

# The Association between Radiographic Hand OA, Meniscal Damage and Torn ACL

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## Background

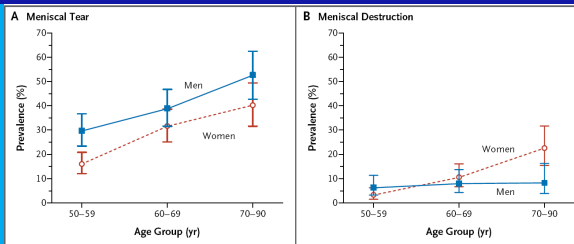
### Meniscal tear—a feature of osteoarthritis

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**Figure 2.** Prevalence of Meniscal Tear or Destruction in the Right Knee among Middle-Aged and Elderly Persons, According to Age Group and Sex.

All persons with previous knee surgery were excluded from the prevalence estimates of meniscal destruction. The I bars denote 95% confidence intervals.

Englund et al. *New Engl J Med* 2008

## Objective

To study whether radiographic hand OA (generalized OA) is associated with meniscal damage and ACL tear of the knee



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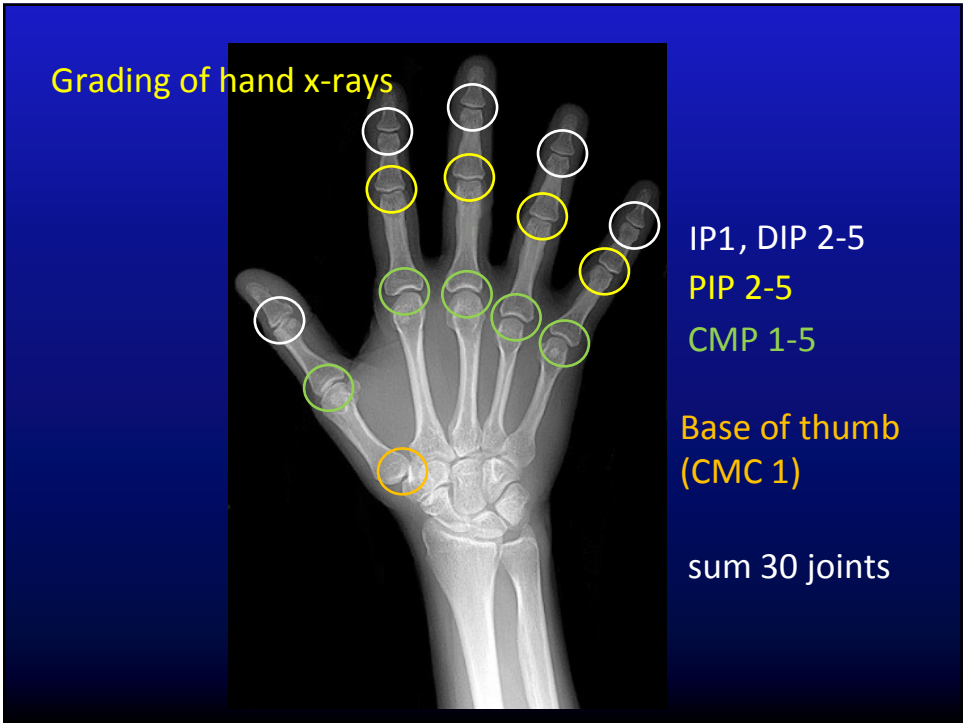
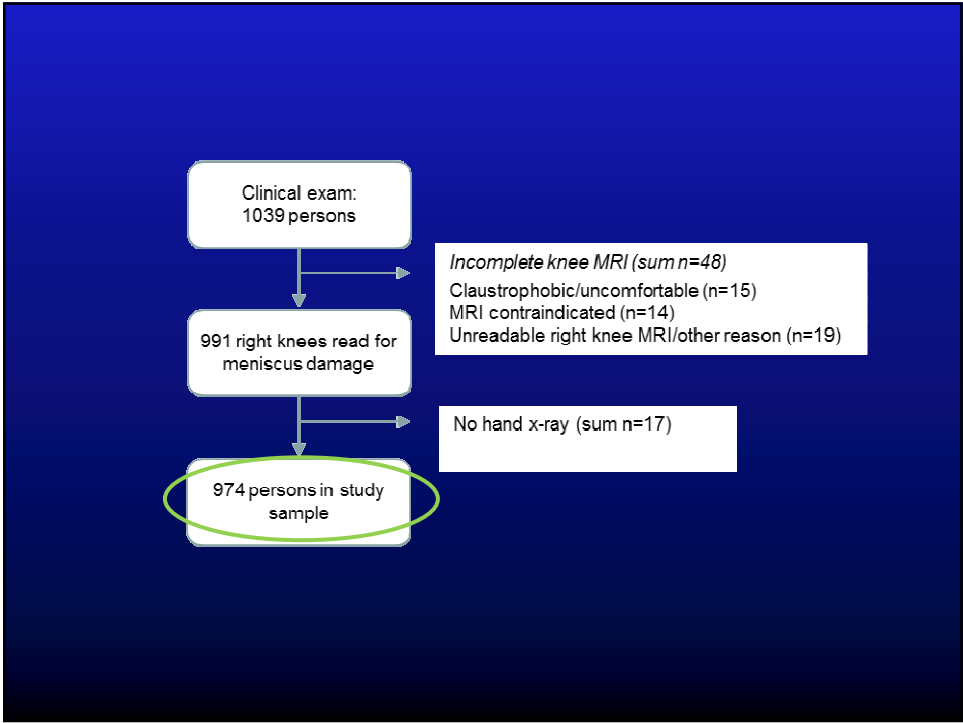


## Methods

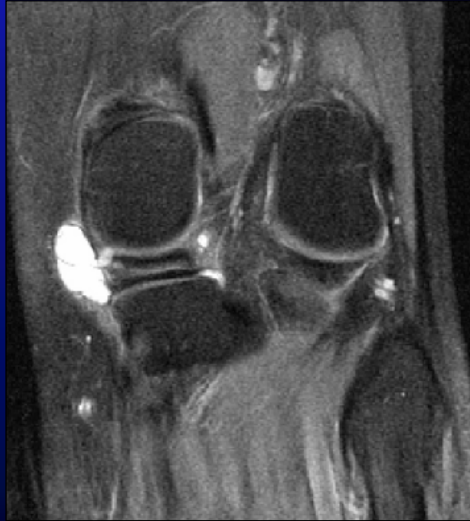
### Framingham Osteoarthritis Community Cohort

- Population-based study
- N=1039 men and women, age 50-90
- Bilat. hand and knee x-rays
- Knee MRI
- Clinic visit (questionnaires, body mass index etc)





## Grading of right knee MRIs



**Meniscus damage** =  
tear, partial or total  
destruction of medial  
or lateral meniscus

**ACL** = tear or no tear

Englund et al *New Engl J Med* 2008

## Statistics

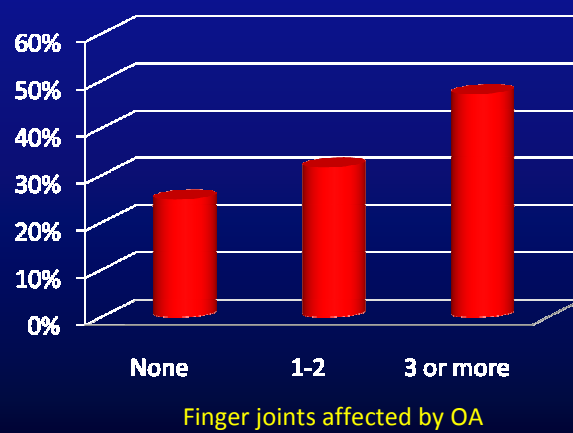


- Prevalence of meniscal damage/ACL tear in subjects with **1 to 2, and 3 or more** OA finger joints, compared to those **without** hand OA
- **Prevalence ratios** - Poisson regression model to adjust for age, sex, and BMI
- Separate analysis for subjects with KL 0 right knee (n=748) and KL 0 in both knees (n=707)
- Number of affected hand joint groups

## Subject characteristics

Age (years), mean (SD)	62 (9) yrs
Women	57%
Body mass index, mean (SD)	28.6 (5.6)
Right knee meniscus damage	35%
Right knee ACL tear	4%
Radiographic OA	
<i>in 0 finger joints</i>	35%
<i>in 1-2 finger joints</i>	28%
<i>in 3 or more finger joints</i>	37%
Hand joint groups affected by OA	
1	26%
2	20%
3 or more	19%

## Crude prevalence of right knee meniscus damage



## OA finger joints & meniscus damage

Number of finger joints with OA	Whole study sample (n=974)		No radiographic knee OA (KL=0, n=748)	
	Crude PR	Adjusted PR* (95% CI)	Crude PR	Adjusted PR* (95% CI)
None	Ref. category		Ref. category	
1 to 2	1.27	1.09 (0.85, 1.41)	1.06	0.96 (0.68, 1.36)
3 or more	1.90	1.40 (1.11, 1.77)	1.72	1.42 (1.03, 1.97)

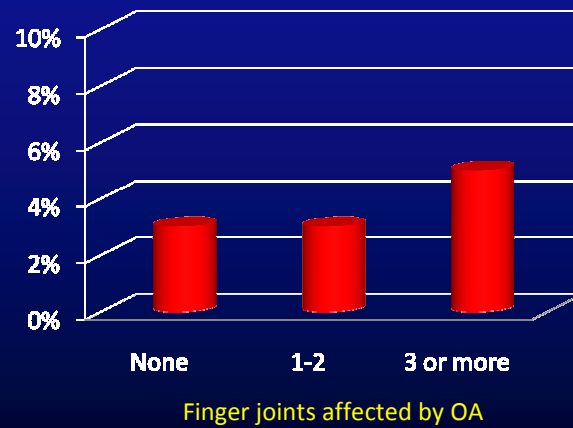
\* Adjusted for age, sex, and body mass index

## OA hand joint groups & meniscus damage

Number of hand joint groups with OA	Whole study sample (n=974)		No radiographic knee OA (KL 0, n=748)	
	Crude PR	Adjusted PR* (95% CI)	Crude PR	Adjusted PR* (95% CI)
None	Ref. category		Ref. category	
1	1.23	1.08 (0.84, 1.40)	1.06	1.10 (0.69, 1.39)
2	1.66	1.28 (0.99, 1.66)	1.52	1.28 (0.89, 1.83)
3 or more	2.15	1.54 (1.20, 1.99)	1.93	1.54 (1.05, 2.26)

\* Adjusted for age, sex, and body mass index

## Crude prevalence of right knee ACL tear



## Conclusions

- ✓ Having multiple finger joints with OA is associated with meniscus damage of the knee
- ✓ Results suggest a common etiologic pathway

## Acknowledgements

- My coauthors
- Framingham study participants
- Funders



## Strengths & limitations

- Our ascertainment of meniscus damage/ACL tear, hand OA, (and knee OA), were performed by different observers
- The temporal sequence of events of the observed association is unknown
- Information on previous knee injury is prone to recall bias
- Mainly a Caucasian sample