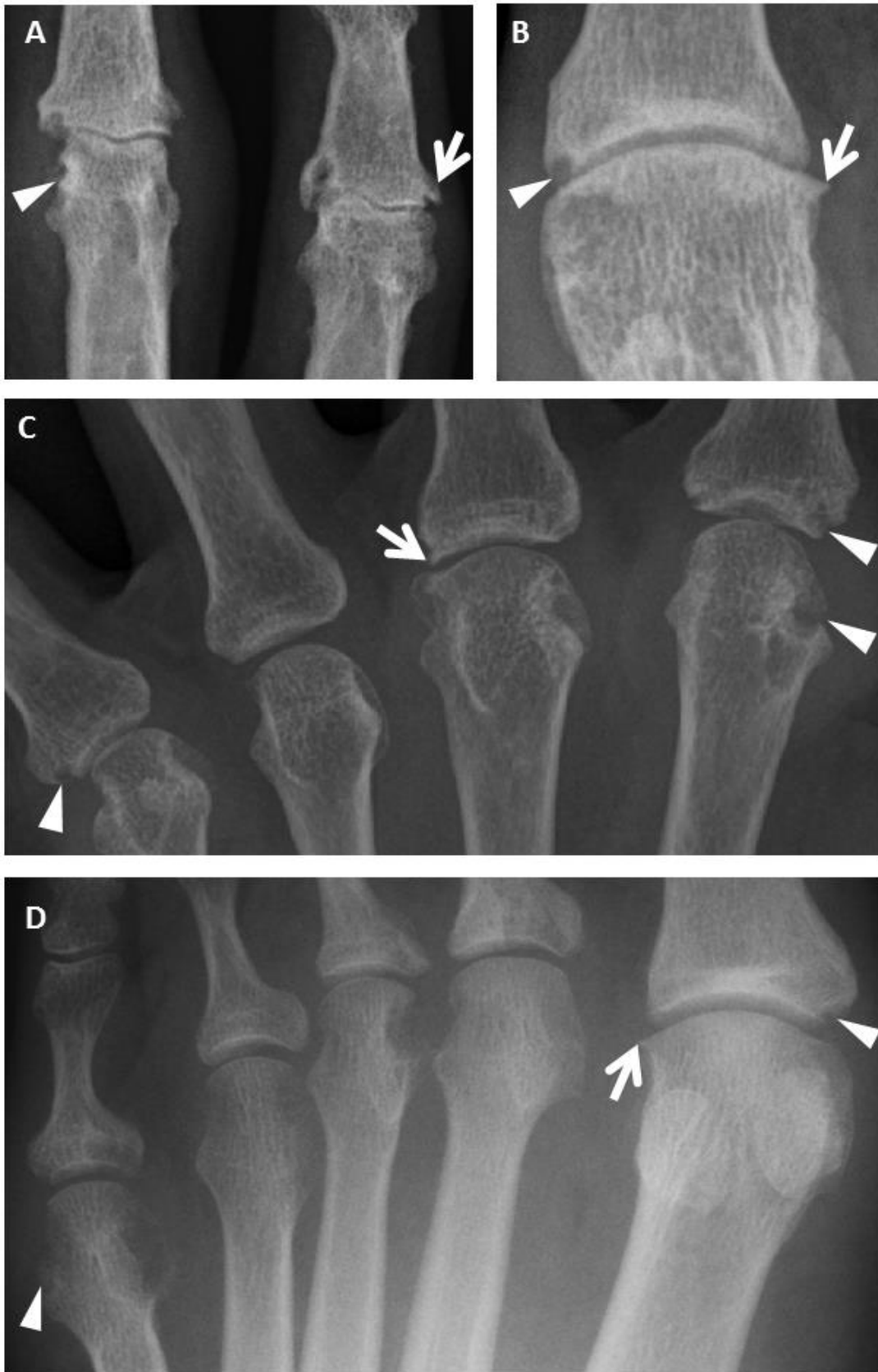


Supplementary figure S1: Selected radiographic images from different people showing coexistence of erosions and osteophytes.



A) Proximal interphalangeal joints with erosions and osteophytes. B) 1st metatarso-phalangeal joint with evidence of osteophytosis and erosion formation. C) Metacarpo-phalangeal joints showing erosions and visible osteophytes (OA was not scored for this joint group). D) Metatarso-phalangeal joints with erosions visible and osteophyte in the first joint. Arrows denote osteophytes. Arrow heads denote erosions.

Supplementary table S1: Clinical and demographic associations of joint space narrowing progression in early RA

Joint space narrowing		Above/below median change in Sharp/van der Heijde JSN score for hands and feet (2-4yr)		Above/below median change in Altman OA Hand JSN score		Above/below median change in Menz OA Foot JSN score	
		OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Demographics							
Gender	Female	0.82 (0.43 - 1.55)	0.623	1.48 (0.71 - 3.09)	0.367	1.12 (0.59 - 2.13)	0.747
Age	Low tertile	1		1		1	
	Middle tertile	1.64 (0.76 - 3.52)	0.247	1.46 (0.60 - 3.54)	0.504	0.89 (0.42 - 1.87)	0.849
	High tertile	3.13 (1.43 - 6.86)	0.007	2.43 (1.05 - 5.66)	0.041	0.64 (0.30 - 1.37)	0.336
BMI	<25	1		1		1	
	25-29.99	0.60 (0.28 - 1.31)	0.239	0.60 (0.26 - 1.38)	0.285	1.36 (0.64 - 2.92)	0.444
	30+	1.06 (0.45 - 2.48)	>0.999	0.75 (0.30 - 1.87)	0.647	1.41 (0.60 - 3.33)	0.515
Smoking history	Yes	1.53 (0.80 - 2.91)	0.256	1.24 (0.61 - 2.51)	0.599	1.28 (0.68 - 2.40)	0.519
Disease Characteristics and RA measures							
Symptom duration	Low tertile	1		1		1	
	Middle tertile	0.58 (0.26 - 1.31)	0.224	0.50 (0.22 - 1.17)	0.137	1.16 (0.54 - 2.49)	0.845
	High tertile	0.92 (0.44 - 1.95)	0.851	0.65 (0.29 - 1.46)	0.308	2.11 (0.95 - 4.67)	0.075
Serology	Seropositive	1.64 (0.77 - 3.50)	0.256	1.71 (0.70 - 4.17)	0.280	0.98 (0.46 - 2.08)	>0.99
DAS28-ESR	<3.2	1		1		1	
	3.2 - 5.19	0.90 (0.35 - 2.32)	>0.999	3.58 (0.96 - 13.83)	0.062	1.98 (0.77 - 5.13)	0.235
	5.2+	1.66 (0.64 - 4.33)	0.338	2.97 (0.78 - 11.24)	0.160	1.55 (0.60 - 3.96)	0.479
VAS-GH	Low tertile	1		1		1	
	Middle tertile	0.94 (0.43 - 2.05)	>0.99	1.03 (0.44 - 2.40)	>0.99	0.74 (0.34 - 1.58)	0.445
	High tertile	1.85 (0.87 - 3.94)	0.130	1.36 (0.61 - 3.04)	0.542	0.95 (0.44 - 2.01)	>0.99
TJC	Low tertile	1		1		1	

	Middle tertile	1.17 (0.55 - 2.46)	0.708	2.32 (0.97 - 5.52)	0.061	0.73 (0.34 - 1.57)	0.446
	High tertile	1.04 (0.48 - 2.25)	>0.99	1.64 (0.67 - 4.02)	0.370	0.82 (0.38 - 1.75)	0.698
SJC	Low tertile	1		1		1	
	Middle tertile	0.89 (0.42 - 1.90)	0.848	0.86 (0.34 - 2.17)	0.818	0.88 (0.41 - 1.87)	0.847
	High tertile	1.84 (0.87 - 3.87)	0.135	2.39 (1.10 - 5.22)	0.033	0.78 (0.38 - 1.61)	0.579
ESR (mm/hr)	Low tertile	1		1		1	
	Middle tertile	1.49 (0.64 - 3.46)	0.395	2.02 (0.75 - 5.45)	0.217	0.54 (0.24 - 1.24)	0.212
	High tertile	2.54 (1.12 - 5.78)	0.040	3.04 (1.18 - 7.84)	0.024	1.46 (0.65 - 3.30)	0.412
CRP (ng/dL)	Low tertile	1		1		1	
	Middle tertile	1.65 (0.61 - 4.47)	0.448	2.26 (0.73 - 6.94)	0.169	1.07 (0.41 - 2.82)	>0.99
	High tertile	1.77 (0.67 - 4.67)	0.327	1.00 (0.39 - 2.59)	>0.99	2.70 (1.00 - 7.26)	0.055
DAS28-P	Low tertile	1		1		1	
	Middle tertile	1.73 (0.69 - 4.38)	0.350	0.93 (0.37 - 2.31)	>0.99	0.73 (0.30 - 1.80)	0.647
	High tertile	0.57 (0.23 - 1.45)	0.346	0.58 (0.21 - 1.55)	0.326	1.29 (0.53 - 3.19)	0.649
Outcome Measures							
HAQ	Low tertile	1		1		1	
	Middle tertile	1.39 (0.62 - 3.11)	0.538	1.41 (0.57 - 3.49)	0.503	1.12 (0.52 - 2.41)	0.845
	High tertile	2.19 (1.03 - 4.68)	0.057	2.06 (0.85 - 5.04)	0.128	1.13 (0.51 - 2.51)	0.840
SF36-Bodily Pain	Good tertile	1		1		1	
	Middle tertile	1.57 (0.65 - 3.77)	0.377	0.83 (0.34 - 2.06)	0.816	1.23 (0.55 - 2.76)	0.682
	Poor tertile	0.89 (0.39 - 2.02)	0.836	1.64 (0.63 - 4.32)	0.336	0.85 (0.35 - 2.12)	0.819
SF36-Physical function	Good tertile	1		1		1	
	Middle tertile	0.90 (0.38 - 2.13)	0.830	1.27 (0.53 - 3.04)	0.660	1.13 (0.50 - 2.57)	0.835
	Poor tertile	1.29 (0.57 - 2.92)	0.679	0.71 (0.27 - 1.82)	0.632	1.15 (0.49 - 2.66)	0.831
SF36-Vitality	Good tertile	1		1		1	
	Middle tertile	1.32 (0.58 - 3.02)	0.535	2.23 (0.82 - 6.04)	0.153	2.26 (0.98 - 5.21)	0.063
	Poor tertile	1.06 (0.45 - 2.52)	>0.999	2.21 (0.80 - 6.10)	0.145	1.71 (0.72 - 4.08)	0.275
SF36-Mental health	Good tertile	1		1		1	
	Middle tertile	1.48 (0.65 - 3.35)	0.409	2.82 (1.09 - 7.30)	0.041	0.99 (0.44 - 2.24)	>0.99

	Poor tertile	0.77 (0.33 - 1.79)	0.669	1.68 (0.61 - 4.59)	0.449	0.88 (0.38 - 2.05)	0.831
Radiographic scores							
RA total score	Low tertile	1		1		1	
	Middle tertile	2.42 (1.12 - 5.20)	0.035	2.51 (1.07 - 5.93)	0.037	1.20 (0.56 - 2.58)	0.700
	High tertile	3.56 (1.64 - 7.75)	0.001	1.90 (0.77 - 4.59)	0.185	0.84 (0.39 - 1.79)	0.700
Erosion score	Low tertile	1		1		1	
	Middle tertile	2.67 (1.20 - 5.91)	0.020	1.76 (0.73 - 4.26)	0.277	0.95 (0.44 - 2.03)	>0.99
	High tertile	4.05 (1.77 - 9.23)	0.001	1.90 (0.78 - 4.64)	0.188	1.08 (0.49 - 2.37)	>0.99
JSN score	Low tertile	1		1		1	
	Middle tertile	1.58 (0.77 - 3.27)	0.270	1.25 (0.55 - 2.87)	0.674	1.24 (0.60 - 2.60)	0.578
	High tertile	2.25 (1.03 - 4.90)	0.052	1.93 (0.83 - 4.49)	0.138	0.98 (0.44 - 2.15)	>0.99
Hand OST	Low tertile	1		1		1	
	Middle tertile	0.78 (0.34 - 1.78)	0.677	2.64 (1.08 - 6.45)	0.050	0.61 (0.27 - 1.39)	0.298
	High tertile	2.72 (1.30 - 5.70)	0.011	3.67 (1.70 - 7.92)	0.001	0.97 (0.47 - 1.99)	>0.99
Hand JSN	Low tertile	1		1		1	
	Middle tertile	1.06 (0.45 - 2.52)	>0.99	1.84 (0.71 - 4.75)	0.210	0.97 (0.42 - 2.27)	>0.99
	High tertile	2.39 (1.17 - 4.85)	0.022	2.35 (1.14 - 4.88)	0.026	1.15 (0.57 - 2.34)	0.722
Foot OST	Low tertile	1		1		1	
	Middle tertile	2.04 (0.99 - 4.21)	0.068	2.64 (1.08 - 6.45)	0.050	1.12 (0.55 - 2.28)	0.857
	High tertile	2.10 (0.92 - 4.82)	0.095	3.67 (1.70 - 7.92)	0.001	0.60 (0.28 - 1.32)	0.237
Foot JSN	Low tertile	1		1		1	
	Middle tertile	1.49 (0.71 - 3.11)	0.351	1.84 (0.71 - 4.75)	0.210	0.31 (0.14 - 0.69)	0.004
	High tertile	1.68 (0.75 - 3.79)	0.225	2.35 (1.14 - 4.88)	0.026	0.12 (0.05 - 0.28)	<0.001

Univariate analysis of baseline variables associated with progression of joint space narrowing scores. Structural change divided into above/below median and OR (95% CI) calculated. Significant results highlighted in bold. OST: osteophytes; JSN: joint space narrowing; SJC: swollen joint count; VAS-GH: visual analogue scale - general health.

Supplementary Table S2: Univariate associations between cumulative DAS28 components (from 0 to 2 years) and radiographic progression

		Rheumatoid arthritis			Osteoarthritis			
		Total change	Erosions change	JSN change	Hand OST change	Hand JSN change	Foot OST change	Foot JSN change
Tertile		OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
DAS28	1	1	1	1	1	1	1	1
	2	2.92 (0.88 - 9.67)	3.52 (1.05 - 11.83)*	2.05 (0.63 - 6.69)	1.63 (0.49 - 5.34)	3.04 (0.78 - 11.81)	1.67 (0.48 - 5.74)	2.08 (0.59 - 7.38)
	3	2.19 (0.69 - 6.93)	2.19 (0.69 - 6.93)	3.54 (1.09 - 11.51) *	1.12 (0.35 - 3.59)	1.21 (0.29 - 5.01)	1.53 (0.48 - 4.88)	5.83 (1.71 - 19.90)**
ESR	1	1	1	1	1	1	1	1
	2	1.00 (0.31 - 3.22)	4.20 (1.23 - 14.37)*	0.49 (0.15 - 1.60)	1.60 (0.49 - 5.29)	0.94 (0.23 - 3.85)	1.30 (0.40 - 4.24)	1.56 (0.48 - 5.06)
	3	5.00 (1.45 - 17.27)*	7.29 (2.03 - 26.10)**	4.49 (1.26 - 16.01)*	1.60 (0.49 - 5.29)	2.62 (0.72 - 9.54)	0.58 (0.17 - 2.05)	1.56 (0.48 - 5.06)
SJC	1	1	1	1	1	1	1	1
	2	1.15 (0.54 - 3.93)	1.46 (0.54 - 3.90)	1.30 (0.48 - 3.52)	1.92 (0.68 - 5.46)	0.88 (0.26 - 2.91)	0.95 (0.33 - 2.72)	1.42 (0.51 - 3.96)
	3	1.85 (0.70 - 4.92)	1.13 (0.43 - 2.98)	2.69 (1.00 - 7.28)	1.50 (0.53 - 4.21)	1.71 (0.56 - 5.21)	1.86 (0.67 - 5.15)	2.71 (0.96 - 7.64)
TJC	1	1	1	1	1	1	1	1
	2	0.69 (0.26 - 1.82)	0.55 (0.21 - 1.46)	0.87 (0.33 - 2.30)	2.35 (0.84 - 6.60)	1.80 (0.62 - 5.25)	1.42 (0.51 - 3.97)	0.72 (0.26 - 1.98)
	3	0.89 (0.34 - 2.34)	0.48 (0.18 - 1.29)	1.85 (0.70 - 4.92)	1.57 (0.57 - 4.34)	0.49 (0.14 - 1.68)	1.51 (0.54 - 4.24)	2.00 (0.71 - 5.68)
VAS-GH	1	1	1	1	1	1	1	1
	2	1.75 (0.66 - 4.69)	1.06 (0.40 - 2.82)	3.93 (1.39 - 11.12) *	1.23 (0.45 - 3.37)	1.16 (0.40 - 3.40)	1.82 (0.66 - 5.04)	1.08 (0.39 - 2.96)
	3	1.55 (0.58 - 4.15)	0.51 (0.19 - 1.36)	3.07 (1.09 - 8.60) *	0.78 (0.28 - 2.17)	0.65 (0.21 - 2.05)	0.87 (0.31 - 2.46)	3.60 (1.22 - 10.64)*

Univariate analysis of cumulative DAS28, and its components, from people with baseline, 1 and 2 year data available. Cumulative DAS28, ESR, SJC, TJC and VAS-GH were compared to radiographic progression rates. Significant results are highlighted in bold. ** p<0.01, * p<0.05. OST: osteophytes; JSN: joint space narrowing; SJC: swollen joint count; VAS-GH: visual analogue scale - general health.