

# 3° Congresso Nazionale sulla **MEDICINA** di **GENERE**

Padova, 10-11 Ottobre 2013  
Aula Magna, Palazzo del Bo - Università degli Studi di Padova  
Via 8 Febbraio 1848, 2 - 35122 Padova

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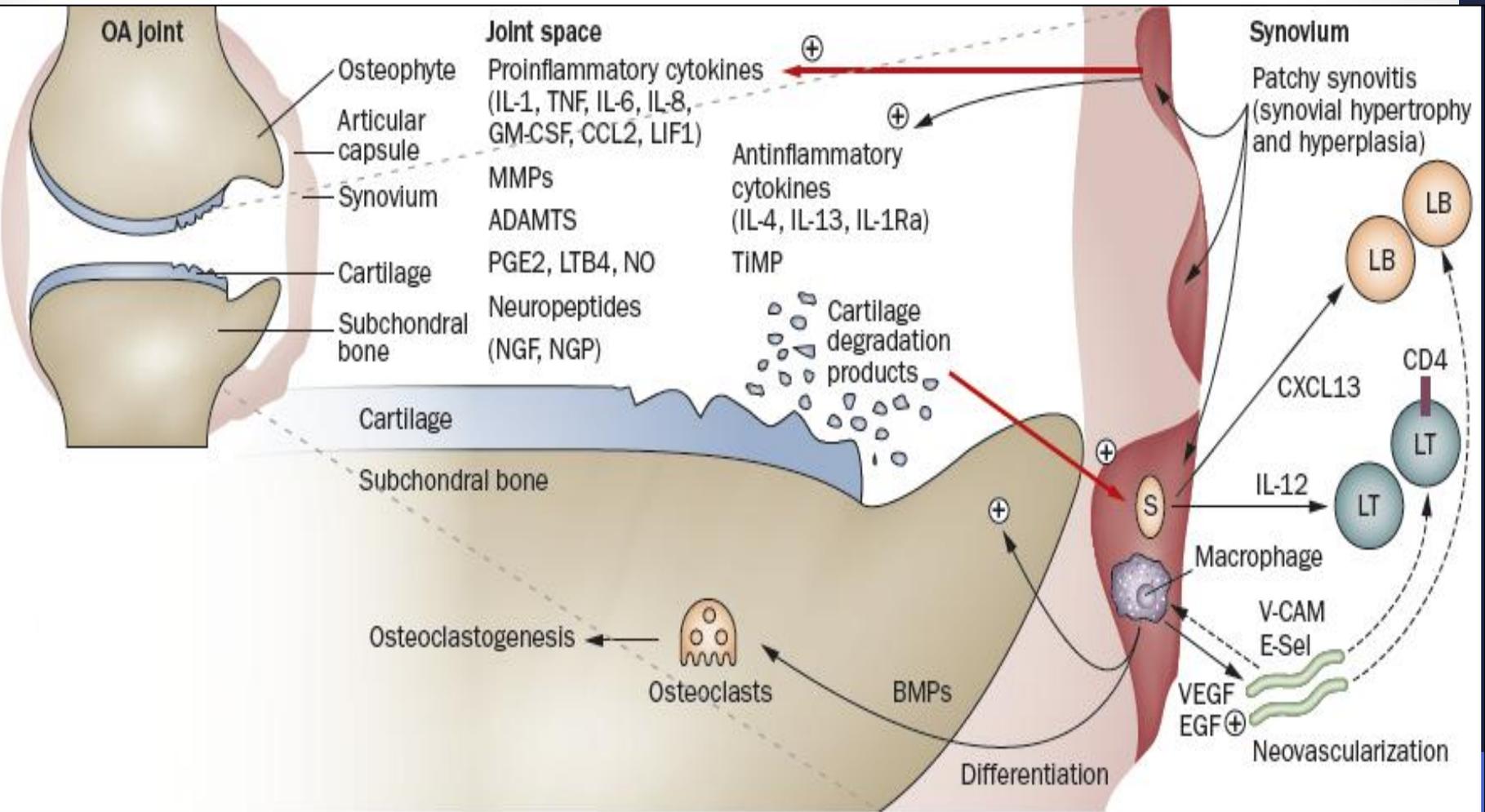
## «L'ARTROSI È UNA MALATTIA DI GENERE?»

*Alberto Migliore*

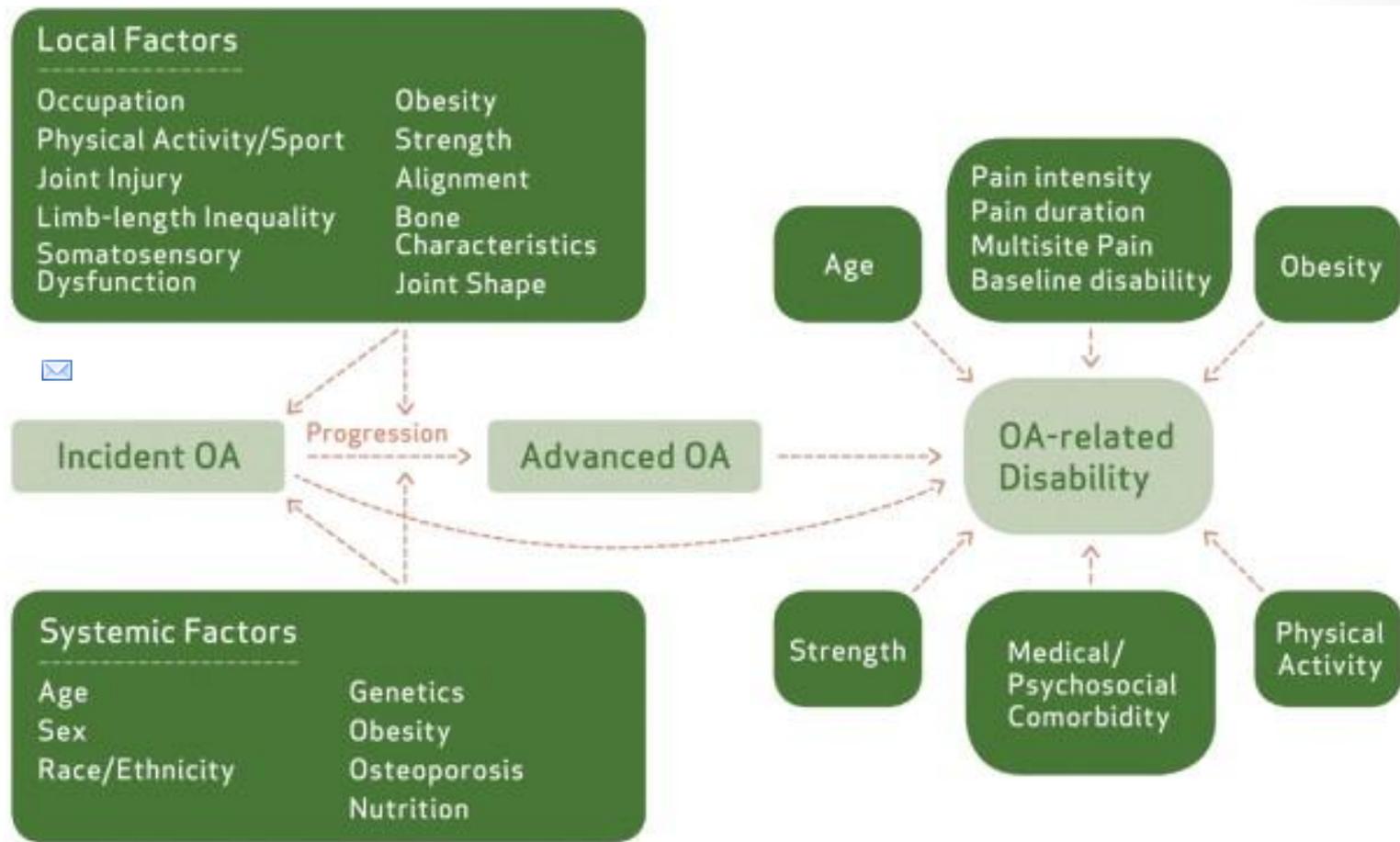
**Osp. S.Pietro FBF Roma- UO di Reumatologia**

**Presidente ANTIAGE**

# OA : a disease of the whole joint



# Risk factors for osteoarthritis and related disability.



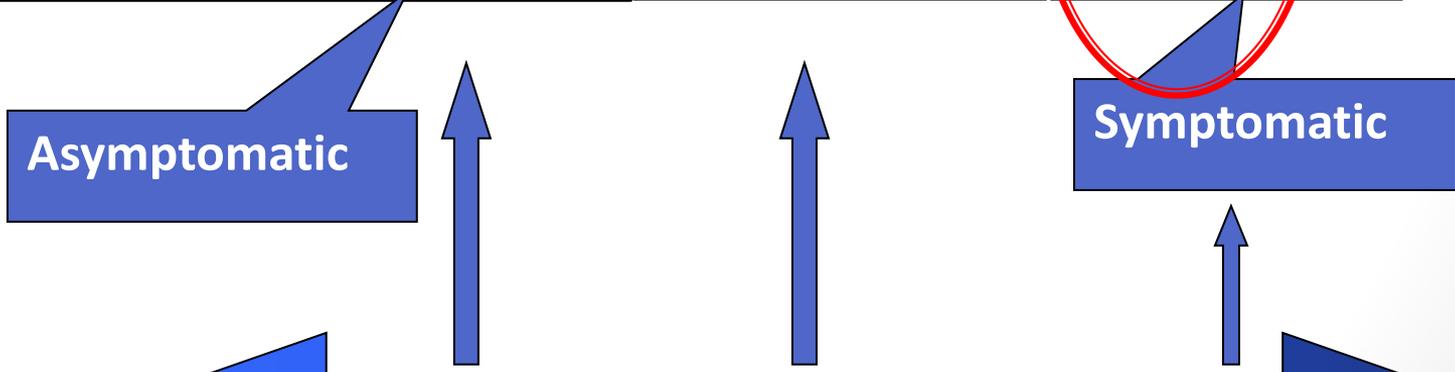
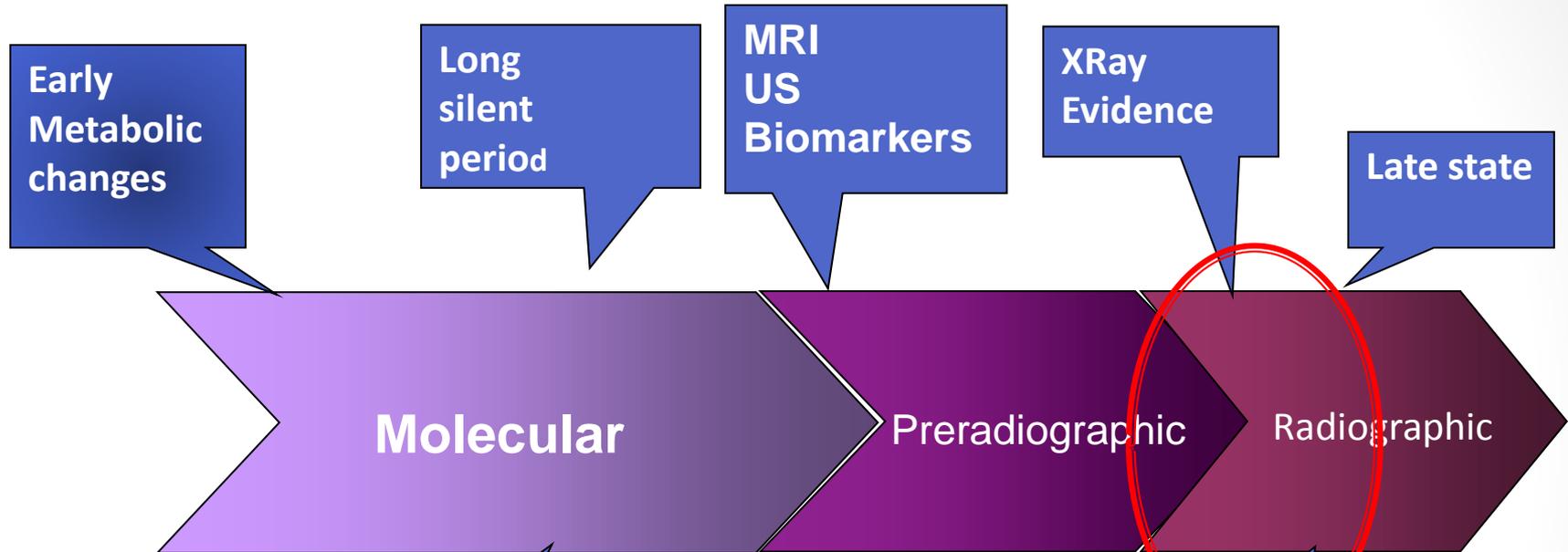
[Volume 4, Issue 5, Supplement](#) , Pages S10-S19, May 2012

## Epidemiology of Osteoarthritis and Associated Comorbidities

• [David C. Morgenroth](#), MD, [Pradeep Suri](#), MD, MS, [David J. Hunter](#), MBBS, PhD



# Modifiable risk factors



# Unmodifiable risk factors

- **Fattori  
immodificabili**

- Genetica
- familiarità
- Età
- Sesso

- **Fattori modificabili**

- Sovrappeso
- Mal allineamento
- Fattori nutrizionali
- Attività fisica
- Attività sportiva
- Controllo metabolico
- Comorbidità

## Genere e...

- Prevalenza
- Progressione
- Dolore
- Stato mentale
- Esito in chirurgia protesica

# **L'osteoartrosi: rilevanza sociale**

**L'osteoartrosi ha un enorme impatto sulla qualità di vita del paziente.**

**Le attività quotidiane possono diventare difficoltose per la maggior parte dei pazienti.**

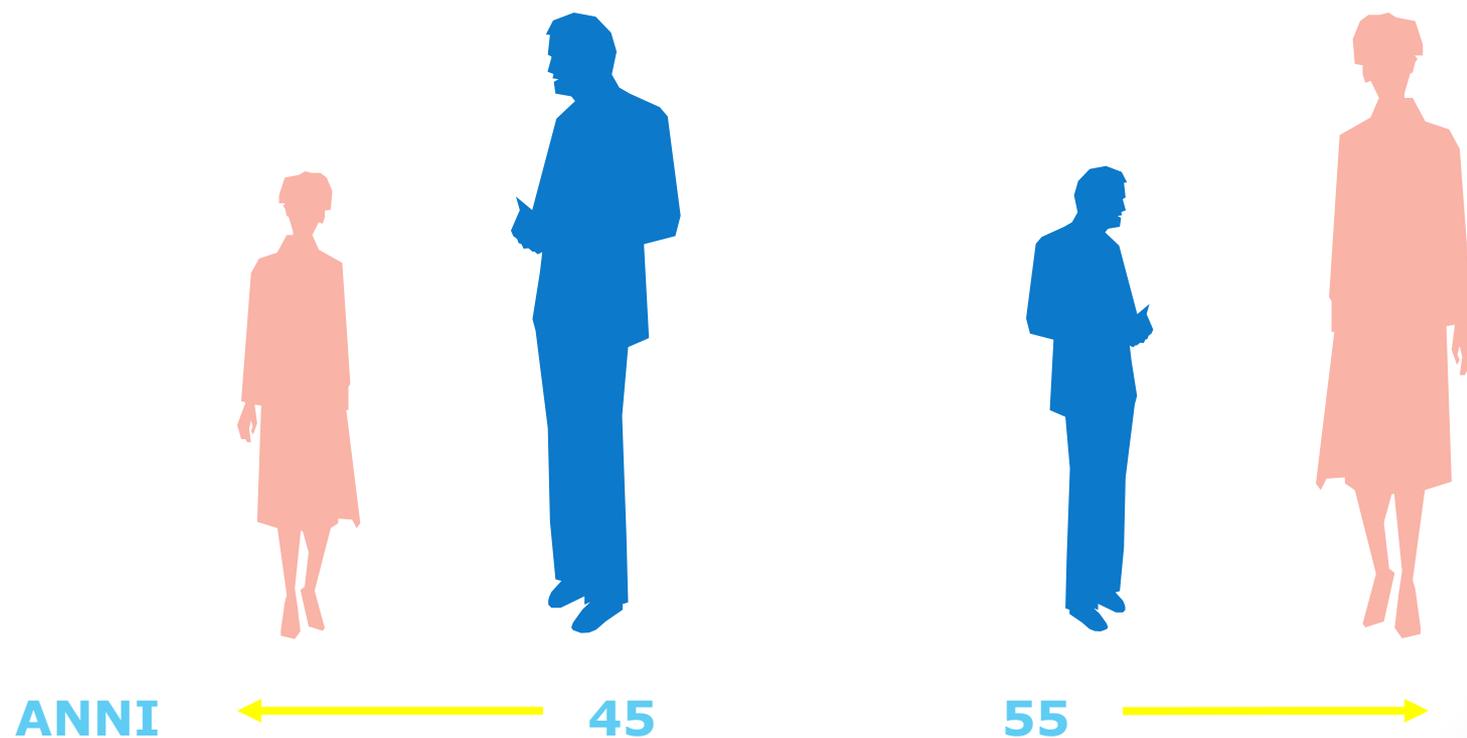
**Ricerche condotte in Europa indicano che:**

- Il 57-81% dei pazienti accusa dolore costante e va incontro a limitazioni dell'attività quotidiana**
- Il 38-52% dei pazienti afferma di non riuscire a fare ciò che vorrebbe nelle attività di tutti i giorni**

# **L'ARTROSI NELL'UOMO E NELLA DONNA**

- 1) SOTTO I 45 ANNI PIÙ FREQUENTEMENTE COLPITO È L'UOMO; SOPRA I 55 ANNI LA DONNA;**
- 2) NELLA DONNA SONO COLPITE UN MAGGIOR NUMERO DI ARTICOLAZIONI;**
- 3) NELLA DONNA L'ENTITÀ DEL DANNO ARTICOLARE È GENERALMENTE MAGGIORE;**
- 4) IN AMBEDUE I SESSI LA GRAVITÀ DEL DANNO AUMENTA CON L'ETÀ;**
- 5) IN AMBEDUE I SESSI IL QUADRO CLINICO SI ATTENUA NELLA TARDA ETÀ.**

# FREQUENZA DELL'ARTROSI IN RAPPORTO AL SESSO ED ALL'ETA'

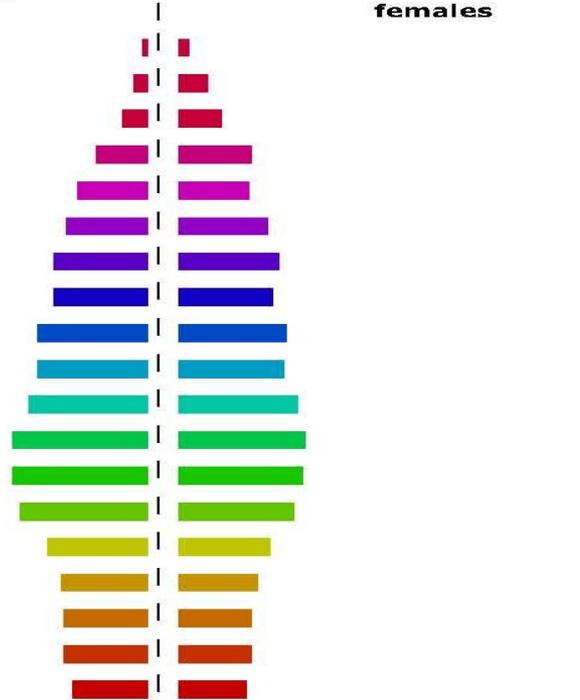




# AGEING IN ITALY

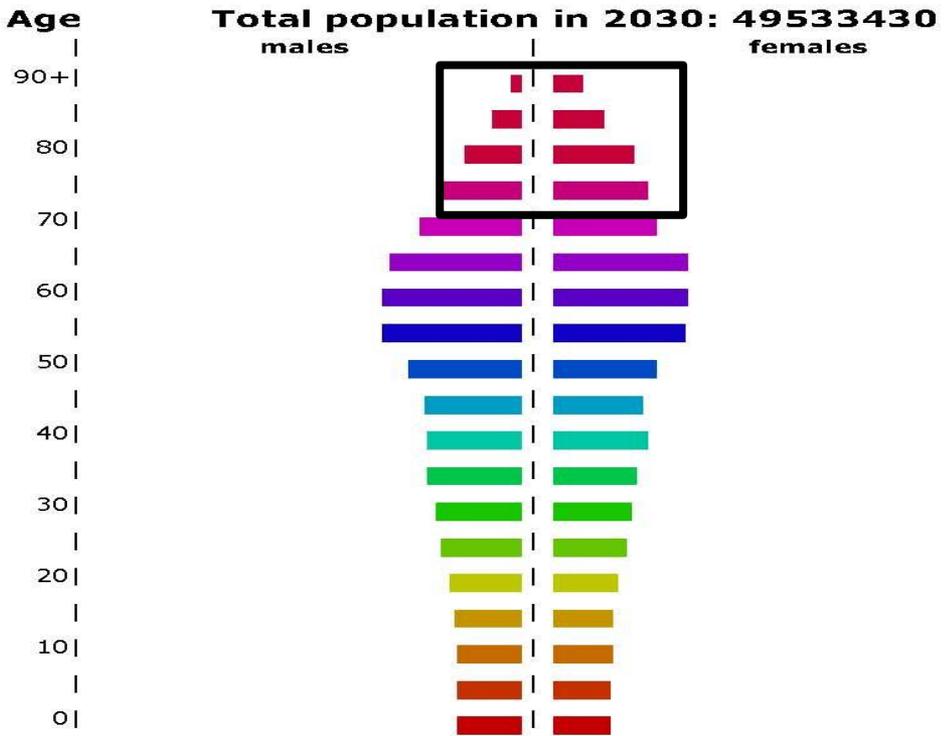
YEARS 2000 and 2030

Total population in 2000: 57298386  
males females



percentage of population

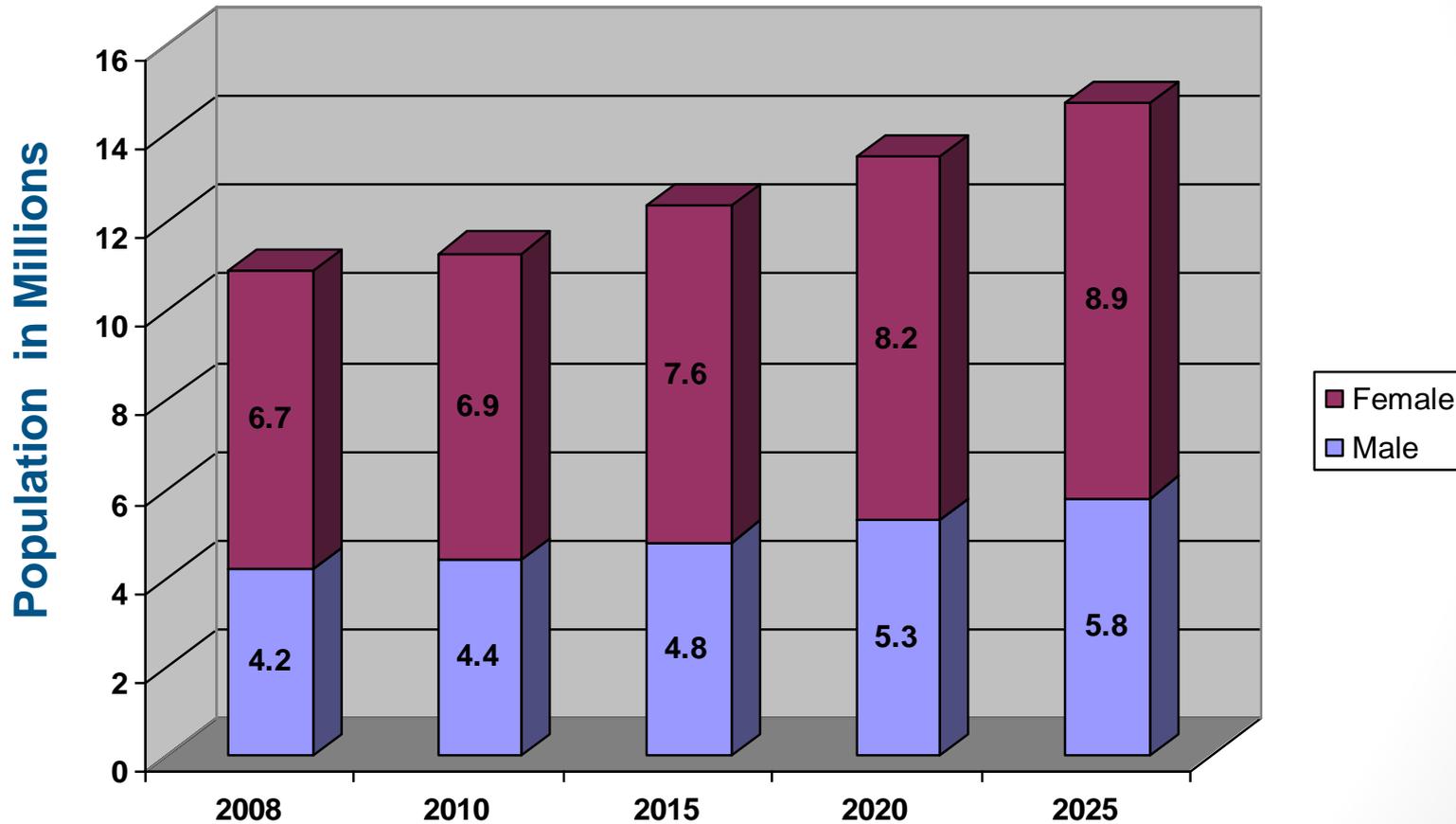
Total population in 2030: 49533430  
males females



percentage of population



# Significant increase in the incidence of OA projected in females



# **Prevalenza sintomatica in Italia**

# Studi del Progetto Veneto Anziani (PRO.V.A.)

soggetti (oltre 3000) con età superiore ai 65 a. (residenti in case di riposo) è stata accertata una OA sintomatica :

**ginocchio 26% Donne**

**12% Uomini**

**anca 14% Donne**

**8% Uomini (!)**

Proiettando i dati di prevalenza PRO.V.A. all'intera popolazione italiana ultrasessantacinquenne si dovrebbe avere:

**OA del ginocchio (sintomatica) 1.700.000 Donne**

**510.000 Uomini**

**OA dell'anca (sintomatica) 890.000 Donne**

**350.000 Uomini**

*(Corti MC: Progr. Reum. 2003)*

# Progetto AMICA (2001-2)

## Approccio Multidisciplinare Italiano

### Cura e diagnosi dell'Artrosi

\* Indagine osservazionale su: 29.132 pazienti ambulatoriali (affetti da OA: mani, ginocchia, anche) osservati da 3.095 medici (MMG, reumatologi, ortopedici, fisiatristi)

\* Diagnosi formulata secondo i criteri ARA

\* Età mediana: da 66 a 70 anni,

\* Sesso: **donne dal 69% all'80%,  
uomini dal 31% al 20%,**

Localizzazione dell'OA: ginocchio	53%
anca	24%
mano	23%



Best Practice & Research Clinical Rheumatology  
Vol. 20, No. 1, pp. 3–25, 2006  
doi:10.1016/j.berh.2005.09.007  
available online at <http://www.sciencedirect.com>



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## Osteoarthritis: Epidemiology

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# Prevalenza autoptica

## Systematic autopsy studies:

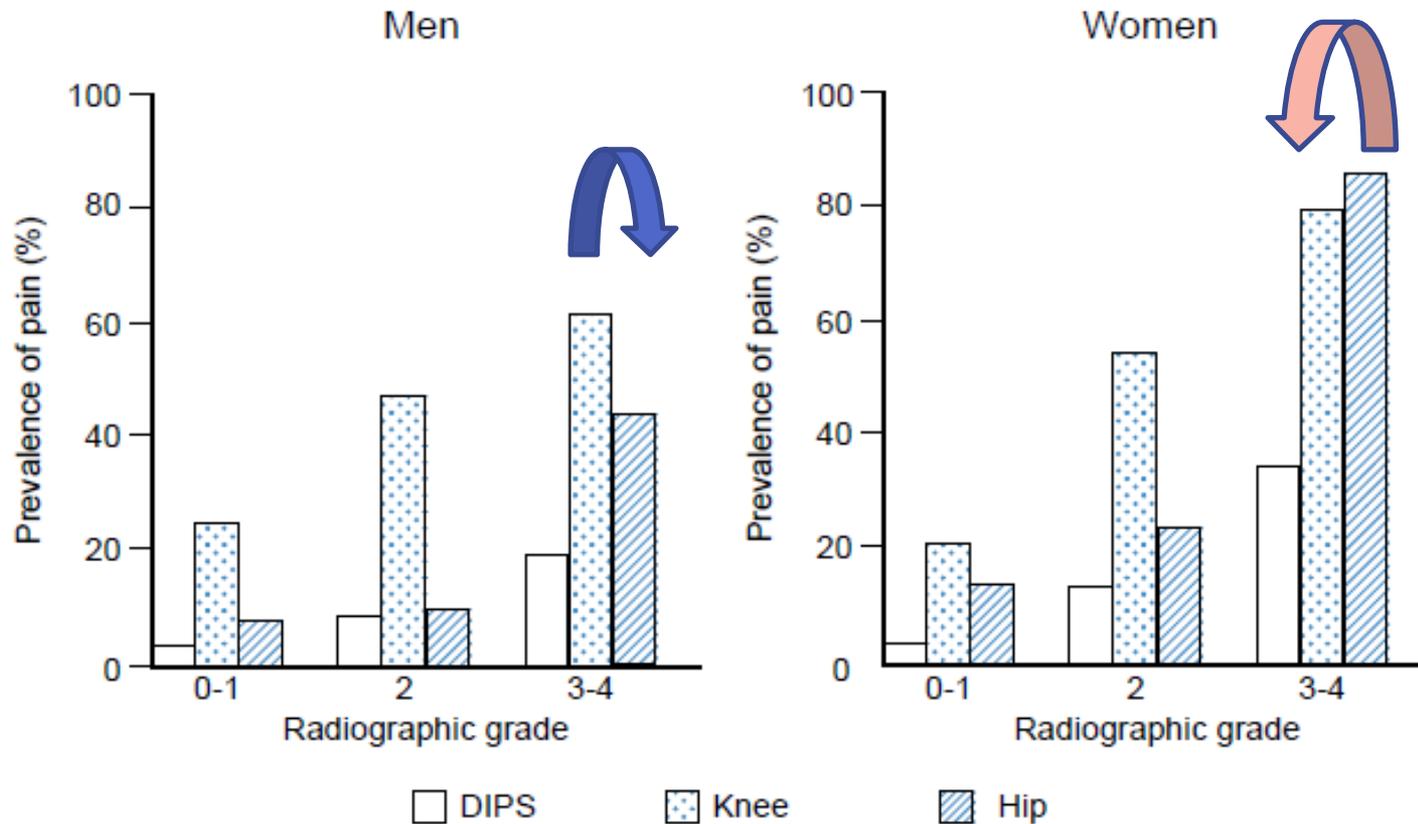
- recent studies report that cartilage erosions, subchondral reaction and osteophyte are present in the knees
- **of 60% of men and 70% of women**
- who die in the seventh and eighth decades of life.
- Prevalence estimates from such studies tend to be higher than those from radiographic surveys, partly because relatively mild pathological change is not apparent on radiographs, and also because pathological studies examine the whole joint surface.

# Prevalenza radiografica

## Population-based radiographic surveys.

- A study from the Netherlands included **6585** inhabitants
- **75% of women aged 60–70** years had OA of their DIP joints,
- Data from the USA demonstrated a prevalence of hand OA of 29.5% in subjects aged over 25 years.
- Population-based studies in the US suggest prevalence rates comparable to those in Europe, rising from 1% for severe radiographic disease among people aged 25–34 to 30% in those aged 75 and above.
- Both hand and knee diseases appear to be **more frequent among women than men**, although the **female-to-male ratio varies between 1.5 and 4.0** among studies.

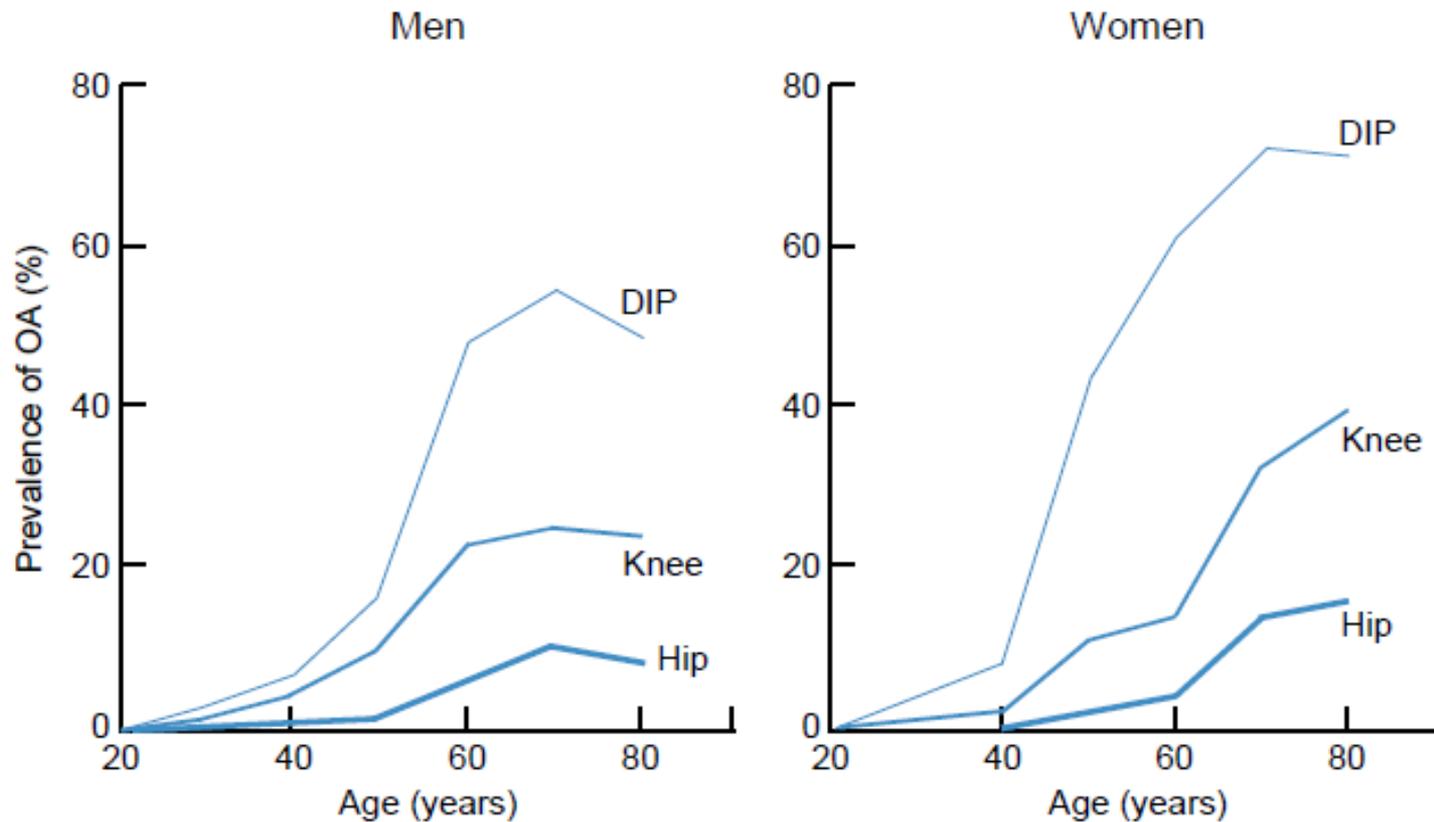
# Joint symptoms and radiographic features of osteoarthritis (OA).



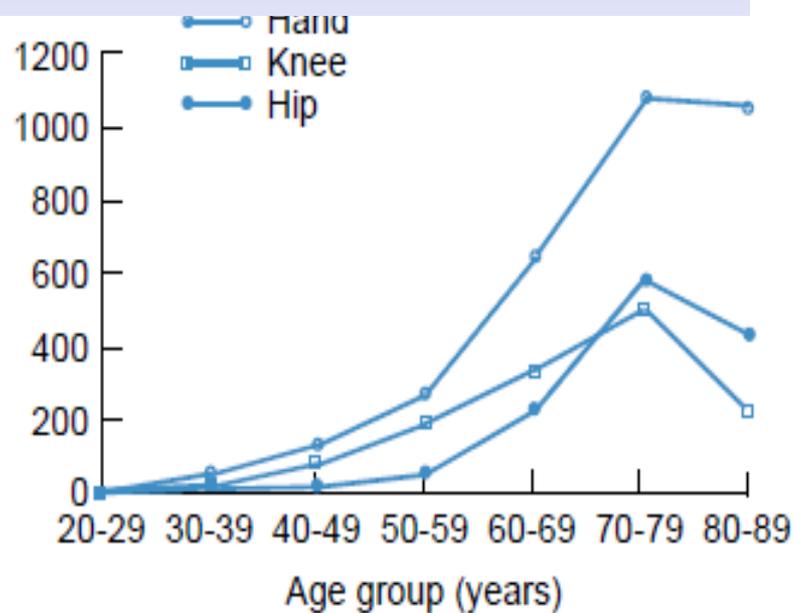
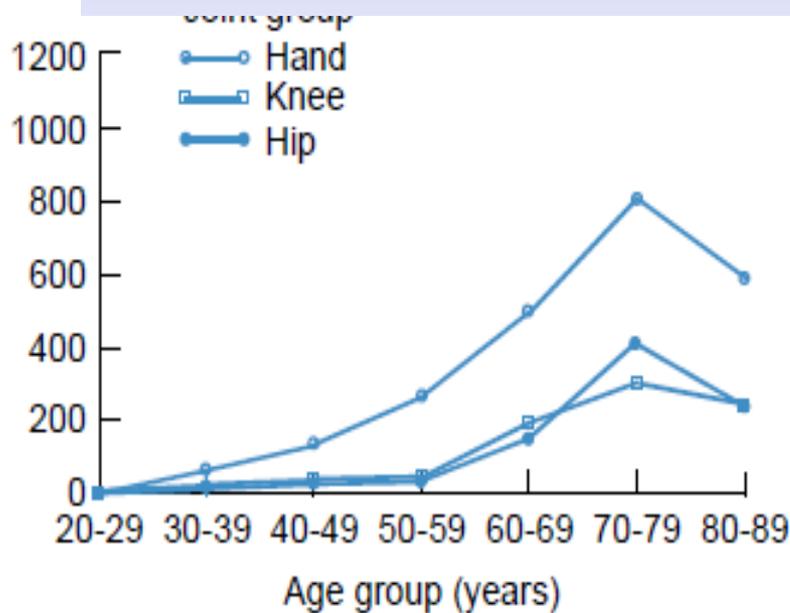
Data from Lawrence 1977.

Rheumatism in Populations. London: Heinemann

Estimates for the prevalence of radiographic osteoarthritis (OA) affecting the distal interphalangeal (DIP) joint, knee and hip in a large Dutch population sample.



The incidence of hand, hip and knee disease increased with age, and women had higher rates than men, especially after the age of 50 years. A levelling off occurred for both groups at all joint sites around the age of 80 years.



# Gender

- **Importantly, female gender serves to amplify the age-related increase in the risk of OA occurrence in the hand and knee and in multiple joints (so-called 'generalized OA'),**
- after the age of 50 the prevalence and incidence of disease in the hand and knee is significantly greater in women than in men.
- In contrast, the frequency of hip OA increases at about the same rate with age in women and men.
- **Hip OA appears to progress more rapidly in women** but so far studies have not found a gender effect on progression of knee or hand OA.

# Obesity

- Obesity is among the strongest and best established risk factors for knee OA, clearly precedes the development of knee OA by many years, and hastens structural worsening of existing knee OA.
- There is some evidence that weight loss reduces the risk of subsequent development of knee OA.
- As indicated by epidemiological studies of total hip replacement for OA, obesity is also a risk factor for hip OA, though less strongly than for the knee.
- Some studies also find an increased risk of hand OA in obese persons.
- The primary mechanism for the association of obesity with knee and hip OA is likely to involve the effect of excess weight on overloading of the hip and knee joints causing breakdown of cartilage and damage to ligaments and other support structures.
- Metabolic factors associated with obesity—including circulating adipocytokines, adiposity-linked glucose and lipid abnormalities, and chronic inflammation—may also play a role in the pathogenesis of OA, and could explain the modest association of obesity with hand OA.
- **Elevated levels of blood glucose and C-reactive protein (CRP), which are elevated in obesity are associated with the risk of knee OA and its progression in women.**
- It is likely that knee OA has an inflammatory component.

## All cause and disease specific mortality in patients with knee or hip osteoarthritis: population based cohort study

Eveline Nuesch, research fellow,<sup>1,2</sup> Paul Dieppe, professor of clinical education research,<sup>3</sup> Stephan Reichenbach, rheumatologist and senior research fellow,<sup>1,4</sup> Susan Williams, research associate,<sup>5</sup> Samuel Iff, research fellow,<sup>1,2</sup> Peter Jüni, professor of clinical epidemiology<sup>1,2</sup>

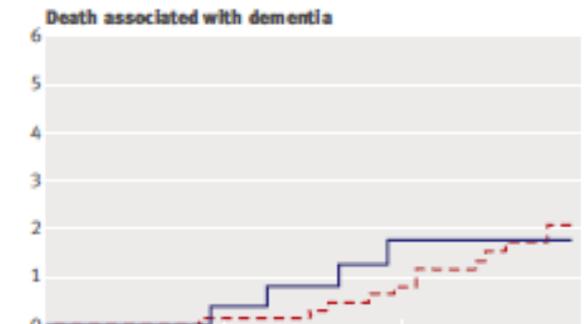
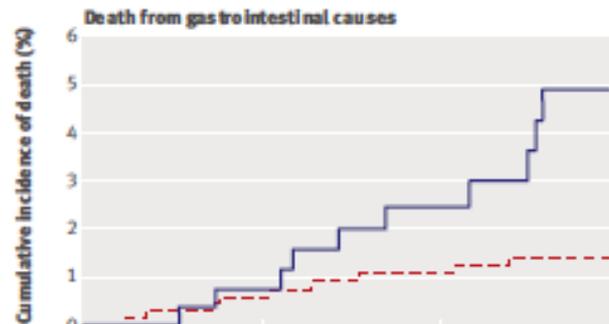
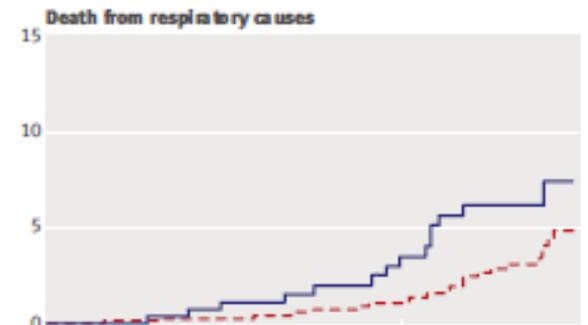
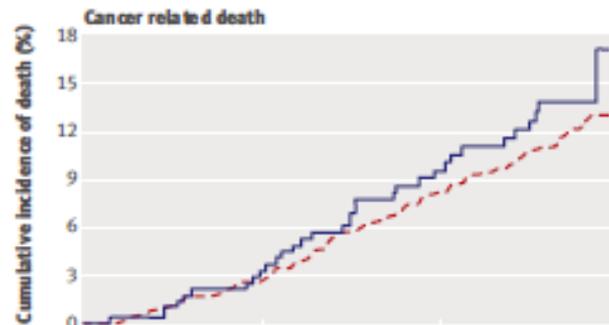
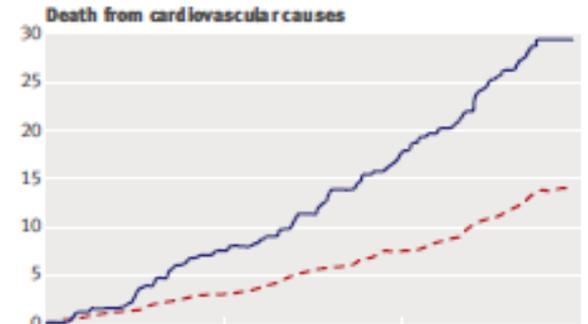
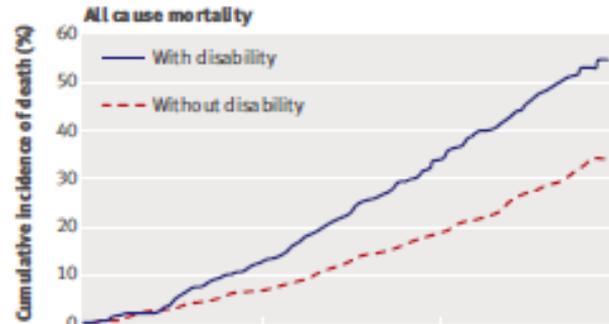
Table 1|Age and sex standardised mortality ratios

Cause of death	All patients (n=1163)			Men (n=503)			Women (n=660)		
	No of deaths		SMR (95% CI)	No of deaths		SMR (95% CI)	No of deaths		SMR (95% CI)
	Observed	Expected		Observed	Expected		Observed	Expected	
All causes	438	283	1.55 (1.41 to 1.70)	204	129	1.58 (1.38 to 1.81)	234	154	1.52 (1.34 to 1.73)
Cardiovascular disease	188	110	1.71 (1.49 to 1.98)	95	52	1.82 (1.49 to 2.22)	93	57	1.62 (1.32 to 1.98)
Cancer related	123	93	1.32 (1.10 to 1.57)	58	44	1.33 (1.03 to 1.72)	65	50	1.31 (1.03 to 1.67)
Respiratory disease	43	33	1.29 (0.96 to 1.74)	20	15	1.38 (0.89 to 2.14)	23	19	1.22 (0.81 to 1.84)
Gastrointestinal disease	19	13	1.47 (0.94 to 2.30)	6	6	1.09 (0.49 to 2.42)	13	7	1.75 (1.02 to 3.01)
Dementia associated	16	8	1.99 (1.22 to 3.25)	5	2	2.29 (0.95 to 5.50)	11	6	1.88 (1.04 to 3.39)

SMR=standardised mortality ratio.

All cause and disease specific mortality in patients with and without walking disability at baseline examination up to 15 years

- cardiovascular causes,
- cancer,
- respiratory causes,
- gastrointestinal causes,
- dementia



**No at risk**

	0	5	10	15
Without disability	711	663	578	111
With disability	288	251	189	22

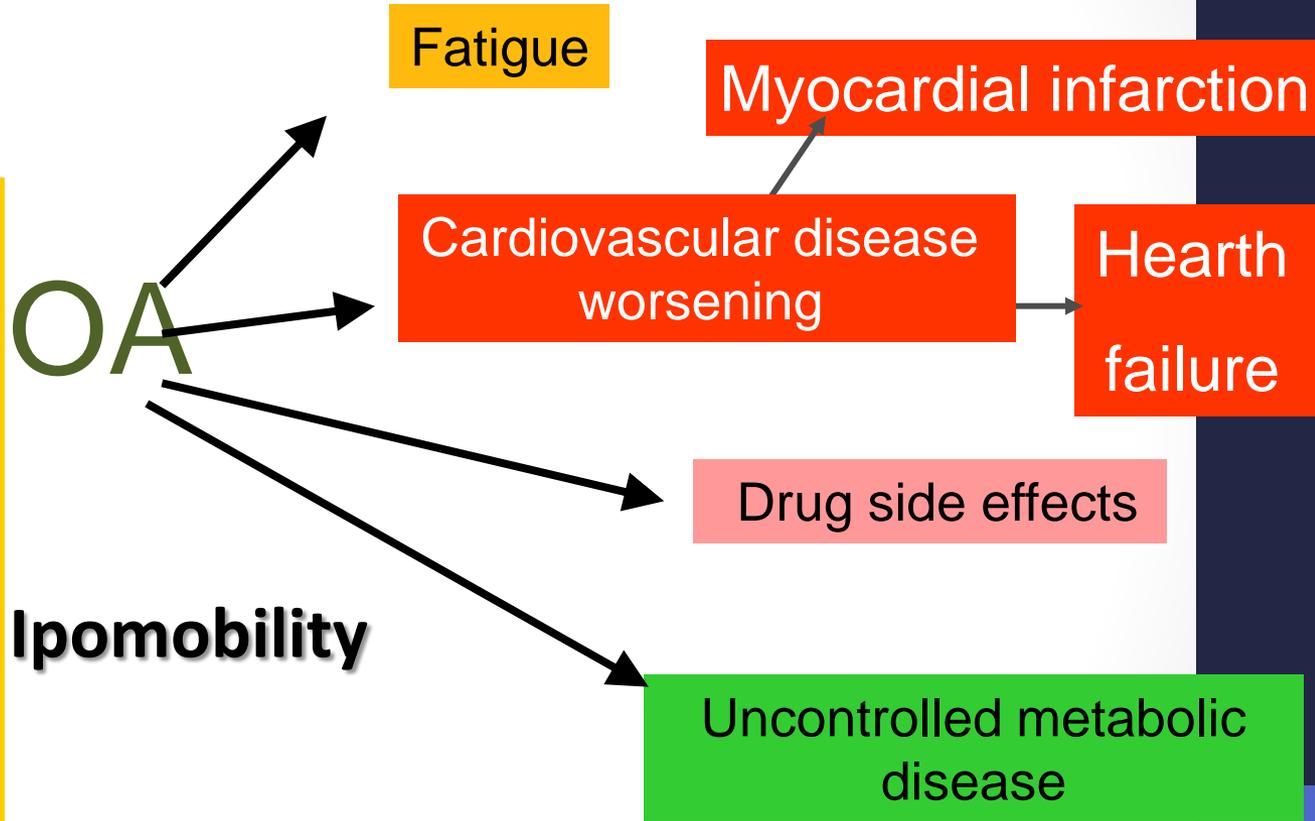
**Years after baseline examination**

	0	5	10	15
Without disability	711	663	578	111
With disability	288	251	189	22

OA is a chronic degenerative arthritis  
worsening comorbidities

## Joint failure

- Joint pain
- Tenosynovitis/bursitis
- Localised bone alterations
- Cartilage destruction (joint space narrowing)
- Subchondral bone changes
- Malignment/dislocation, ankylosis
- Limited range of motion



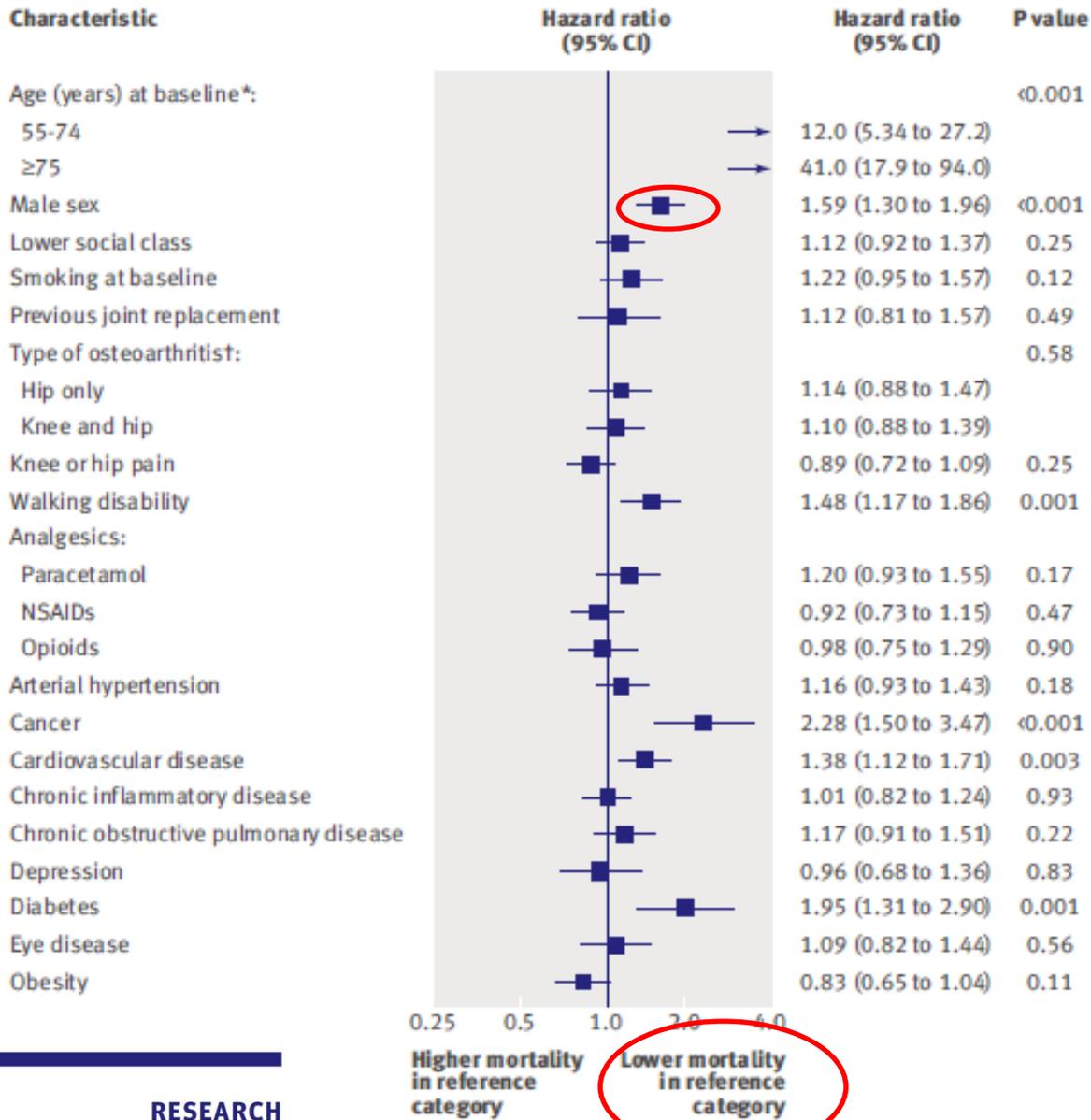
All cause and disease specific mortality in patients with knee or hip osteoarthritis: population based cohort study

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A causa della ipomobilità la disabilità comporta l'aggravamento delle patologie concomitanti:

- Diabete
- Cardiovascolari
- Obesità

Ciò in ultima analisi può **incrementare la mortalità!**



## EXTENDED REPORT

# Rate of cartilage loss at two years predicts subsequent total knee arthroplasty: a prospective study

F M Cicuttini, G Jones, A Forbes, A E Wluka



*Ann Rheum Dis* 2004;63:1124–1127. doi: 10.1136/ard.2004.021253

- The rate of tibial cartilage loss over two years is an independent predictor of knee replacement at four years.
- For every 1% increase in the rate of tibial cartilage loss there was a 20% increase risk of undergoing a knee replacement at four years.
- Those in the highest tertile of tibial cartilage loss had 7.1 (1.4 to 36.5) higher odds of undergoing a knee replacement than those in the lowest tertile.
- WOMAC score at baseline, **female sex**, and tibial bone size (but not age and radiographic score) were also **predictors of knee replacement.**

## **CHECK (Cohort Hip and Cohort Knee): similarities and differences with the Osteoarthritis Initiative**

J Wesseling<sup>1</sup>, J Dekker<sup>2</sup>, W B van den Berg<sup>3</sup>, S M A Bierma-Zeinstra<sup>4</sup>, M Boers<sup>2</sup>, H A Cats<sup>5</sup>, P Deckers<sup>6</sup>, K J Gorter<sup>1</sup>, P H T G Heuts<sup>7</sup>, W K H A Hilberdink<sup>8</sup>, M Kloppenburg<sup>9</sup>, R G H H Nelissen<sup>9</sup>, F G J Oosterveld<sup>10</sup>, J C M Oostveen<sup>11</sup>, L D Roorda<sup>12</sup>, M A Viergever<sup>1</sup>, S ten Wolde<sup>13</sup>, F P J G Lafeber<sup>1</sup>, and J W J Bijlsma<sup>1</sup>

- **Women reported more pain and functional disability than men, which was almost identical with the OAI (all  $p < 0.05$ )**
- **For all scales, in both cohorts women scored worse compared with men**

## Functional capacity of people with early osteoarthritis: a comparison between subjects from the cohort hip and cohort knee (CHECK) and healthy ageing workers

H. J. Bieleman · M. W. van Ittersum · J. W. Groothoff · J. C. M. Oostveen ·  
F. G. J. Oosterveld · C. P. van der Schans · R. Soer · M. F. Reneman

- Compared to healthy workers, the subjects (mean age 56) from CHECK at baseline reported a significantly worse physical health status, **whereas the women (n = 78) also reported a worse mental health status.**
- On the FCE female OA subjects performed significantly lower than their healthy working counterparts on all 6 tests.
- Male OA subjects performed lower than male workers on 3 tests.
- A substantial proportion of women demonstrated functional capacities that could be considered insufficient to perform jobs with low physical demands.
- *Conclusions Functional capacity and self-reported health of subjects with early OA of the hips and knees were worse compared to healthy ageing workers.*
- *A substantial proportion of female subjects did not meet physical job demands.*

## Lifetime Risk and Age at Diagnosis of Symptomatic Knee Osteoarthritis in the US

ELENA LOSINA,<sup>1</sup> ALEXANDER M. WEINSTEIN,<sup>2</sup> WILLIAM M. REICHMANN,<sup>3</sup> SARA A. BURBINE,<sup>2</sup> DANIEL H. SOLOMON,<sup>4</sup> MEGHAN E. DAIGLE,<sup>2</sup> BENJAMIN N. ROME,<sup>2</sup> STEPHANIE P. CHEN,<sup>2</sup> DAVID J. HUNTER,<sup>5</sup> LISA G. SUTER,<sup>6</sup> JOANNE M. JORDAN,<sup>7</sup> AND JEFFREY N. KATZ<sup>4</sup>

- Results. The estimated incidence of diagnosed symptomatic knee OA was highest among adults ages 55–64 years, ranging from 0.37% per year for nonobese men to 1.02% per year for obese women.
- The estimated median age at knee OA diagnosis was 55 years.
- The estimated lifetime risk was 13.83%, ranging from 9.60% for nonobese men to 23.87% in obese women.

# Lifetime Risk and Age at Diagnosis of Symptomatic Knee Osteoarthritis in the

ELENA LOSINA,<sup>1</sup> ALEXANDER M. WEINSTEIN,<sup>2</sup> WILLIAM M. REICHMAN,<sup>3</sup>  
 DANIEL H. SOLOMON,<sup>4</sup> MEGHAN E. DAGLE,<sup>2</sup> BENJAMIN N. ROMIE,<sup>2</sup> C.  
 DAVID J. HUNTER,<sup>5</sup> LISA G. SUTER,<sup>6</sup> JOANNE M. JORDAN,<sup>7</sup> AND DEB

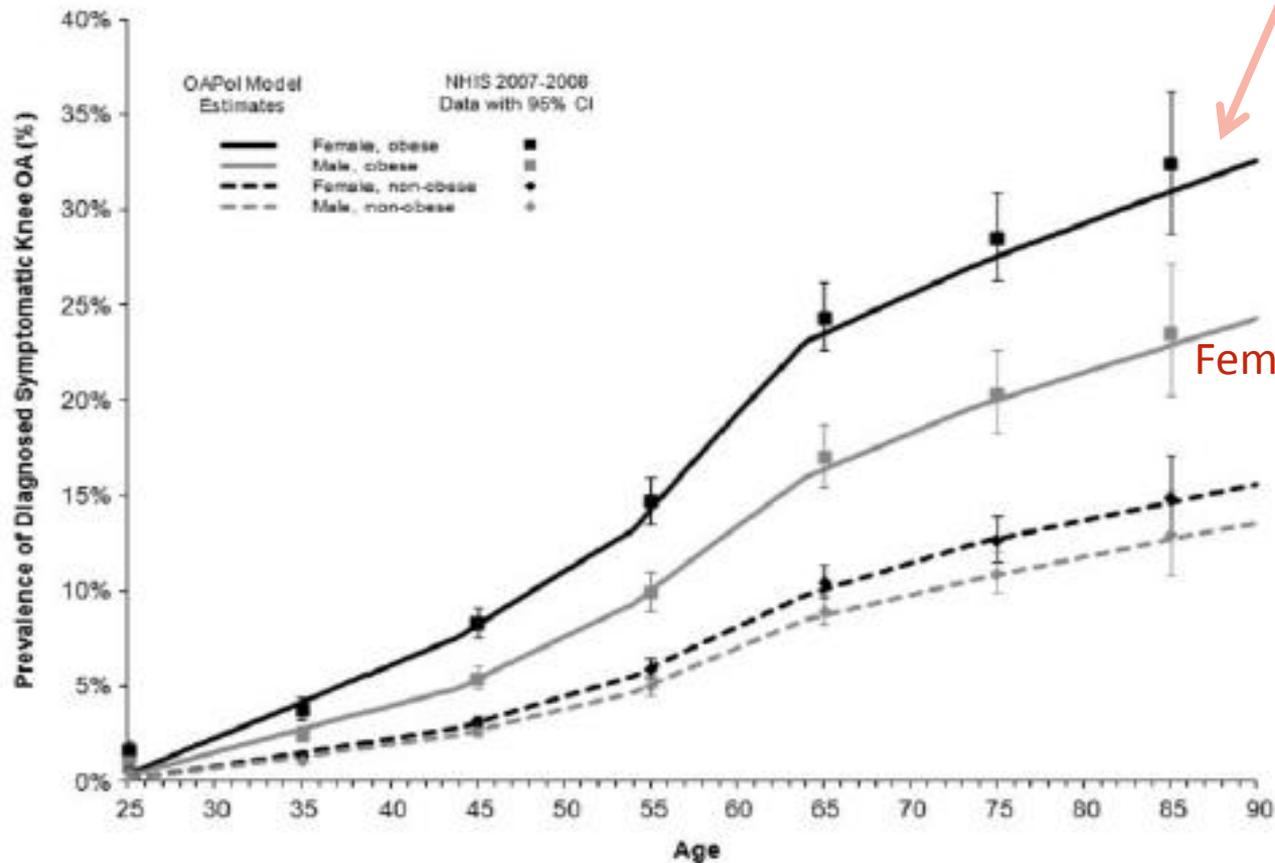
**Table 2. Estimated prevalence and incidence of diagnosed symptomatic knee osteoarthritis by age, sex, and obesity status\***

	Estimated prevalence (using 2007–2008 NHIS data), % (95% CI)	Estimated incidence (annual), % (95% CI)
<b>Nonobese</b>		
<b>Men</b>		
Age 25–34 years	0.74 (0.61–0.89)	0.12 (0.12–0.12)
Age 35–44 years	1.74 (1.51–2.00)	0.13 (0.12–0.13)
Age 45–54 years	3.61 (3.21–4.06)	0.22 (0.22–0.22)
Age 55–64 years	6.70 (6.09–7.37)	0.37 (0.37–0.38)
Age 65–74 years	9.83 (9.01–10.71)	0.20 (0.19–0.20)
Age 75–84 years	11.64 (10.51–12.88)	0.13 (0.12–0.13)
Age ≥85 years	12.94 (11.86–15.34)	0.04 (0.04–0.04)
<b>Women</b>		
Age 25–34 years	0.88 (0.73–1.05)	0.14 (0.14–0.14)
Age 35–44 years	2.06 (1.83–2.31)	0.15 (0.14–0.15)
Age 45–54 years	4.26 (3.90–4.64)	0.27 (0.27–0.27)
Age 55–64 years	7.85 (7.22–8.52)	0.43 (0.43–0.43)
Age 65–74 years	11.44 (10.48–12.47)	0.27 (0.27–0.27)
Age 75–84 years	13.50 (12.44–14.65)	0.16 (0.16–0.16)
Age ≥85 years	14.97 (13.04–17.12)	0.06 (0.06–0.06)
<b>Obese</b>		
<b>Men</b>		
Age 25–34 years	1.54 (1.26–1.87)	0.25 (0.24–0.25)
Age 35–44 years	3.58 (3.12–4.11)	0.24 (0.24–0.24)
Age 45–54 years	7.25 (6.49–8.09)	0.44 (0.43–0.44)
Age 55–64 years	13.00 (11.76–14.33)	0.64 (0.64–0.65)
Age 65–74 years	18.48 (16.71–20.39)	0.32 (0.32–0.33)
Age 75–84 years	21.48 (19.33–23.78)	0.17 (0.17–0.18)
Age ≥85 years	23.54 (20.24–27.19)	0.05 (0.05–0.05)
<b>Women</b>		
Age 25–34 years	2.41 (2.02–2.88)	0.37 (0.37–0.38)
Age 35–44 years	5.53 (4.93–6.21)	0.40 (0.39–0.40)
Age 45–54 years	10.93 (10.01–11.92)	0.57 (0.57–0.58)
Age 55–64 years	18.94 (17.52–20.44)	1.02 (1.01–1.02)
Age 65–74 years	26.20 (24.25–28.23)	0.41 (0.40–0.41)
Age 75–84 years	29.94 (27.73–32.23)	0.28 (0.27–0.28)
Age ≥85 years	32.45 (28.79–36.31)	0.10 (0.10–0.10)

\* NHIS = National Health Interview Survey; 95% CI = 95% confidence interval.

## Lifetime Risk and Age at Diagnosis of Symptomatic Knee Osteoarthritis in the US

ELENA LOSINA,<sup>1</sup> ALEXANDER M. WEINSTEIN,<sup>2</sup> WILLIAM M. REICHMANN,<sup>3</sup> SARA A. BURBINE,<sup>2</sup> DANIEL H. SOLOMON,<sup>4</sup> MEGHAN E. DAIGLE,<sup>2</sup> BENJAMIN N. ROME,<sup>2</sup> STEPHANIE P. CHEN,<sup>2</sup> DAVID J. HUNTER,<sup>5</sup> LISA G. SUTER,<sup>6</sup> JOANNE M. JORDAN,<sup>7</sup> AND JEFFREY N. KATZ<sup>4</sup>

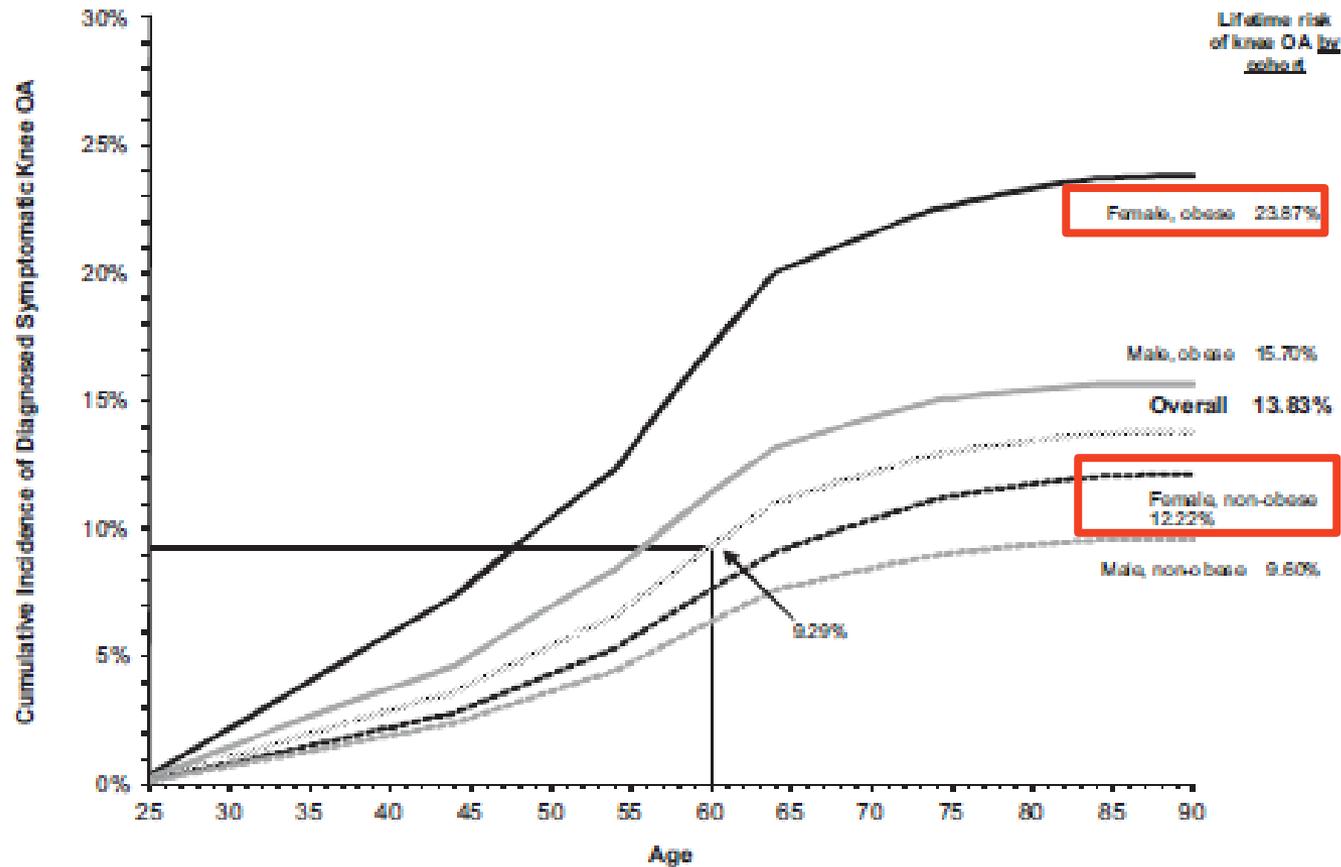


Female obese

Female not obese

## Lifetime Risk and Age at Diagnosis of Symptomatic Knee Osteoarthritis in the US

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Arthritis Care & Research  
Vol. 64, No. 9, September 2012, pp 000–000  
DOI 10.1002/acr.●  
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ORIGINAL ARTICLE

# **Socioeconomic Burden of Total Joint Arthroplasty for Symptomatic Hip and Knee Osteoarthritis in the Italian Population: A 5-Year Analysis Based on Hospitalization Records**

**P. PISCITELLI,<sup>1</sup> G. IOLASCON,<sup>2</sup> G. DI TANNA,<sup>3</sup> E. BIZZI,<sup>4</sup> G. CHITANO,<sup>5</sup> A. ARGENTIERO,<sup>6</sup>  
C. NEGLIA,<sup>5</sup> L. GIOLLI,<sup>5</sup> A. DISTANTE,<sup>6</sup> R. GIMIGLIANO,<sup>7</sup> M. L. BRANDI,<sup>8</sup> AND ALBERTO MIGLIORE<sup>4</sup>**

**Table 1. Number of hip arthroplasties performed in Italy between 2001 and 2005 and APC shown by sex and age groups\***

	2001	2002	2003	2004	2005	APC (95% CI)
Age group, years						
25–44						
Men	583	638	658	791	832	9.8 (7.2–12.4)
Women	614	682	676	746	777	5.7 (3.3–8.3)
45–64						
Men	3,988	4,157	4,415	5,031	5,066	6.9 (5.9–7.9)
Women	5,112	5,339	5,397	5,916	5,841	3.8 (2.9–4.6)
65–74						
Men	5,004	5,348	5,761	6,088	6,311	6.1 (5.2–6.9)
Women	8,642	8,961	9,089	9,650	9,637	3.0 (2.3–3.6)
≥75						
Men	2,754	3,009	3,478	3,577	3,735	8.0 (6.8–9.1)
Women	7,309	8,189	9,047	9,116	9,617	6.6 (5.9–7.3)
Subtotal						
Men	12,329	13,152	14,312	15,487	15,944	7.0 (6.4–7.5)
Women	21,677	23,171	24,209	25,428	25,871	4.5 (4.1–4.9)
Incidence per 100,000						
Men	61.2	65.2	70.1	74.7	75.9	5.8 (5.2–6.3)
Women	97.0	103.7	107.3	111.3	112.0	3.6 (3.2–4.0)
<b>Total</b>	<b>34,005</b>	<b>36,323</b>	<b>38,520</b>	<b>40,915</b>	<b>41,816</b>	<b>+5.4 (5.1–5.8)</b>
Incidence per 100,000	80.0	85.4	89.6	94.0	94.8	+4.4 (4.1–4.7)

\* APC = annual percentage change; 95% CI = 95% confidence interval.

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ORIGINAL ARTICLE

**Socioeconomic Burden of Total Joint Arthroplasty for Symptomatic Hip and Knee Osteoarthritis in the Italian Population: A 5-Year Analysis Based on Hospitalization Records**

P. PISCITELLI,<sup>1</sup> G. IOLASCON,<sup>2</sup> G. DI TANNA,<sup>3</sup> E. BIZZI,<sup>4</sup> G. CHITANO,<sup>5</sup> A. ARGENTIERO,<sup>6</sup> C. NEGLIA,<sup>7</sup> L. GIOLLI,<sup>8</sup> A. DISTANTE,<sup>9</sup> R. GIMIGLIANO,<sup>7</sup> M. L. BRANDI,<sup>10</sup> AND ALBERTO MIGLIORI<sup>1</sup>

**Table 2. Number of knee arthroplasties performed in Italy between 2001 and 2005 and APC shown by sex and age groups\***

	2001	2002	2003	2004	2005	APC (95% CI)
Age group, years						
25-44						
Men	85	95	153	171	160	18.8 (12.5-25.5)
Women	74	85	112	124	120	13.7 (6.9-20.9)
45-64						
Men	1,207	1,489	1,738	2,251	2,426	19.5 (17.7-21.3)
Women	3,147	3,639	4,411	5,388	5,656	16.6 (15.5-17.7)
65-74						
Men	3,379	3,793	4,571	5,204	5,800	14.9 (13.8-15.9)
Women	10,560	11,931	13,203	15,373	15,755	11.0 (10.4-11.6)
≥75						
Men	1,782	2,173	2,623	2,888	3,480	17.4 (16.0-18.9)
Women	6,517	7,736	9,099	9,674	10,654	12.5 (11.7-13.2)
Subtotal						
Men	6,453	7,550	9,085	10,514	11,866	16.6 (15.8-17.3)
Women	20,298	23,391	26,825	30,559	32,185	12.4 (12.0-12.8)
Incidence per 100,000						
Men	32.0	37.4	44.5	50.7	56.5	15.2 (14.5-16.0)
Women	90.8	104.6	118.9	133.8	139.3	11.4 (11.0-11.8)
Total	26,751	30,941	35,910	41,073	44,051	+13.4 (13.1-13.8)
Incidence per 100,000	62.9	72.7	83.5	94.3	99.9	+12.3 (11.9-12.7)

\* APC = annual percentage change; 95% CI = 95% confidence interval.

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# Sex hormones

- The accelerated age-related rise in OA incidence in women following menopause suggests a possible role for sex hormones, particularly oestrogen deficiency, in the systemic predisposition to OA.
- There is no consistent evidence linking circulating sex hormone levels or reproductive history with OA prevalence.
- Examining postmenopausal oestrogen use and OA, some authors have found a lower prevalence or incidence of knee and hip OA in oestrogen users.

# Sex hormones

- Postmenopausal women using oestrogen also have larger knee cartilage volumes, assessed by magnetic resonance imaging (MRI), than non-users.
- Oestrogen users are also more likely to have osteoporosis, which is associated with a reduced risk of OA. Evidence for a protective effect of oestrogen use is more consistent for OA defined by radiographic changes alone than for symptomatic or clinical OA suggesting the possibility of different effects of oestrogen on structure and symptoms.
- **The only data from a randomized, placebocontrolled clinical trial indicated no difference in knee OA-related symptoms between women receiving oestrogen plus progestin compared to placebo.**

# Bone density and osteoporosis

- Women with hip or knee OA have higher bone mineral density at skeletal sites both near to, and distant from, joints with OA.
- High bone density is more strongly related to the presence of osteophytes than to evidence of cartilage loss..
- women with high hip or spine BMD were more likely to develop incident knee osteophytes,
- women who had a fracture had a decreased risk of developing osteophytes independently of their bone density.

# Bone density and osteoporosis

- High bone density is associated with an increased risk of developing radiographic OA of the knee, hip and hand, especially when characterized by osteophytes.
- .
- Moreover, recent evidence from animal models indicates that cartilage lesions and degeneration precede sclerotic changes in subchondral bone.

# Bone density and osteoporosis

- The relationship between skeletal status and OA is complex, and the role of bone appears to differ between the initial development of OA and its role in the course of disease once established.
- Subchondral bone is abnormal in OA, but it is less stiff, more porous, and has a lower mineral content and reduced biomechanical competence compared to bone underlying joints without OA.
- Periarticular bone in OA is metabolically active, as indicated by bone scintigraphy, a finding which is very strongly associated with more rapid structural and clinical progression in the knee.
- *Taken together, these studies describe important periarticular bone abnormalities in established OA, characterized by elevated turnover and remodelling of bone underlying cartilage, which play an important role in driving structural progression.*

# Bone density and osteoporosis

- There also appears to be a link between the behaviour of periarticular bone in progressive OA of the knee and overall skeletal status.
- Two well-done longitudinal studies suggest that structural progression of existing knee OA is more rapid in those with low hip bone density compared to those with OA who have higher bone density.
- More rapid knee OA progression is also associated with faster bone loss at the hip, while worsening of hand OA over time is associated with elevated metacarpal bone loss.
- Thus, while individuals with high bone density are more likely to develop OA, progressive disease may be associated with both local and systemic bone loss.

# Conclusioni

- sotto i 45 anni l'uomo è più frequentemente colpito della donna;
- sopra i 55 anni la donna è più frequentemente colpita dell'uomo;
- nella donna sono colpite un maggior numero di articolazioni;
- nella donna l'entità del danno articolare è generalmente maggiore;
- L'artrosi dell'anca progredisce più rapidamente nelle donne
- Le pazienti con densità ossea più elevata sviluppano più facilmente un'artrosi soteofitaria
- Le pazienti con densità ossea ridotta sia localmente che a livello sistemico presentano una più rapida progressione dell'artrosi.

# Conclusioni

- Il rischio di gonartrosi e di rapida progressione è più elevato nelle donne con iperglicemia e elevata PCR.
- Il sesso maschile ha un più basso rischio di mortalità in caso di ipomobilità da artrosi
- IL genere femminile è un fattore rischio che inclina maggiore probabilità alla protesizzazione di ginocchio
- Le donne presentano maggiore dolore e disabilità funzionale rispetto agli uomini