Table S1: Correlation between different DTI and DCE parameters and different severities of inflammation based on Rooney synovitis score

S.No.		Mild inflammation (Rooney score 0-1.5) n=16		Moderate inflammation (Rooney score 1.6-3.0) n=27		Severe Inflammation (Rooney score 3.1-5.0) n=37	
	Parameter	correlation	significance	correlation	significance	correlation	significance
1	FA	.518	.024	.764	.000*	.927	.000*
2	MD	-.505	.027	-.255	.095	-.435	.004*
3	Kep	.042	.441	-.004	.493	.571	.000*
4	BF	-.127	.326	.408	.016	.594	.000*
5	CL	.155	.291	.075	.353	.638	.000*
6	CP	.138	.311	.083	.337	.260	.063
7	CS	-.159	.285	-.055	.391	-.397	.008
8	BV	.113	.345	.311	.054	.519	.001*

*Correlation is significant at $p<0.005$ (as per Bonferroni correction)

FA: Fractional Anisotropy, MD: Mean Diffusivity, CL: Linear anisotropy, CP: Planar anisotropy, CS: Spherical isotropy, BV: Blood Volume, BF: Blood Flow, k ep: Volume transfer constant

Table S2. Correlation between the values of DTI & DCE –MRI indices with various infiltrating immune cells in the synovium of different group of arthritis patients (n=80). Results are expressed as R values.

RA (n=6)	Infiltrated Immune cells in synovium										
DTI & DCE-MRI Indices	CD3	CD 4	CD 8	CD 20	CD34	CD 68	CD 138	CD 54	TNF-α	IL-1β	Total Inflammatory cells
FA	0.38*	0.48*	0.67**	0.39*	0.42*	0.42*	0.80*	0.46**	0.23	0.48*	0.72**
MD	0.01	-0.50*	0.04	-0.58*	-0.34	0.46	-0.32*	0.36	0.27	-0.08	-0.40*
CL	0.55*	0.02	0.40	0.28	0.32	0.08	0.83*	0.24	0.13	0.02	0.08
CP	0.38	0.78	0.15	0.58	0.21	0.03	0.45	0.55	0.48	0.03	0.19
CS	0.07	-0.46*	-0.42	-0.79	0.22	-0.33	0.76	0.76	-0.57	0.27	0.44
BF	0.32	0.22	0.52*	0.34	0.85*	0.32	0.44*	0.42	0.23	0.32	0.53*
BV	0.21	0.53	0.32	0.33	0.85*	0.42	0.41	0.12	0.22	0.54*	0.47*
k_{ep}	0.12	0.23	0.53	0.42	0.77*	0.32	0.31	0.42	0.43*	0.32*	0.43
PCI	0.56	0.23	-0.01	0.14	-0.28	0.46	0.55	0.66	0.35	0.68	0.68
Infective Arthritis (n=19)											
FA	0.56*	0.51*	0.88*	0.30	0.45*	0.70*	0.33	0.22	0.31	0.78*	0.86**

MD	-0.52*	-0.12	-0.63*	0.12	-0.43	0.10	-0.13	0.03	0.08	0.76*	-0.58*
CL	0.62*	0.32	0.42	0.33	0.21	-0.36	0.40	0.16	0.09	0.57	0.75*
CP	0.16	-0.27	-0.15	0.31	0.11	0.23	0.19	-0.12	-0.17	0.11	0.17*
CS	-0.12	0.15	-0.08	0.05	0.23	-0.13	-0.20	-0.19	-0.05	-0.21	-0.25
BF	0.32	0.12	0.34	0.11	0.89**	0.23	0.34	0.11	0.41	0.12	0.45*
BV	0.41	0.32	0.12	0.18	0.93**	0.14	0.42	0.17	0.31	0.15	0.49*
k ep	0.31	0.33	0.15	0.17	0.27	0.24	0.32	0.12	0.01	0.33	0.34
PCI	-0.33	-0.13	-0.14	-0.14	-0.08	-0.35	0.09	-0.03	-0.1	-0.28	-0.48
USpA (n=14)											
FA	0.68*	0.58*	0.75*	-0.07	0.43*	0.73*	0.16	0.51*	0.30	0.10	0.81**
MD	-0.58*	-0.29	-0.45*	0.23	-0.45	-0.42*	0.08	-0.14	0.05	-0.16	-0.63*
CL	0.57*	0.49	0.00	0.54*	0.12	0.49*	0.34	0.14	0.14	0.17	0.14
CP	0.45	0.23	0.28	0.48	0.14	0.27	0.14	0.23	0.47	0.08	0.36
CS	-0.27	-0.40	-0.29	0.54*	0.21	-0.56*	0.57*	-0.15	-0.61*	-0.39	-0.23
BF	0.45*	0.32	0.45	0.44	0.82**	0.42	0.24	0.34	0.54*	0.11	0.34*
BV	0.31	0.43	0.56*	0.44	0.85**	0.35	0.335	0.12	0.34	0.24	0.45*

k ep	0.11	0.23	0.24	0.15	0.34	0.46	0.32	0.21	0.33	0.25	0.25
PCI	-0.40	-0.06	-0.11	0.12	0.01	-0.30	-0.07	-0.67**	-0.10	0.23	-0.43
UCMA (n=31)											
FA	0.64*	0.76*	0.31	0.27	0.22	0.30	0.16	0.33	0.11	0.08	0.77**
MD	-0.51*	-0.16	-0.16	-0.48*	0.31	0.29	0.05	0.00	0.19	0.00	-0.49*
CL	0.36	-0.09	-0.12	-0.04	0.35	0.29	-0.07	0.04	0.18	0.24	0.27
CP	-0.25	0.05	-0.03	0.13	0.17	-0.43	0.11	0.14	-0.23	-0.43	-0.21
CS	0.30	-0.01	0.39	0.11	0.11	0.25	0.62**	0.37	0.29	0.01	0.55*
BF	0.35	0.46*	0.51*	0.32	0.66**	0.33	0.38	0.35	0.11	0.14	0.64*
BV	0.37*	0.44*	0.53*	0.54*	0.70**	0.13	0.17	0.06	0.42	0.29	0.56*
k ep	0.23	0.15	0.22	0.15	0.35	0.15	0.15	0.07	0.54	0.35	0.46
PCI	-0.40	0.06	-0.11	0.12	0.50	-0.30	0.07	-0.67**	0.23	-0.10	-0.43
OA (n=4)											
FA	0.42	0.53*	0.43	0.75	0.34	0.78**	0.72**	0.75*	0.55	0.82	0.84**
MD	-0.58	-0.68	-0.93	0.02	0.44*	-0.27	-0.66	0.05	-0.44	0.15	-0.61*
CL	0.55*	0.02	0.70*	0.28	0.23	0.08	0.83*	0.24	0.08	0.23	0.08
CP	0.38	-0.78	0.15	0.58	0.15	-0.03	-0.45	0.55	0.48	0.03	0.19

CS	0.07	-0.46*	0.42	0.28	0.19	0.33	0.76	0.76	0.57	0.27	0.44
BF	0.24	0.56	0.22	0.35	0.68*	0.31	0.18	0.26	0.33	0.17	0.25
BV	0.15	0.31	0.15	0.23	0.86*	0.21	0.22	0.42	0.24	0.27	0.46
k ep	0.04	0.04	0.13	0.22	0.13	0.22	0.16	0.31	0.17	0.15	0.11
PCI	-0.61	0.19	0.61	-0.61	0.48	-0.54	-0.12	-0.64	-0.88	-085	-0.81
Others (n=6)											
FA	0.60*	0.85**	0.41	0.00	0.24	0.81**	0.72*	0.28	-0.86	0.85	0.66**
MD	-0.24	-0.36	0.34	.87	0.28	-0.61	-0.36	-0.80	0.23	0.64	-0.37
CL	0.42	-0.47	0.43	-0.16	0.16	-0.01	0.19	0.41	-0.49	0.22	0.34
CP	-0.57	-0.56	-0.22	0.41	0.21	-0.69	-0.17	0.31	0.18	0.35	-0.62
CS	0.13	0.25	0.40	0.55	0.22	-0.02	-0.53	-0.22	-0.04	0.48	0.05
BF	0.17	0.04	0.52	0.23	0.74*	0.35	0.11	0.51	0.12	0.46	0.31
BV	0.44	0.24	0.18	0.21	0.91*	0.02	0.04	0.02	0.02	0.31	0.13
k ep	0.05	0.34	0.33	0.26	0.17	0.03	0.03	0.02	0.24	0.16	0.36
PCI	0.64	0.54	0.92	0.67	0.80	0.40	0.19	-0.10	0.62	-0.06	0.56

** correlation is significant at the 0.01 level, * Correlation is significant at 0.05 level

RA: Rheumatoid arthritis, USpA: Undifferentiated spondyloarthropathy, UCMA: undifferentiated chronic monoarthritis, OA, Osteoarthritis, FA: Fractional Anisotropy, MD: Mean Diffusivity, CL: Linear anisotropy, CP: Planar anisotropy, CS: Spherical isotropy, BV: Blood Volume, BF: Blood Flow, k ep: Volume transfer constant, PCI: post-contrast signal intensity

Table S3. Correlation between the values of DTI and DCE –MRI indices with various cytokines in the synovial fluid of different group of arthritis patients (n=80). Results are expressed as R values

DTI & DCE-MRI Indices	Proinflammatory Cytokines in synovial fluid																	
	RA (n=6)			Infective Arthritis (n=19)			USpA (n= 14)			UCMA (n=31)			OA (n=4)			Others (n=6)		
	TNF-α	IL-1β	IL-6	TNF-α	IL-1β	IL-6	TNF-α	IL-1β	IL-6	TNF-α	IL-1β	IL-6	TNF-α	IL-1β	IL-6	TNF-α	IL-1β	IL-6
FA	0.15	0.63**	0.18	0.37*	0.34*	0.06	0.49**	0.10	-0.13	0.46**	0.39*	0.49*	0.23	0.42**	0.87*	0.82*	0.12	0.27
MD	-0.61*	-0.44*	-0.96	0.00	-0.01	0.30	-0.56*	-0.06	0.02	-0.31*	0.36*	-0.48*	-0.57	-0.62*	0.54	-0.54	0.38	-0.74
CL	0.35	0.23	-0.20	0.35*	0.23	0.20	0.08	0.22	0.04	0.22	0.44*	0.33	0.18	0.40	0.17	-0.58	0.24	0.38
CP	-0.20	0.00	0.24	-0.20	0.00	0.24	-0.49	0.20	-0.00	0.30	-0.35	-0.33	-0.91	-0.31	0.24	0.38	0.19	0.91
CS	0.12	-0.19	-0.01	0.12	-0.18	0.01	0.07	0.31	0.37	-0.02	0.03	0.21	-0.70	0.33	-0.16	-0.16	0.52*	0.14
BF	0.12	0.32	0.21	0.31	0.11	0.28	0.07	0.08	0.03	0.01	0.08	0.04	0.02	0.34	0.32	0.42	0.32	0.22
BV	0.24	0.03	0.06	0.08	0.03	0.02	0.31	0.22	0.16	0.32	0.23	0.21	0.35	0.23	0.11	0.31	0.32	0.21
k ep	0.44	0.20	0.10	0.34	0.22	0.15	0.17	0.01	0.17	0.19	0.05	0.04	0.23	0.03	0.44	0.16	0.34	0.27
PCI	0.03	0.42	0.14	0.03	0.42	0.14	-0.25	0.26	0.07	0.32	-0.03	-0.15	0.31	0.57*	0.27	0.22	0.54	0.14

** correlation is significant at the 0.01 level, * Correlation is significant at 0.05 level

RA: Rheumatoid arthritis, USpA: Undifferentiated spondyloarthropathy, UCMA: undifferentiated chronic monoarthritis, OA, Osteoarthritis, FA: Fractional Anisotropy, MD: Mean Diffusivity, CL: Linear anisotropy, CP: Planar anisotropy, CS: Spherical isotropy, BV: Blood Volume, BF: Blood Flow, k ep: Volume transfer constant, PCI: post-contrast signal intensity

Table S4 : Multivariate linear regression for predicting Total cells infiltrating the synovium as dependent variable and DTI and DCE metrics as independent variables

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | R | R Square | Std error of the estimate | Sig. F Change |
		B	Std. Error	Beta						
1	(Constant)	-203.454	35.285		-5.766	.000	0.915	0.836	44.06	5.31E-32
	FA	3138.043	158.157	.915	19.841	5.31E-32				
2	(Constant)	-600.417	171.327		-3.505	.001	0.921	0.848	42.81	0.021
	FA	3277.215	164.528	.955	19.919	6.8E-32				
	CS	486.244	205.617	.113	2.365	.021				
3	(Constant)	-642.382	167.546		-3.834	.000	0.926	0.858	41.62	0.023
	FA	3101.497	176.925	.904	17.530	3.04E-28				
	CS	550.851	201.832	.128	2.729	.008				
	KEP	13.143	5.654	.117	2.324	.023				

FA; Fractional anisotropy, CS; Spherical isotropy, Kep; Volume transfer constant

Table S5: Multivariate linear regression for predicting CD34 as dependent variable and DTI and DCE metrics as independent variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R	R Square	Std error of the estimate	Sig. F change
		B	Std. Error	Beta						
1	(Constant)	19.185	3.431		5.592	.000	0.765	0.585	10.82	2.32E-16
	BF	.309	.030	.765	10.418	2.32E-16				
2	(Constant)	17.073	3.155		5.412	.000	0.814	0.662	9.82	0.000078
	BF	.180	.041	.444	4.371	0.000039				
	BV	1.735	.415	.425	4.178	0.000078				

BF; Blood flow, BV; Blood volume