

Supplementary Table 2. Subgroup analysis of association between knee OA and the risk of cardiovascular events, MI, stroke, HF, and cardiovascular mortality

	Events	Duration	IR ^{a)}	Model 4 ^{b)} , HR (95% CI)	<i>p</i> for interaction
CVD (MI or stroke or HF)					
Age < 65 yr					
Knee OA (-)	68,942	5,129,009	13.44	1.00 (ref.)	0.409
Knee OA (+)	2,988	198,815	15.03	1.10 (1.06–1.14)	
Age ≥ 65 yr					
Knee OA (-)	53,408	1,580,740	33.79	1.00 (ref.)	1.12 (1.09–1.16)
Knee OA (+)	4,406	119,215	36.96	1.12 (1.09–1.16)	
Sex, male					
Knee OA (-)	88,795	4,597,128	19.32	1.00 (ref.)	0.497
Knee OA (+)	3,748	140,726	26.63	1.13 (1.09–1.16)	
Sex, female					
Knee OA (-)	33,555	2,112,621	15.88	1.00 (ref.)	1.11 (1.07–1.15)
Knee OA (+)	3,646	177,304	20.56	1.11 (1.07–1.15)	
Insulin use (-)					
Knee OA (-)	104,932	6,182,164	16.97	1.00 (ref.)	0.006
Knee OA (+)	6,196	285,902	21.67	1.13 (1.10–1.16)	
Insulin use (+)					
Knee OA (-)	17,418	527,585	33.01	1.00 (ref.)	1.04 (0.98–1.10)
Knee OA (+)	1,198	32,128	37.29	1.04 (0.98–1.10)	
Oral antidiabetic drug < 3 classes					
Knee OA (-)	97,160	5,630,153	17.26	1.00 (ref.)	0.563
Knee OA (+)	5,673	260,016	21.82	1.11 (1.08–1.14)	
Oral antidiabetic drug ≥ 3 classes					
Knee OA (-)	25,190	1,079,596	23.33	1.00 (ref.)	1.13 (1.08–1.19)
Knee OA (+)	1,721	58,015	29.66	1.13 (1.08–1.19)	
DM duration < 5 yr					
Knee OA (-)	71,480	4,573,340	15.63	1.00 (ref.)	0.001
Knee OA (+)	4,267	207,415	20.57	1.16 (1.12–1.19)	
DM duration ≥ 5 yr					
Knee OA (-)	50,870	2,136,409	23.81	1.00 (ref.)	1.07 (1.03–1.11)
Knee OA (+)	3,127	110,615	28.27	1.07 (1.03–1.11)	
MI					
Age < 65 yr					
Knee OA (-)	16,283	5,275,945	3.09	1.00 (ref.)	0.898
Knee OA (+)	652	205,556	3.17	1.05 (0.97–1.14)	
Age ≥ 65 yr					
Knee OA (-)	10,589	1,693,689	6.25	1.00 (ref.)	1.06 (0.99–1.14)
Knee OA (+)	815	129,409	6.30	1.06 (0.99–1.14)	
Sex, male					
Knee OA (-)	20,140	4,780,523	4.21	1.00 (ref.)	0.736
Knee OA (+)	772	149,070	5.18	1.05 (0.98–1.13)	

Supplementary Table 2. Continued

	Events	Duration	IR ^{a)}	Model 4 ^{b)} , HR (95% CI)	<i>p</i> for interaction
Sex, female					
Knee OA (-)	6,732	2,189,111	3.08	1.00 (ref.)	
Knee OA (+)	695	185,894	3.74	1.07 (0.99–1.16)	
Insulin use (-)					
Knee OA (-)	22,925	6,406,223	3.58	1.00 (ref.)	0.907
Knee OA (+)	1,205	300,340	4.01	1.06 (1.00–1.12)	
Insulin use (+)					
Knee OA (-)	3,947	563,411	7.01	1.00 (ref.)	
Knee OA (+)	262	34,625	7.57	1.05 (0.93–1.19)	
Oral antidiabetic drug < 3 classes					
Knee OA (-)	21,116	5,835,562	3.62	1.00 (ref.)	0.088
Knee OA (+)	1,087	273,165	3.98	1.03 (0.97–1.10)	
Oral antidiabetic drug ≥ 3 classes					
Knee OA (-)	5,756	1,134,072	5.08	1.00 (ref.)	
Knee OA (+)	380	61,799	6.15	1.15 (1.03–1.27)	
DM duration < 5 yr					
Knee OA (-)	15,466	4,723,981	3.27	1.00 (ref.)	0.461
Knee OA (+)	818	217,304	3.76	1.08 (1.00–1.16)	
DM duration ≥ 5 yr					
Knee OA (-)	11,406	2,245,654	5.08	1.00 (ref.)	
Knee OA (+)	649	117,661	5.52	1.04 (0.96–1.12)	
Stroke					
Age < 65 yr					
Knee OA (-)	33,012	5,211,100	6.33	1.00 (ref.)	0.408
Knee OA (+)	1,436	202,486	7.09	1.11 (1.05–1.17)	
Age ≥ 65 yr					
Knee OA (-)	28,392	1,630,878	17.41	1.00 (ref.)	
Knee OA (+)	2,380	123,754	19.23	1.14 (1.09–1.19)	
Sex, male					
Knee OA (-)	44,362	4,693,401	9.45	1.00 (ref.)	0.206
Knee OA (+)	1,956	144,676	13.52	1.15 (1.10–1.20)	
Sex, female					
Knee OA (-)	17,042	2,148,577	7.93	1.00 (ref.)	
Knee OA (+)	1,860	181,564	10.24	1.1 (1.05–1.16)	
Insulin use (-)					
Knee OA (-)	53,289	6,294,516	8.47	1.00 (ref.)	0.203
Knee OA (+)	3,228	292,748	11.03	1.14 (1.10–1.18)	
Insulin use (+)					
Knee OA (-)	8,115	547,462	14.82	1.00 (ref.)	
Knee OA (+)	588	33,492	17.56	1.07 (0.99–1.17)	
Oral antidiabetic drug < 3 classes					
Knee OA (-)	48,684	5,734,476	8.49	1.00 (ref.)	0.313

Supplementary Table 2. Continued

	Events	Duration	IR ^{a)}	Model 4 ^{b)} , HR (95% CI)	<i>p</i> for interaction
Knee OA (+)	2,962	266,219	11.13	1.14 (1.10–1.18)	
Oral antidiabetic drug ≥ 3 classes					
Knee OA (-)	12,720	1,107,502	11.49	1.00 (ref.)	
Knee OA (+)	854	60,022	14.23	1.09 (1.02–1.17)	
DM duration < 5 yr					
Knee OA (-)	35,723	4,650,741	7.68	1.00 (ref.)	0.004
Knee OA (+)	2,215	212,120	10.44	1.18 (1.13–1.23)	
DM duration ≥ 5 yr					
Knee OA (-)	25,681	2,191,237	11.72	1.00 (ref.)	
Knee OA (+)	1,601	114,120	14.03	1.07 (1.01–1.12)	
HF					
Age < 65 yr					
Knee OA (-)	30,861	5,263,530	5.86	1.00 (ref.)	0.324
Knee OA (+)	1,398	204,653	6.83	1.13 (1.07–1.2)	
Age ≥ 65 yr					
Knee OA (-)	25,987	1,674,975	15.51	1.00 (ref.)	
Knee OA (+)	2,131	127,589	16.70	1.09 (1.05–1.14)	
Sex, male					
Knee OA (-)	41,285	4,761,375	8.67	1.00 (ref.)	0.092
Knee OA (+)	1,831	147,714	12.40	1.14 (1.09–1.19)	
Sex, female					
Knee OA (-)	15,563	2,177,130	7.15	1.00 (ref.)	
Knee OA (+)	1,698	184,528	9.20	1.07 (1.02–1.13)	
Insulin use (-)					
Knee OA (-)	47,402	6,383,297	7.43	1.00 (ref.)	0.001
Knee OA (+)	2,902	298,140	9.73	1.14 (1.10–1.19)	
Insulin use (+)					
Knee OA (-)	9,446	555,208	17.01	1.00 (ref.)	
Knee OA (+)	627	34,102	18.39	0.98 (0.90–1.06)	
Oral antidiabetic drug < 3 classes					
Knee OA (-)	44,822	5,811,439	7.71	1.00 (ref.)	0.554
Knee OA (+)	2,686	271,063	9.91	1.10 (1.06–1.15)	
Oral antidiabetic drug ≥ 3 classes					
Knee OA (-)	12,026	1,127,067	10.67	1.00 (ref.)	
Knee OA (+)	843	61,180	13.78	1.13 (1.05–1.21)	
DM duration < 5 yr					
Knee OA (-)	32,254	4,708,415	6.85	1.00 (ref.)	0.019
Knee OA (+)	1,985	215,763	9.20	1.15 (1.10–1.20)	
DM duration ≥ 5 yr					
Knee OA (-)	24,594	2,230,090	11.03	1.00 (ref.)	
Knee OA (+)	1,544	116,480	13.26	1.06 (1.01–1.12)	
Cardiovascular mortality					

Supplementary Table 2. Continued

	Events	Duration	IR ^{a)}	Model 4 ^{b)} , HR (95% CI)	<i>p</i> for interaction
Age < 65 yr					
Knee OA (-)	5,060	5,321,017	0.95	1.00 (ref.)	0.245
Knee OA (+)	173	207,406	0.83	0.91 (0.78–1.05)	
Age ≥ 65 yr					
Knee OA (-)	8,398	1,718,103	4.89	1.00 (ref.)	0.726
Knee OA (+)	592	131,461	4.50	1.00 (0.92–1.09)	
Sex, male					
Knee OA (-)	10,236	4,833,193	2.12	1.00 (ref.)	0.726
Knee OA (+)	432	151,026	2.86	0.97 (0.88–1.07)	
Sex, female					
Knee OA (-)	3,222	2,205,928	1.46	1.00 (ref.)	0.800
Knee OA (+)	333	187,841	1.77	0.99 (0.89–1.11)	
Insulin use (-)					
Knee OA (-)	11,399	6,466,553	1.76	1.00 (ref.)	0.800
Knee OA (+)	623	303,596	2.05	0.97 (0.90–1.06)	
Insulin use (+)					
Knee OA (-)	2,059	572,568	3.60	1.00 (ref.)	0.115
Knee OA (+)	142	35,270	4.03	1.00 (0.84–1.18)	
Oral antidiabetic drug < 3 classes					
Knee OA (-)	10,735	5,890,223	1.82	1.00 (ref.)	0.115
Knee OA (+)	575	276,058	2.08	0.95 (0.87–1.03)	
Oral antidiabetic drug ≥ 3 classes					
Knee OA (-)	2,723	1,148,897	2.37	1.00 (ref.)	0.294
Knee OA (+)	190	62,809	3.03	1.09 (0.94–1.26)	
DM duration < 5 yr					
Knee OA (-)	7,668	4,764,974	1.61	1.00 (ref.)	0.294
Knee OA (+)	409	219,495	1.86	0.94 (0.85–1.04)	
DM duration ≥ 5 yr					
Knee OA (-)	5,790	2,274,147	2.55	1.00 (ref.)	1.02 (0.92–1.14)
Knee OA (+)	356	119,372	2.98	1.02 (0.92–1.14)	

OA, osteoarthritis; MI, myocardial infarction; HF, heart failure; IR, incidence rate; HR, hazard ratio; CI, confidence interval; CVD, cardiovascular disease; DM, diabetes mellitus; BMI, body mass index; eGFR, estimated glomerular filtration rate.

^{a)}Per 1,000 person-years.

^{b)}The HR was adjusted for age, sex, income, hypertension, dyslipidemia, smoking, drinking, exercise, BMI, eGFR, insulin use, number of oral antidiabetic medications, and duration of diabetes.