 erosions		Definition 5: ≥ 1 fatty lesion		Definition 6: ≥ 2 fatty lesions	
MRI Local Reading		+	-	+	-	+	-
Definition 1: At least unilateral grade 1 or 2	+	95	140	109	126	95	140
	-	50	379	77	352	55	374
	PPA/ NPA	50.0	80.0	51.8	77.6	49.4	79.3
	K(95%CI)	0.32 (0.24 to 0.39)		0.30 (0.22 to 0.37)		0.30 (0.23 to 0.38)	
Definition 2: At least unilateral grade 2	+	78	96	97	77	83	91
	-	67	423	89	401	67	423
	PPA/ NPA	48.9	83.8	53.9	82.9	51.2	84.3
	K(95%CI)	0.33 (0.25 to 0.41)		0.37 (0.29 to 0.45)		0.36 (0.28 to 0.44)	
Definition 3: Bilateral grade 2	+	63	58	76	45	69	52
	-	82	461	110	433	81	462
	PPA/ NPA	47.4	86.8	49.5	84.8	50.9	87.4
	K(95%CI)	0.34 (0.26 to 0.43)		0.35 (0.27 to 0.43)		0.39 (0.30 to 0.47)	
		Definition 7: ≥ 3 fatty lesions		Definition 8: ankylosis.		Definition 9: ≥ 3 erosions and/ or fatty lesions	
MRI Local Reading		+	-	+	-	+	-
Definition 1: At least unilateral grade 1 or 3	+	83	152	65	170	129	106
	-	34	395	107	322	79	350
	PPA/ NPA	47.2	80.9	31.9	69.9	58.2	79.1
	K(95%CI)	0.31 (0.24 to 0.38)		0.03 (-0.05 to 0.10)		0.38 (0.30 to 0.45)	
Definition 2: At least unilateral grade 3	+	72	102	49	125	108	66
	-	45	445	123	367	100	390
	PPA/ NPA	49.5	85.8	28.3	74.7	56.5	82.5
	K(95%CI)	0.36 (0.28 to 0.44)		0.03 (-0.05 to 0.11)		0.39 (0.32 to 0.47)	
Definition 3: Bilateral grade 3	+	61	60	38	83	84	37
	-	56	487	134	409	124	419
	PPA/ NPA	51.3	89.4	25.9	79.0	51.1	83.9
	K(95%CI)	0.41 (0.32 to 0.50)		0.06 (-0.02 to 0.14)		0.36 (0.29 to 0.44)	

PPA=positive percent agreement

NPA= negative percent agreement

K= Kappa

95% CI= 95% confidence interval

Kappas in bold represent Kappa > 0.40

Supplementary Table 4: Agreement between central readers according to the number of fatty lesions on patient level

		MRI Central Reader 2											
		Number of fatty lesions		≥1		≥2		≥3		≥4		≥5	
		+	-	+	-	+	-	+	-	+	-	+	-
MRI Central Reader 1	≥1	+	97	65	85	77	77	85	67	95	58	104	
		-	89	413	65	437	40	462	28	474	16	486	
		PPA/ NPA	55.7	84.3	54.5	86.0	55.2	88.1	52.1	88.5	49.2	89.0	
		K(95%CI)	0.40 (0.32 to 0.48)		0.41 (0.33 to 0.49)		0.44 (0.36 to 0.52)		0.42 (0.33 to 0.50)		0.40 (0.32 to 0.48)		
	≥2	+	82	32	73	41	69	45	62	52	55	59	
		-	104	446	77	473	48	502	33	517	19	531	
		PPA/ NPA	54.7	86.8	55.3	88.9	59.7	91.5	59.3	92.4	58.5	93.2	
		K(95%CI)	0.42 (0.35 to 0.50)		0.45 (0.36 to 0.53)		0.51 (0.43 to 0.60)		0.52 (0.43 -0.61)		0.52 (0.43 to 0.61)		
	≥3	+	72	22	65	29	62	32	57	37	51	43	
		-	114	456	85	485	55	515	38	532	23	547	
		PPA/ NPA	51.4	87.0	53.3	89.5	58.8	92.2	60.3	93.4	60.7	94.3	
		K(95%CI)	0.40 (0.32 to 0.48)		0.44 (0.35 to 0.52)		0.51 (0.42 to 0.60)		0.54 (0.45 -0.63)		0.55 (0.46 to 0.65)		
	≥4	+	64	16	60	20	59	21	54	26	48	32	
		-	122	462	90	494	58	526	41	543	26	558	
		PPA/ NPA	48.1	87.0	52.2	90.0	59.9	93.0	61.7	94.2	62.3	95.1	
		K(95%CI)	0.38 (0.30 to 0.45)		0.43 (0.35 to 0.52)		0.53 (0.44 to 0.62)		0.56 (0.47 to 0.65)		0.57 (0.48 to 0.67)		
	≥5	+	52	10	50	12	49	13	46	16	43	19	
		-	134	468	100	502	68	534	49	553	31	571	
		PPA/ NPA	41.9	86.7	47.2	90.0	54.7	93.0	58.6	94.4	63.2	95.8	
		K(95%CI)	0.33 (0.25 to 0.40)		0.39 (0.31 to 0.48)		0.49 (0.39 to 0.58)		0.53 (0.44 to 0.63)		0.59 (0.49 to 0.69)		

PPA=positive percent agreement
 NPA= negative percent agreement
 K= Kappa
 95% CI= 95% confidence interval
 Kappas in bold represent Kappa > 0.40

Supplementary Table 5: Agreement between central readers according to the number of erosions on patient level

		MRI Central Reader 2											
		Number of erosions		≥1		≥2		≥3		≥4		≥5	
				+	-	+	-	+	-	+	-	+	-
MRI Central Reader 1	≥1	+	62	20	54	28	47	35	38	44	29	53	
		-	194	388	141	441	98	484	76	506	53	529	
		PPA/ NPA	36.7	78.4	39.0	83.9	41.4	87.9	38.8	89.4	35.4	90.9	
		K(95%CI)	0.22 (0.16 to 0.29)		0.26 (0.19 to 0.34)		0.31 (0.22 to 0.39)		0.29 (0.19 to 0.38)		0.26 (0.16 to 0.37)		
	≥2	+	45	11	41	15	36	20	29	27	23	33	
		-	211	397	154	454	109	499	85	523	59	549	
		PPA/ NPA	28.8	78.1	32.7	84.3	35.8	88.6	34.1	90.3	33.3	92.3	
		K(95%CI)	0.17 (0.12 to 0.23)		0.23 (0.15 to 0.30)		0.27 (0.18 to 0.36)		0.26 (0.16 to 0.35)		0.26 (0.15 to 0.37)		
	≥3	+	28	6	27	7	23	11	17	17	13	21	
		-	228	402	168	462	122	508	97	533	69	561	
		PPA/ NPA	19.3	77.5	23.6	84.1	25.7	88.4	23.0	90.3	22.4	92.6	
		K(95%CI)	0.11 (0.07 to 0.16)		0.16 (0.10 to 0.23)		0.19 (0.11 to 0.27)		0.16 (0.08 to 0.25)		0.16 (0.06 to 0.27)		
	≥4	+	22	2	21	3	18	6	13	11	10	14	
		-	234	406	174	466	127	513	101	539	72	568	
		PPA/ NPA	15.7	77.5	19.2	84.0	21.3	88.5	18.8	90.6	18.9	93.0	
		K(95%CI)	0.10 (0.06 to 0.14)		0.14 (0.08 to 0.19)		0.16 (0.09 to 0.24)		0.11 (-0.01 to 0.24)		0.14 (0.04 to 0.24)		
	≥5	+	14	1	13	2	11	4	7	8	5	10	
		-	242	407	182	467	134	515	107	542	77	572	
		PPA/ NPA	10.3	77.0	12.4	83.5	13.8	88.2	10.9	90.4	10.3	92.9	
		K(95%CI)	0.06 (0.03 to 0.10)		0.09 (0.04 -0.13)		0.10 (0.04 to 0.16)		0.07 (0.00 to 0.14)		0.07 (-0.01 to 0.15)		

PPA=positive percent agreement
NPA= negative percent agreement
K= Kappa
95% CI= 95% confidence interval
Kappas in bold represent Kappa > 0.40