ONLINE SUPPLEMENTARY DATA

Supplementary Table 1. Frequent knee pain and history of injury predict a new knee injury within 12 months among individuals with unilateral radiographic knee osteoarthritis (ROA)

	Frequency of Injuries/ Total Observations	Unadjusted Odds Ratio for Injury	Adjusted* Odds Ratio for Injury
Unilateral ROA (653 participants, 46 injuries)			
No Chronic Ipsilateral Knee Symptoms	30/2072 (1.5%)	Reference	Reference
Chronic Ipsilateral Knee Symptoms	16/517 (3.1%)	**2.05 (1.09, 3.83)**	1.39 (0.65, 2.97)
No Chronic Contralateral Knee Symptoms	21/1623 (1.3%)	Reference	Reference
Chronic Contralateral Knee Symptoms	25/966 (2.6%)	**1.97 (1.09, 3.58)**	1.48 (0.73, 3.02)
No History of Ipsilateral Knee Injury	29/2123 (1.4%)	Reference	Reference
History of Ipsilateral Knee Injury	17/466 (3.7%)	**2.62 (1.41, 4.86)**	1.98 (0.98, 3.98)
No History of Contralateral Knee Injury	17/1455 (1.2%)	Reference	Reference
History of Contralateral Knee Injury	29/1134 (2.6%)	**2.23 (1.19, 4.17)**	1.85 (0.93, 3.70)

* In addition to the variables indicated above each model was adjusted for sex, age, and body mass index at each visit. Bold = significant odds ratios.

Supplementary Table 2. Knee pain severity and history of injury predict a new knee injury within 12 months among individuals with unilateral radiographic knee osteoarthritis (ROA)

	Frequency of Injuries/ Total Observations	Unadjusted Odds Ratio for Injury	Adjusted* Odds Ratio for Injury
Unilateral ROA (653 participants, 46 injuries)			
No Ipsilateral Knee Pain (WOMAC $\leq$ 2)	25/2129 (1.2%)	Reference	Reference
Ipsilateral Knee Pain (WOMAC $\geq$ 3)	21/464 (4.5%)	**4.02 (2.21, 7.32)**	**3.81 (1.88, 7.74)**
No Contralateral Knee Pain (WOMAC $\leq$ 2)	26/1690 (1.5%)	Reference	Reference
Contralateral Knee Pain (WOMAC $\geq$ 3)	20/903 (2.2%)	1.44 (0.79, 2.63)	0.68 (0.34, 1.38)
No History of Ipsilateral Knee Injury	29/2127 (1.4%)	Reference	Reference
History of Ipsilateral Knee Injury	17/466 (3.7%)	**2.62 (1.41, 4.87)**	1.78 (0.90, 3.53)
No History of Contralateral Knee Injury	17/1458 (1.2%)	Reference	Reference
History of Contralateral Knee Injury	29/1135 (2.6%)	**2.23 (1.19, 4.17)**	**2.08 (1.04, 4.15)**

*In addition to the variables indicated above each model was adjusted for sex, age, and body mass index at each visit. Bold = significant odds ratios.

Supplementary Table 3. Frequent knee pain and history of injury predict a new knee injury within 12 months (sensitivity analyses)

	Adjusted[1] Odds Ratio for Injury	Adjusted[1] Odds Ratio for Injury Among Males	Adjusted[1] Odds Ratio for Injury Among Females	Adjusted[2] Odds Ratio for Injury (History of Pain)	Adjusted[3] Odds Ratio for Injury (Strong Pain Medications)	Adjusted[4] Odds Ratio for Injury (PASE Score)	Adjusted[5] Odds Ratio for Injury (Frequent Knee Bending)
Full Osteoarthritis Initiative (4,435 participants, 875 injuries)							
No Chronic Ipsilateral Knee Symptoms				Reference			
Chronic Ipsilateral Knee Symptoms	**1.84 (1.57, 2.16)**	**1.83 (1.43, 2.35)**	**1.84 (1.49, 2.26)**	**2.06 (1.68, 2.52)**	**1.83 (1.56, 2.15)**	**1.86 (1.58, 2.18)**	**1.86 (1.59, 2.18)**
No Chronic Contralateral Knee Symptoms				Reference			
Chronic Contralateral Knee Symptoms	1.02 (0.87, 1.20)	0.91 (0.70, 1.18)	1.10 (0.89, 1.35)	0.99 (0.81, 1.22)	1.01 (0.86, 1.19)	1.00 (0.85, 1.18)	1.02 (0.86, 1.20)
No History of Ipsilateral Knee Injury				Reference			
History of Ipsilateral Knee Injury	**1.80 (1.56, 2.09)**	**2.04 (1.60, 2.59)**	**1.68 (1.39, 2.03)**	**1.76 (1.47, 2.10)**	**1.80 (1.55, 2.08)**	**1.82 (1.57, 2.11)**	**1.81 (1.56, 2.10)**
No History of Contralateral Knee Injury				Reference			
History of Contralateral Knee Injury	**1.43 (1.23, 1.66)**	**1.42 (1.11, 1.80)**	**1.42 (1.17, 1.73)**	**1.37 (1.14, 1.64)**	**1.42 (1.22, 1.65)**	**1.42 (1.22, 1.65)**	**1.41 (1.21, 1.64)**

1. In addition to the variables indicated above each model was adjusted for sex, age, and body mass index at each visit.

2. History of pain in the ipsilateral contralateral knee was added to the adjusted model described above (neither variable was significant in the model; 28% of observations were missing compared to the first adjusted model mostly because the baseline visit could not offer data on a history of knee pain).

3. Self-reported use strong prescription pain medication (e.g., narcotics) for joint pain or arthritis more than half the days in the past 30 days was added to the first adjusted model described above (variable was significant in the model OR = 1.43, 95% confidence interval = 1.06 to 1.92; <1% of observations were missing compared to the first adjusted model).

4. Physical Activity Scale for the Elderly (PASE) score was added to the first adjusted model described above (variable was not significant in the model; < 1% of observations were missing compared to the first adjusted model)

5. Frequent knee bending activity was added to the first adjusted model described above (variable was not significant in the model; <1% of observations were missing compared to the first adjusted model). Frequent knee bending was a person who did the following on four or more days/week during a typical week in the past month: kneel 30 minutes or more, get in and out of squatting position 10 or more times, climb up 10 or more flights of stairs (10 steps/flight), or squat for 30 minutes or more.

Supplementary Table 4. Knee pain severity and history of injury predict a new knee injury within 12 months (sensitivity analyses)

	Adjusted[1] Odds Ratio for Injury	Adjusted[1] Odds Ratio for Injury Among Males	Adjusted[1] Odds Ratio for Injury Among Females	Adjusted[2] Odds Ratio for Injury (History of Pain)	Adjusted[3] Odds Ratio for Injury (Strong Pain Medications)	Adjusted[4] Odds Ratio for Injury (PASE Score)	Adjusted[5] Odds Ratio for Injury (Frequent Knee Bending)
Full Osteoarthritis Initiative (4,435 participants, 877 injuries)							
No Ipsilateral Knee Pain (WOMAC ≤ 2)				Reference			
Ipsilateral Knee Pain (WOMAC ≥ 3)	**1.94 (1.66, 2.26)**	**1.85 (1.15, 2.37)**	**1.99 (1.63, 2.43)**	**2.01 (1.64, 2.47)**	**1.92 (1.65, 2.25)**	**1.93 (1.65, 2.25)**	**1.93 (1.65, 2.26)**
No Contralateral Knee Pain (WOMAC ≤ 2)				Reference			
Contralateral Knee Pain (WOMAC ≥ 3)	0.98 (0.84, 1.15)	0.82 (0.63, 1.06)	1.10 (0.90, 1.34)	0.97 (0.79, 1.20)	0.97 (0.83, 1.14)	0.98 (0.84, 1.15)	0.98 (0.84, 1.15)
No History of Ipsilateral Knee Injury				Reference			
History of Ipsilateral Knee Injury	**1.76 (1.52, 2.05)**	**2.01 (1.58, 2.56)**	**1.63 (1.34, 1.97)**	**1.74 (1.46, 2.08)**	**1.76 (1.51, 2.04)**	**1.78 (1.54, 2.07)**	**1.78 (1.53, 2.06)**
No History of Contralateral Knee Injury				Reference			
History of Contralateral Knee Injury	**1.44 (1.23, 1.67)**	**1.42 (1.12, 1.81)**	**1.44 (1.19, 1.75)**	**1.39 (1.16, 1.67)**	**1.43 (1.23, 1.66)**	**1.43 (1.23, 1.66)**	**1.42 (1.22, 1.66)**

1. In addition to the variables indicated above each model was adjusted for sex, age, and body mass index at each visit.
2. History of pain in the ipsilateral contralateral knee was added to the adjusted model described above (neither variable was significant in the model; 28% of observations were missing compared to the first adjusted model mostly because the baseline visit could not offer data on a history of knee pain).
3. Self-reported use strong prescription pain medication (e.g., narcotics) for joint pain or arthritis more than half the days in the past 30 days was added to the first adjusted model described above (variable was significant in the model OR = 1.37, 95% confidence interval = 1.01 to 1.85; <1% of observations were missing compared to the first adjusted model).
4. Physical Activity Scale for the Elderly (PASE) score was added to the first adjusted model described above (variable was not significant in the model; < 1% of observations were missing compared to the first adjusted model).
5. Frequent knee bending activity was added to the first adjusted model described above (variable was not significant in the model; < 1% of observations were missing compared to the first adjusted model). Frequent knee bending was a person who did the following on four or more days/week during a typical week in the month prior to a visit: kneel 30 minutes or more, get in and out of squatting position 10 or more times, climb up 10 or more flights of stairs (10 steps/flight), or squat for 30 minutes or more.

Supplementary Table 5. Person-based analysis confirming that frequent knee pain and history of injury predict a new knee injury within 12 months

	Frequency of Injuries/ Total Observations	Unadjusted Odds Ratio for Injury	Adjusted[1] Odds Ratio for Injury	Adjusted[2] Odds Ratio for Injury
Full Osteoarthritis Initiative (4,435 participants, 792 injuries)				
No Chronic Knee Symptoms	311/8862 (3.5%)	Reference	Reference	Reference
Chronic Knee Symptoms	481/6847 (7.0%)	**1.86 (1.60, 2.16)**	**1.71 (1.47, 1.98)**	**1.69 (1.45, 1.96)**
No History of Knee Injury	277/8486 (3.3%)	Reference	Reference	Reference
History of Knee Injury	515/7223 (7.1%)	**1.97 (1.68, 2.31)**	**1.90 (1.62, 2.23)**	**1.89 (1.62, 2.22)**

1. In addition to the variables indicated above each model was adjusted for sex, age, and body mass index at each visit.
2. Self-reported use strong prescription pain medication (e.g., narcotics) for joint pain or arthritis more than half the days in the past 30 days was added to the first adjusted model described above.

Supplementary Table 6. Person-based analysis confirming that knee pain severity and history of injury predict a new knee injury within 12 months

	Frequency of Injuries/ Total Observations	Unadjusted Odds Ratio for Injury	Adjusted[1] Odds Ratio for Injury	Adjusted[2] Odds Ratio for Injury
Full Osteoarthritis Initiative (4,435 participants, 794 injuries)				
No Knee Pain (WOMAC ≤ 2)	328/9101 (3.6%)	Reference	Reference	Reference
Knee Pain (WOMAC ≥ 3)	466/6633 (7.0%)	**1.86 (1.60, 2.16)**	**1.64 (1.41, 1.91)**	**1.62 (1.38, 1.89)**
No History of Knee Injury	277/8506 (3.3%)	Reference	Reference	Reference
History of Knee Injury	517/7228 (7.2%)	**1.98 (1.69, 2.31)**	**1.89 (1.61, 2.21)**	**1.88 (1.61, 2.21)**

1. In addition to the variables indicated above each model was adjusted for sex, age, and body mass index at each visit.
2. Self-reported use strong prescription pain medication (e.g., narcotics) for joint pain or arthritis more than half the days in the past 30 days was added to the first adjusted model described above.

Supplementary Table 7. Knee pain severity and history of injury predict a new knee injury within 12 months (knee pain severity analyzed as a continuous variable)

	Unadjusted[1] Odds Ratio for Injury	Adjusted[1] Odds Ratio for Injury
Full Osteoarthritis Initiative (4,435 participants, 877 injuries)		
No Ipsilateral Knee Pain (WOMAC)	Reference	Reference
Ipsilateral Knee Pain (WOMAC)	**1.13 (1.11, 1.15)**	**1.11 (1.09, 1.14)**
No Contralateral Knee Pain (WOMAC)	Reference	Reference
Contralateral Knee Pain (WOMAC)	**1.07 (1.05, 1.09)**	0.99 (0.97, 1.01)
No History of Ipsilateral Knee Injury	Reference	Reference
History of Ipsilateral Knee Injury	**2.09 (1.81, 2.41)**	**1.71 (1.47, 1.98)**
No History of Contralateral Knee Injury	Reference	Reference
History of Contralateral Knee Injury	**1.64 (1.41, 1.91)**	**1.44 (1.24, 1.68)**

1. In addition to the variables indicated above each model was adjusted for sex, age, and body mass index at each visit.