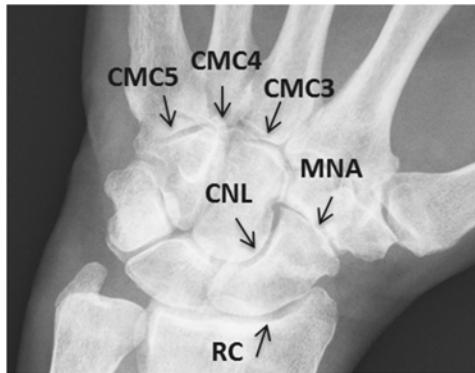
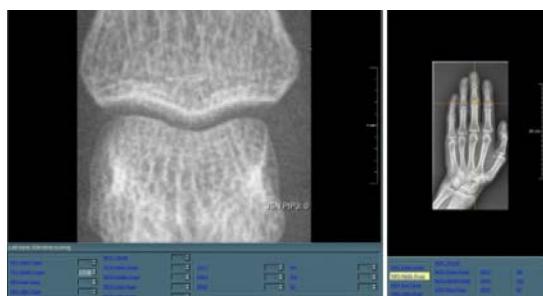


Supplementary Methodology

Supplementary figure 1. Wrist joints used for JSN assessment of the SvdH scoring method. CMC3-5: 3rd to the 5th carpometacarpal joints; MNA: multi-navicular joint; CNL: carpo-navicular-lunate joint; RC: radiocarpal joint.



Supplementary figure 2. Visualization of the individual joint single time point (IJSTP) and conventional scoring methods. (a): The user-interface of the individual joint-based scoring method. A small hand image (right panel) could optionally be used to re-define the joint region if the rater considered the joint region not appropriate (e.g. not completely in view); (b): the user-interface of the conventional scoring method, making use of the surrounding joints and follow-up images.



(a)



(b)

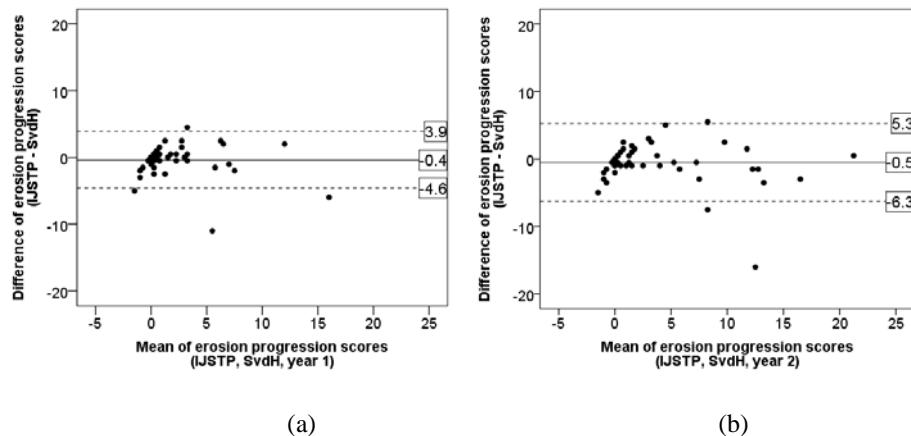
Supplementary Results

Supplementary table 1. JSON and SvdH damage and progression scores with and without the CMC3-5 joints

		With CMC3-5	Without CMC3-5
JSON score	Baseline	0.9 (2.3)	0.8 (2.2)
	Year 1	1.6 (3.7)	1.5 (3.6)
	Year 2	2.3 (5.5)	2.2 (5.2)
SvdH score	Baseline	1.6 (4.1)	1.6 (4.1)
	Year 1	3.3 (7.6)	3.2 (7.4)
	Year 2	4.7 (10.0)	4.6 (9.7)
JSON progression score	1-year from baseline	0.7 (2.3)	0.7 (2.2)
	2-year from baseline	1.4 (4.5)	1.4 (4.1)
SvdH progression score	1-year from baseline	1.7 (4.8)	1.7 (4.7)
	2-year from baseline	3.1 (7.7)	3.1 (7.5)

Results are depicted as mean (standard deviation, SD). JSON: joint space narrowing; SvdH: Sharp/van der Heijde scoring; CMC3-5: 3rd to 5th carpometacarpal joints.

Supplementary figure 3. Bland and Altman plots showing the erosion progression score difference (y-axis) against the mean erosion progression scores (x-axis) of the two reading methods. (a): 1-year erosion progression score (IJSTP vs. SvdH); (b): 2-year erosion progression score (IJSTP vs. SvdH).



Supplementary table 2. JSON and erosion scores of the conventional SvdH scoring method and the IJSTP scoring method (with and without CMC3-5 joints).

		Conventional SvdH scoring	IJSTP scoring	IJSTP scoring without the CMC3-5 joints
JSON score	Baseline	4.6 (8.7)	5.3 (8.5)	5.0 (7.7)
	Year 1	6.3 (9.8)	6.7 (9.5)	6.4 (8.7)
	Year 2	7.7 (10.8)	8.3 (10.0)	7.7 (9.2)
erosion score	Baseline	5.2 (9.6)	5.7 (9.7)	NA
	Year 1	7.0 (11.2)	7.1 (11.2)	NA
	Year 2	8.6 (12.4)	8.5 (12.1)	NA
JSON progression score	1-year from baseline	1.7 (3.0)	1.4 (3.2)	1.3 (3.0)
	2-year from baseline	3.2 (4.9)	3.0 (4.7)	2.7 (3.9)
erosion progression score	1-year from baseline	1.8 (3.5)	1.4 (3.2)	NA
	2-year from baseline	3.4 (5.5)	2.9 (4.9)	NA

Results are depicted as mean (standard deviation, SD). JSON: joint space narrowing; SvdH: Sharp/van der Heijde scoring; IJSTP: individual joint single time point based method; CMC3-5: 3rd to 5th carpometacarpal joints.

Supplementary table 3. Intraclass correlation coefficients (ICCs) and 95% confidence intervals (CIs) for erosion progression using the conventional SvdH scoring method and the individual joint single time point based scoring method.

Erosion progression	ICC (95% CI)
1-year from baseline	0.79 (0.67, 0.87)
2-year from baseline	0.84 (0.74, 0.90)

Signal-to-noise ratios for erosion progression using the conventional SvdH scoring method and the individual joint single time point based scoring method were 0.56 and 0.49, respectively; note: the CMC3-5 joints are not part of the erosion score.

Supplementary table 4. Erosion progression rate for year 1 and 2, based on linear mixed modelling, using conventional SvdH scoring and individual joint single time point based scoring.

Assessment method of erosion	Progression rate year 1 (95% CI)	P-value	Progression rate year 2 (95% CI)	P-value
Conventional SvdH scoring (reference)	1.81 (0.91-2.72)	-	1.55 (0.75,2.36)	-
IJSTP	1.45 (0.62-2.28)	0.55	1.43 (0.42,2.44)	0.85

CI: confidence interval; SvdH: Sharp/van der Heijde scoring; IJSTP: individual joint single time point based method.