

Supplementary Table S1 Comparison of T2 relaxation time of articular cartilage in healthy males and females population

T2 relaxation time	Sex	Mean $\pm$ SD (ms)	Mean difference	t-Test statistics	p-Value	Confidence interval of 95%	
						Lower bound	Upper bound
AMFC_R	Male (n = 32)	34.16 $\pm$ 7.87	-2.88	-1.435	0.16	-6.9005	1.1519
	Female (n = 19)	37.04 $\pm$ 4.86					
MMFC_R	Male (n = 32)	21.01 $\pm$ 7.94	-3.67	-1.542	0.13	-8.4555	1.1120
	Female (n = 19)	24.68 $\pm$ 8.68					
PMFC_R	Male (n = 32)	29.13 $\pm$ 10.88	-5.49	-1.788	0.08	-11.6672	0.6813
	Female (n = 19)	34.62 $\pm$ 10.13					
ALFC_R	Male (n = 32)	28.94 $\pm$ 9.10	1.23	0.463	0.65	-4.1129	6.5773
	Female (n = 19)	27.71 $\pm$ 9.33					
MLFC_R	Male (n = 32)	28.23 $\pm$ 11.16	1.25	0.433	0.67	-4.5697	7.0806
	Female (n = 19)	26.98 $\pm$ 7.62					
PLFC_R	Male (n = 32)	27.05 $\pm$ 7.23	-2.86	-1.319	0.19	-7.2126	1.4958
	Female (n = 19)	29.91 $\pm$ 7.89					
AMTC_R	Male (n = 32)	12.43 $\pm$ 4.23	-1.94	-1.415	0.16	-4.6876	0.8132
	Female (n = 19)	14.37 $\pm$ 5.48					
MMTC_R	Male (n = 32)	13.83 $\pm$ 5.03	-0.81	-0.541	0.59	-3.8277	2.2040
	Female (n = 19)	14.64 $\pm$ 5.43					
PMTC_R	Male (n = 32)	21.99 $\pm$ 6.70	3.91	1.905	0.06	-0.2149	8.0320
	Female (n = 19)	18.08 $\pm$ 7.71					
ALTC_R	Male (n = 32)	13.63 $\pm$ 4.45	-0.45	-0.312	0.76	-3.3950	2.4828
	Female (n = 19)	14.08 $\pm$ 5.94					
MLTC_R	Male (n = 32)	14.55 $\pm$ 3.51	-3.18	-2.398	0.02	-5.8483	-0.5148
	Female (n = 19)	17.73 $\pm$ 6.00					
PLTC_R	Male (n = 32)	19.72 $\pm$ 6.17	-1.42	-0.672	0.51	-5.6460	2.8160
	Female (n = 19)	21.14 $\pm$ 8.85					
MSP_R	Male (n = 32)	27.51 $\pm$ 8.36	-5.92	-2.383	0.02	-10.9118	-0.9283
	Female (n = 19)	33.43 $\pm$ 8.93					
MMP_R	Male (n = 32)	23.45 $\pm$ 10.00	-4.57	-1.571	0.12	-10.4184	1.2763
	Female (n = 19)	28.02 $\pm$ 10.13					
MIP_R	Male (n = 32)	23.17 $\pm$ 7.31	-3.31	-1.324	0.19	-8.3471	1.7161
	Female (n = 19)	26.48 $\pm$ 10.56					
CSP_R	Male (n = 32)	15.70 $\pm$ 6.36	-3.19	-1.659	0.10	-7.0594	0.6742
	Female (n = 19)	18.89 $\pm$ 7.11					
CMP_R	Male (n = 32)	18.40 $\pm$ 5.47	-0.10	-0.055	0.96	-3.6873	3.4916
	Female (n = 19)	18.50 $\pm$ 5.47					
CIP_R	Male (n = 32)	17.23 $\pm$ 9.07	-6.62	-2.525	0.02	-11.8939	-1.3509
	Female (n = 19)	23.85 $\pm$ 9.04					
LSP_R	Male (n = 32)	19.40 $\pm$ 9.77	-4.27	-1.566	0.12	-9.7660	1.2123
	Female (n = 19)	23.67 $\pm$ 8.82					
LMP_R	Male (n = 32)	16.16 $\pm$ 6.58	-3.49	-1.692	0.10	-7.6365	0.6562
	Female (n = 19)	19.65 $\pm$ 7.97					
LIP_R	Male (n = 32)	16.30 $\pm$ 6.81	-4.26	-1.690	0.10	-9.3208	0.8050
	Female (n = 19)	20.56 $\pm$ 11.23					

Abbreviations: ALFC, anterior lateral femoral condyle; ALTC, anterior lateral tibial condyle; AMFC, anterior medial femoral condyle; AMTC, anterior medial tibial condyle; CIP, central inferior patella; CMP, central middle patella; CSP, central superior patella; LIP, lateral inferior patella; LMP, lateral middle patella; LSP, lateral superior patella; MIP, medial inferior patella; MLFC, middle lateral femoral condyle; MLTC, middle lateral tibial condyle; MMFC, middle medial femoral condyle; MMP, medial middle patella; MMTC, middle medial tibial condyle; MSP, medial superior patella; PLFC, posterior lateral femoral condyle; PLTC, posterior lateral tibial condyle; PMFC, posterior medial femoral condyle; PMTC, posterior medial tibial condyle; SD, standard deviation.

Note: R refers to the relaxation time of the cartilage.

Supplementary Table S2 Comparison of articular cartilage thickness in healthy males and females population

Articular cartilage thickness	Sex	Mean $\pm$ SD (mm)	Mean difference	t-Test statistics	p-Value	Confidence interval of 95%	
						Lower bound	Upper bound
AMFC_T	Male (n = 32)	1.55 $\pm$ 0.29	0.11	1.285	0.21	-0.0621	0.2821
	Female (n = 19)	1.44 $\pm$ 0.31					
MMFC_T	Male (n = 32)	1.68 $\pm$ 0.34	0.10	0.855	0.40	-0.1340	0.3324
	Female (n = 19)	1.58 $\pm$ 0.48					
PMFC_T	Male (n = 32)	1.65 $\pm$ 0.29	0.10	1.089	0.28	-0.0823	0.2770
	Female (n = 19)	1.55 $\pm$ 0.34					
ALFC_T	Male (n = 32)	1.69 $\pm$ 0.36	0.05	0.451	0.65	-0.1676	0.2646
	Female (n = 19)	1.64 $\pm$ 0.40					
MLFC_T	Male (n = 32)	1.68 $\pm$ 0.40	-0.02	-0.144	0.89	-0.2331	0.2019
	Female (n = 19)	1.70 $\pm$ 0.33					
PLFC_T	Male (n = 32)	1.81 $\pm$ 0.41	0.05	0.503	0.62	-0.1607	0.2680
	Female (n = 19)	1.75 $\pm$ 0.28					
AMTC_T	Male (n = 32)	2.14 $\pm$ 0.30	0.06	0.738	0.46	-0.1100	0.2377
	Female (n = 19)	2.07 $\pm$ 0.29					
MMTC_T	Male (n = 32)	2.41 $\pm$ 0.36	-0.01	-0.142	0.89	-0.2237	0.1941
	Female (n = 19)	2.42 $\pm$ 0.36					
PMTTC_T	Male (n = 32)	2.02 $\pm$ 0.31	-0.04	-0.401	0.69	-0.2355	0.1572
	Female (n = 19)	2.06 $\pm$ 0.38					
ALTC_T	Male (n = 32)	2.37 $\pm$ 0.35	0.07	0.707	0.48	-0.1325	0.2763
	Female (n = 19)	2.30 $\pm$ 0.36					
MLTC_T	Male (n = 32)	3.26 $\pm$ 0.60	0.27	1.672	0.10	-0.0544	0.5942
	Female (n = 19)	2.99 $\pm$ 0.48					
PLTC_T	Male (n = 32)	2.32 $\pm$ 0.36	0.21	2.081	0.04	0.0072	0.4093
	Female (n = 19)	2.11 $\pm$ 0.31					
MSP_T	Male (n = 32)	2.02 $\pm$ 0.43	0.11	0.922	0.36	-0.1252	0.3374
	Female (n = 19)	1.92 $\pm$ 0.33					
MMP_T	Male (n = 32)	2.84 $\pm$ 0.76	0.54	2.682	0.01	0.1350	0.9420
	Female (n = 19)	2.31 $\pm$ 0.57					
MIP_T	Male (n = 32)	2.26 $\pm$ 0.51	0.23	1.629	0.11	-0.0539	0.5158
	Female (n = 19)	2.03 $\pm$ 0.46					
CSP_T	Male (n = 32)	2.35 $\pm$ 0.35	0.26	2.395	0.02	0.0425	0.4848
	Female (n = 19)	2.09 $\pm$ 0.43					
CMP_T	Male (n = 32)	3.12 $\pm$ 0.69	0.50	2.568	0.01	0.1093	0.8966
	Female (n = 19)	2.62 $\pm$ 0.65					
CIP_T	Male (n = 32)	2.22 $\pm$ 0.48	0.13	0.958	0.34	-0.1476	0.4167
	Female (n = 19)	2.08 $\pm$ 0.49					
LSP_T	Male (n = 32)	2.31 $\pm$ 0.47	0.19	1.514	0.14	-0.0634	0.4506
	Female (n = 19)	2.12 $\pm$ 0.39					
LMP_T	Male (n = 32)	3.17 $\pm$ 0.61	0.53	2.665	0.01	0.1308	0.9330
	Female (n = 19)	2.64 $\pm$ 0.81					
LIP_T	Male (n = 32)	2.26 $\pm$ 0.45	0.26	1.989	0.05	-0.0027	0.5215
	Female (n = 19)	2.00 $\pm$ 0.45					

Abbreviations: ALFC, anterior lateral femoral condyle; ALTC, anterior lateral tibial condyle; AMFC, anterior medial femoral condyle; AMTC, anterior medial tibial condyle; CIP, central inferior patella; CMP, central middle patella; CSP, central superior patella; LIP, lateral inferior patella; LMP, lateral middle patella; LSP, lateral superior patella; MIP, medial inferior patella; MLFC, middle lateral femoral condyle; MLTC, middle lateral tibial condyle; MMFC, middle medial femoral condyle; MMP, medial middle patella; MMTTC, middle medial tibial condyle; MSP, medial superior patella; PLFC, posterior lateral femoral condyle; PLTC, posterior lateral tibial condyle; PMFC, posterior medial femoral condyle; PMTC, posterior medial tibial condyle; SD, standard deviation.

Note: T refers to the thickness of the cartilage.

Supplementary Table S3 Correlation of T2 relaxation time of different tibiofemoral and patellar regions with four age groups

Tibiofemoral and patellar regions (T2 relaxation time)	Correlation coefficient (<i>r</i>), age group 18–30 y, <i>n</i> = 17	<i>p</i> -Value (two-tailed)	Correlation coefficient (<i>r</i>), age group 31–45 y, <i>n</i> = 17	<i>p</i> -Value (two-tailed)	Correlation coefficient (<i>r</i>), age group 46 y and above, <i>n</i> = 17	<i>p</i> -Value (two-tailed)
AMFC_R	0.09	0.74	−0.23	0.37	0.25	0.34
MMFC_R	−0.15	0.58	0.05	0.85	−0.08	0.75
PMFC_R	0.08	0.77	0.27	0.30	−0.51	0.04
ALFC_R	0.26	0.31	0.35	0.17	0.40	0.11
MLFC_R	0.27	0.29	0.03	0.91	0.15	0.57
PLFC_R	0.53	0.03	0.10	0.72	0.00	1.00
AMTC_R	0.27	0.30	0.07	0.79	−0.16	0.55
MMTC_R	−0.16	0.55	−0.07	0.79	0.01	0.97
PMTc_R	0.04	0.89	−0.08	0.75	0.35	0.17
ALTC_R	0.17	0.51	−0.44	0.08	0.14	0.61
MLTC_R	−0.01	0.96	0.33	0.19	−0.25	0.34
PLTC_R	−0.11	0.67	0.32	0.21	−0.20	0.45
MSP_R	0.00	1.00	0.31	0.23	0.43	0.08
MMP_R	0.28	0.28	0.41	0.11	0.07	0.80
MIP_R	0.46	0.06	−0.02	0.95	0.01	0.99
CSP_R	0.14	0.59	0.20	0.45	−0.19	0.46
CMP_R	0.23	0.37	0.48	0.05	0.13	0.63
CIP_R	−0.22	0.40	0.25	0.33	0.03	0.90
LSP_R	0.32	0.22	0.10	0.72	−0.07	0.79
LMP_R	−0.30	0.24	0.10	0.70	−0.14	0.61
LIP_R	−0.51	0.04	0.20	0.44	−0.29	0.26

Abbreviations: ALFC, anterior lateral femoral condyle; ALTC, anterior lateral tibial condyle; AMFC, anterior medial femoral condyle; AMTC, anterior medial tibial condyle; CIP, central inferior patella; CMP, central middle patella; CSP, central superior patella; LIP, lateral inferior patella; LMP, lateral middle patella; LSP, lateral superior patella; MIP, medial inferior patella; MLFC, middle lateral femoral condyle; MLTC, middle lateral tibial condyle; MMFC, middle medial femoral condyle; MMP, medial middle patella; MMTC, middle medial tibial condyle; MSP, medial superior patella; PLFC, posterior lateral femoral condyle; PLTC, posterior lateral tibial condyle; PMFC, posterior medial femoral condyle; PMTC, posterior medial tibial condyle.

Supplementary Table S4 Correlation of cartilage thickness of different tibiofemoral and patellar regions with four age groups

Tibiofemoral and patellar regions (cartilage thickness)	Correlation coefficient (<i>r</i>), age group 18–30 y, <i>n</i> = 17	<i>p</i> -Value (two-tailed)	Correlation coefficient (<i>r</i>), age group 31–45 y, <i>n</i> = 17	<i>p</i> -Value (two-tailed)	Correlation coefficient (<i>r</i>), age group 46 y and above, <i>n</i> = 17	<i>p</i> -Value (two-tailed)
AMFC_T	−0.18	0.50	0.01	0.98	0.22	0.40
MMFC_T	0.12	0.64	−0.10	0.70	0.13	0.63
PMFC_T	0.20	0.44	−0.12	0.66	−0.08	0.77
ALFC_T	−0.51	0.04	−0.18	0.50	−0.43	0.09
MLFC_T	−0.16	0.54	−0.06	0.81	−0.11	0.69
PLFC_T	−0.23	0.37	−0.24	0.36	−0.24	0.37
AMTC_T	−0.34	0.18	−0.02	0.94	0.05	0.85
MMTC_T	−0.31	0.22	0.12	0.66	0.03	0.92
PMTC_T	−0.05	0.86	0.17	0.52	0.09	0.75
ALTC_T	0.11	0.66	−0.24	0.35	0.37	0.14
MLTC_T	−0.02	0.93	−0.22	0.41	0.36	0.16
PLTC_T	0.04	0.88	−0.36	0.16	0.34	0.18
MSP_T	0.14	0.60	−0.08	0.75	−0.28	0.27
MMP_T	−0.22	0.39	0.21	0.41	−0.24	0.36
MIP_T	−0.12	0.65	−0.31	0.22	−0.20	0.45
CSP_T	−0.14	0.59	−0.32	0.22	−0.09	0.75
CMP_T	−0.19	0.47	−0.16	0.55	−0.22	0.39
CIP_T	0.05	0.84	−0.39	0.12	−0.16	0.54
LSP_T	−0.44	0.08	−0.12	0.65	0.08	0.75
LMP_T	0.01	0.98	−0.11	0.68	−0.04	0.88
LIP_T	0.19	0.46	0.04	0.88	0.08	0.77

Abbreviations: ALFC, anterior lateral femoral condyle; ALTC, anterior lateral tibial condyle; AMFC, anterior medial femoral condyle; AMTC, anterior medial tibial condyle; CIP, central inferior patella; CMP, central middle patella; CSP, central superior patella; LIP, lateral inferior patella; LMP, lateral middle patella; LSP, lateral superior patella; MIP, medial inferior patella; MLFC, middle lateral femoral condyle; MLTC, middle lateral tibial condyle; MMFC, middle medial femoral condyle; MMP, medial middle patella; MMTC, middle medial tibial condyle; MSP, medial superior patella; PLFC, posterior lateral femoral condyle; PLTC, posterior lateral tibial condyle; PMFC, posterior medial femoral condyle; PMTC, posterior medial tibial condyle.