

Osteoporotiske brudd: Hvorfor er Norge på verdenstoppen?

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Sannsynligheten for å få brudd

$$P(f) = C \times \frac{\text{Traume}}{\text{Benmasse}}$$

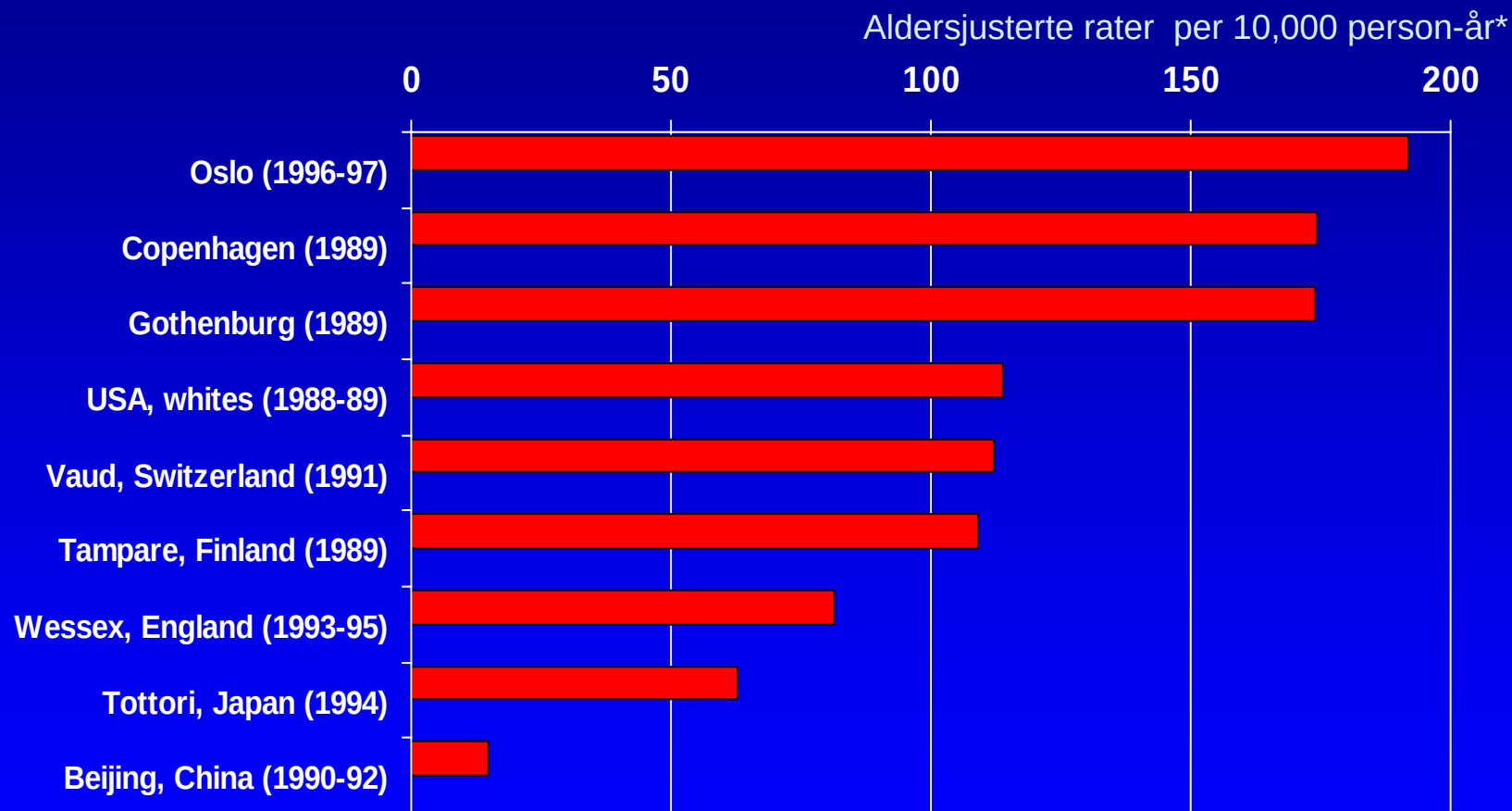
Hvor hyppig er osteoporotiske brudd i Norge?

- Hoftebrudd (lårhalsbrudd)
- Håndleddsbrudd
- Brudd i ryggspylen

Hoftebrudd

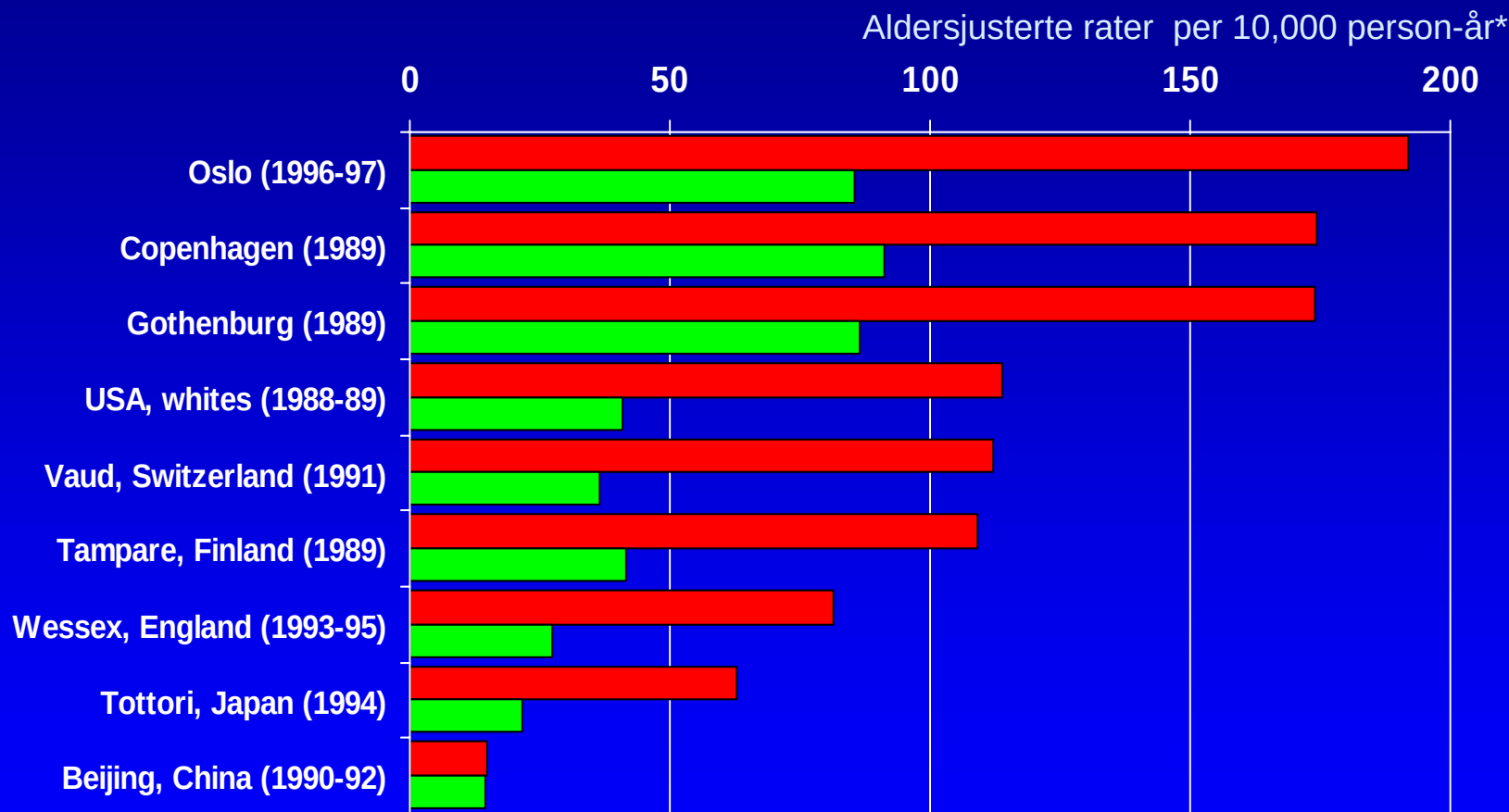
- Omlag 9000 nye brudd per år i Norge
- Gjennomsnittsalder 80 år
- Høy sykkelighet og dødelighet
- Høye kostnader

Hyppighet av hoftebrudd i forskjellige populasjoner, Kvinner 65 år og eldre



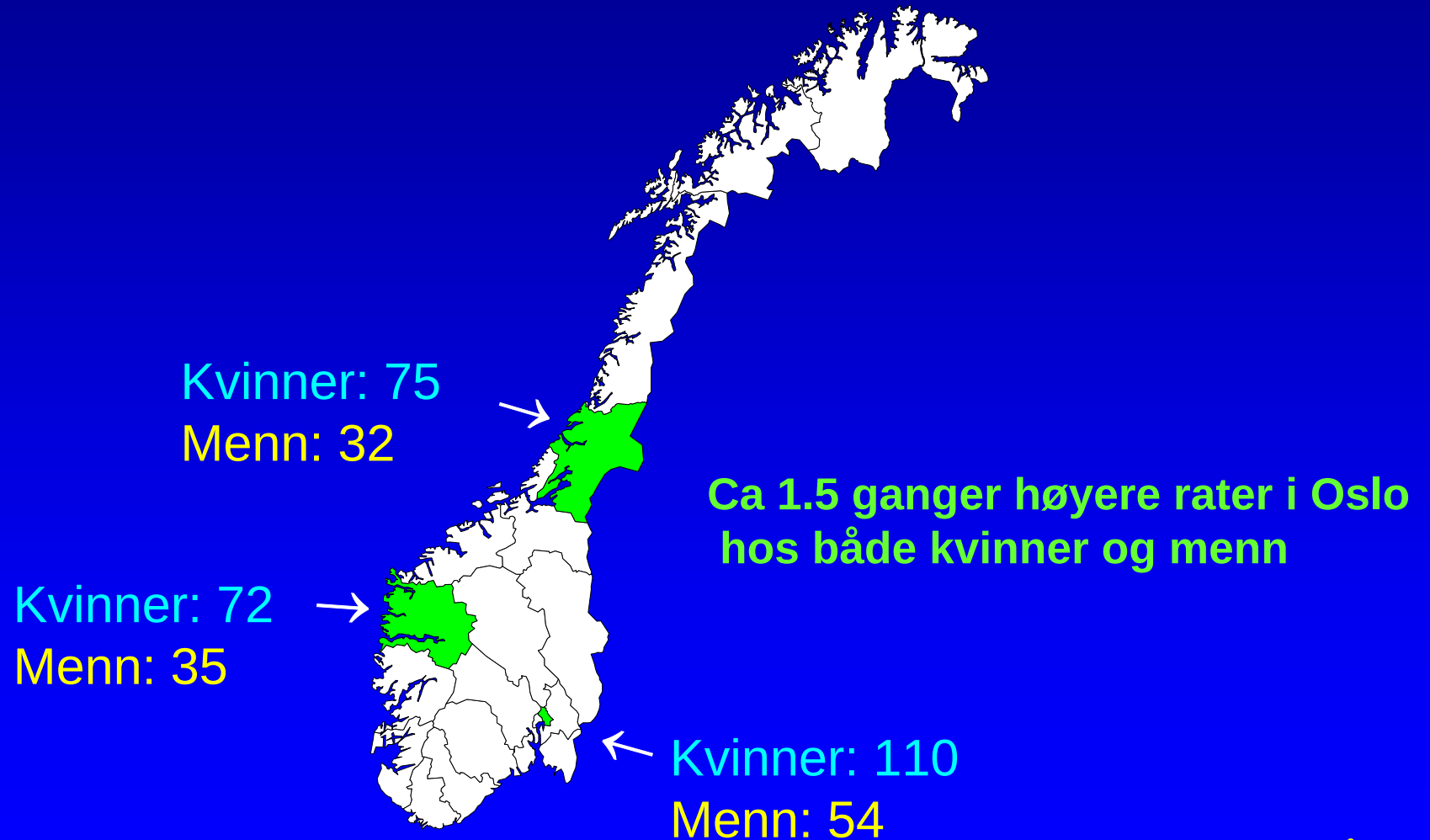
(Lofthus et al. Bone 2001)

Hyppighet av hoftebrudd i forskjellige populasjoner, Kvinner om menn 65 år og eldre



(Lofthus et al. Bone 2001)

Hyppighet av hoftebrudd i Norge

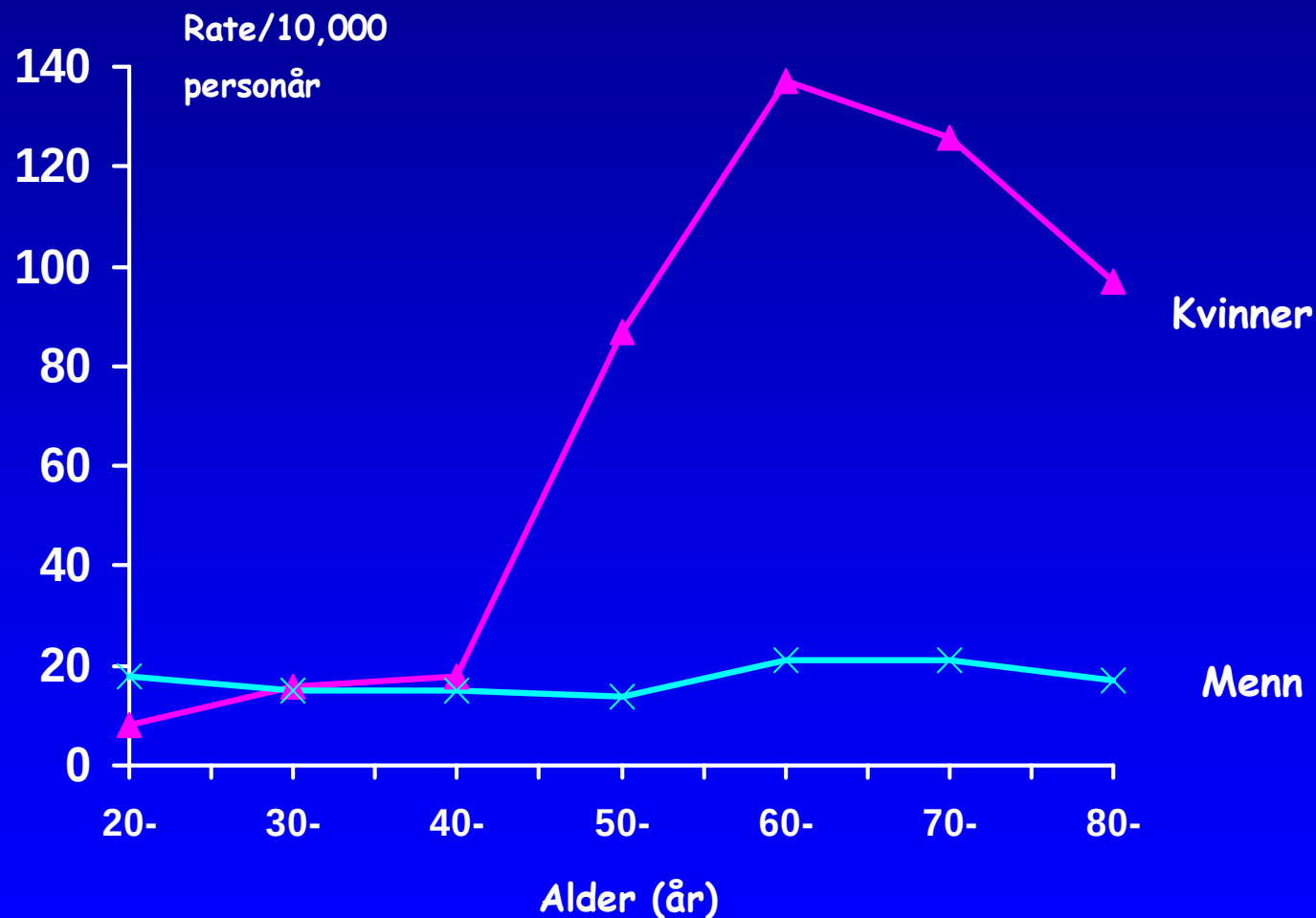


Aldersjusterte rater 55 år +

Underarmsbrudd

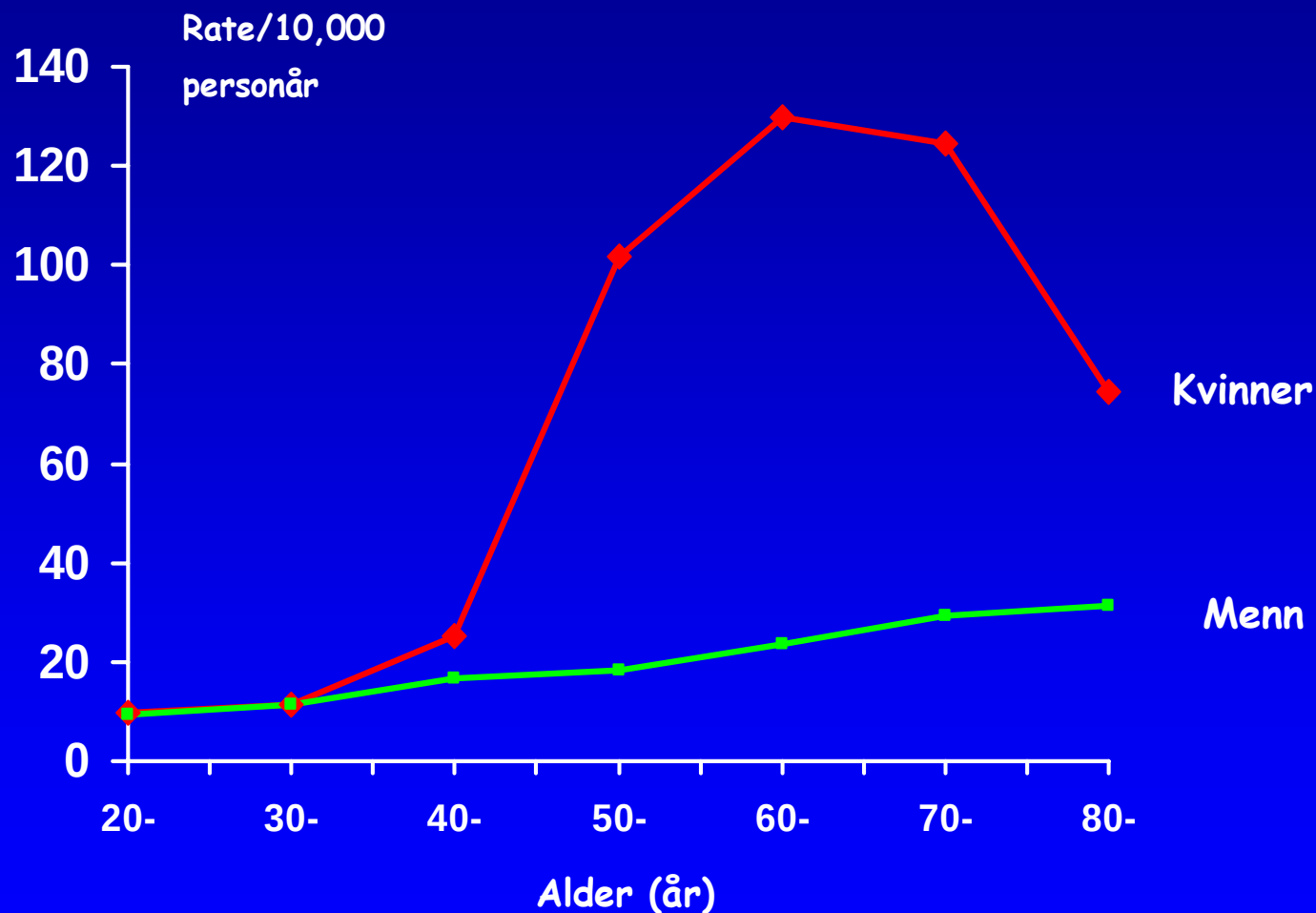
- Ca 14 000 per år i Norge
- Ikke assosiert med dødelighet

Hyppighet av underarmsbrudd Bergen (1988)



(Hove et al. 1995)

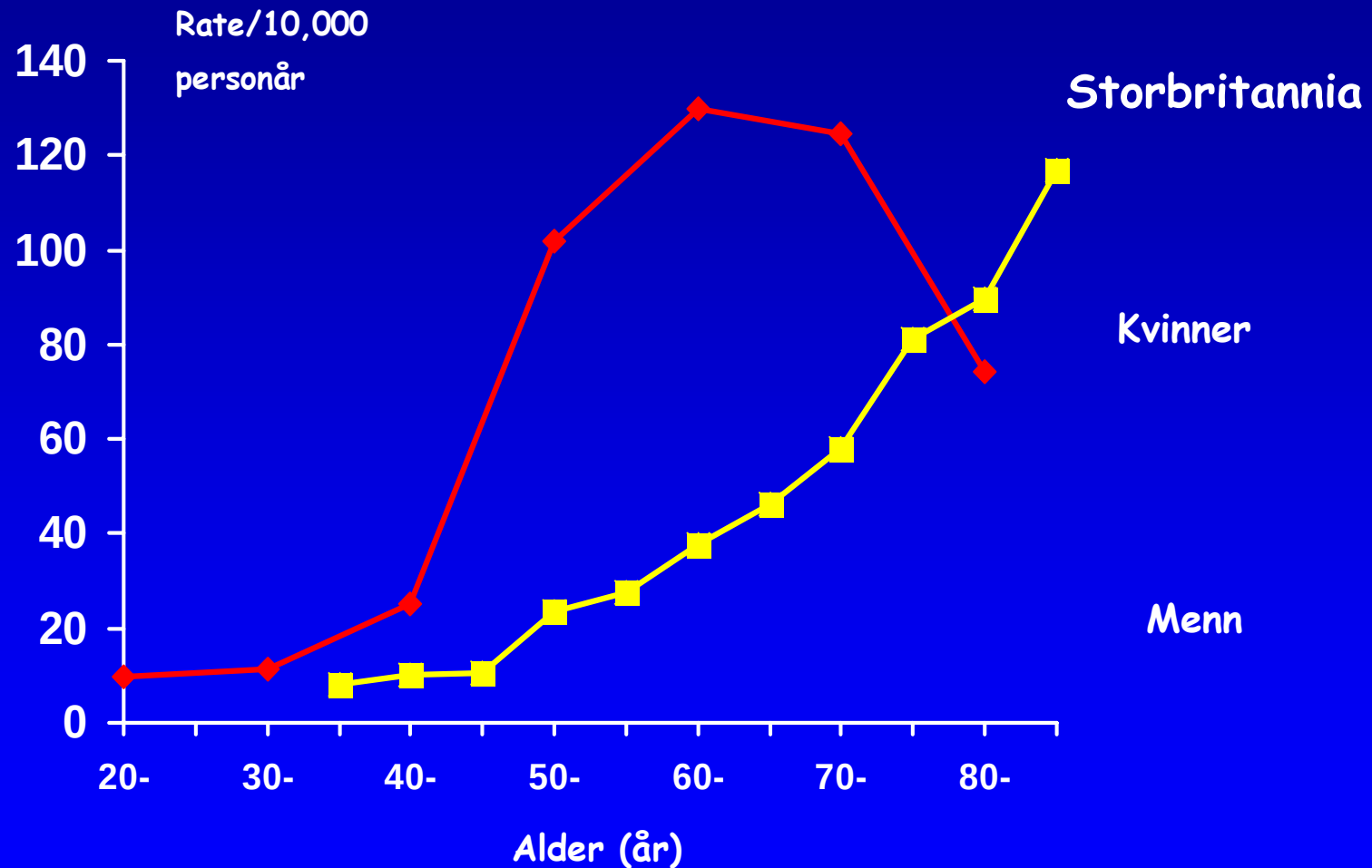
Hyppighet av underarmsbrudd Oslo (1979)



(J Falch et al. 1983)

Hyppighet av underarmsbrudd

Oslo (1979) og Storbritannia (1997/98)

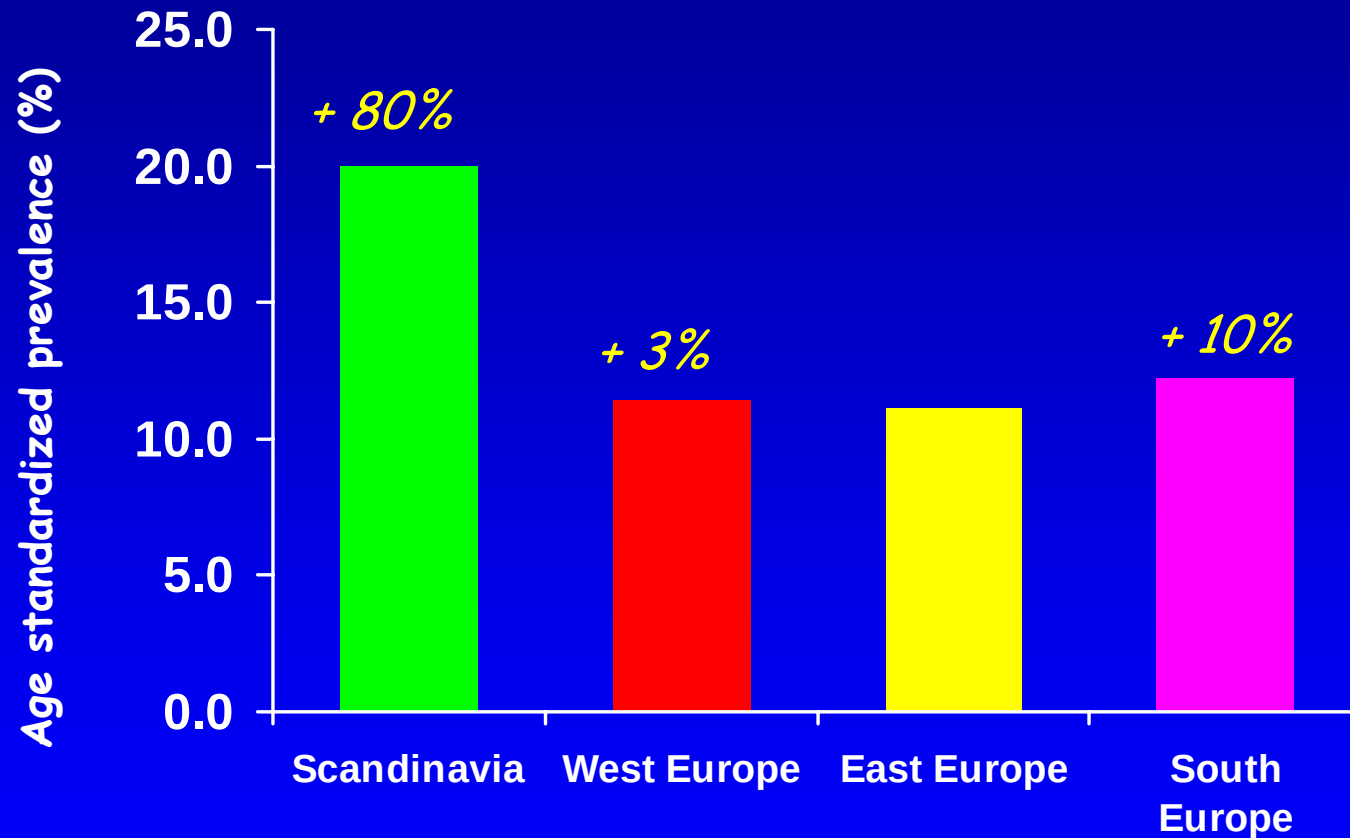


(J Falch et al. 1983, O'Neill et al. 2001)

Vertebrale brudd

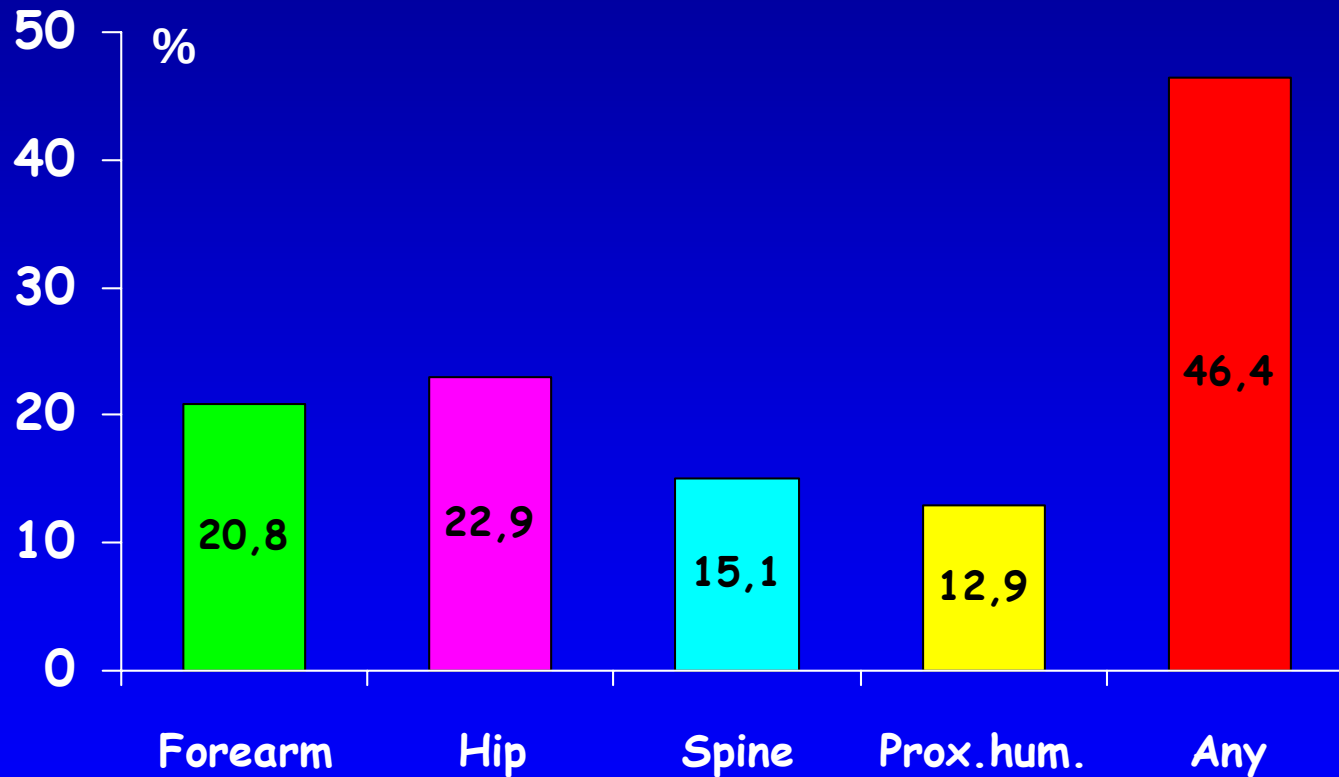
- Stor variasjon i symptomer
- Mange ikke erkjent

Prevalence of Vertebral Deformity in Europe Women 50-79 years (McCloskey). The EVOS study



(O'Neill et al. J Bone Miner Res 1996)

Remaining lifetime risk of fracture (%) at age 50 in women (Malmö)



(Kanis et al. 2000)

Hva kan forklare den høye hyppigheten?

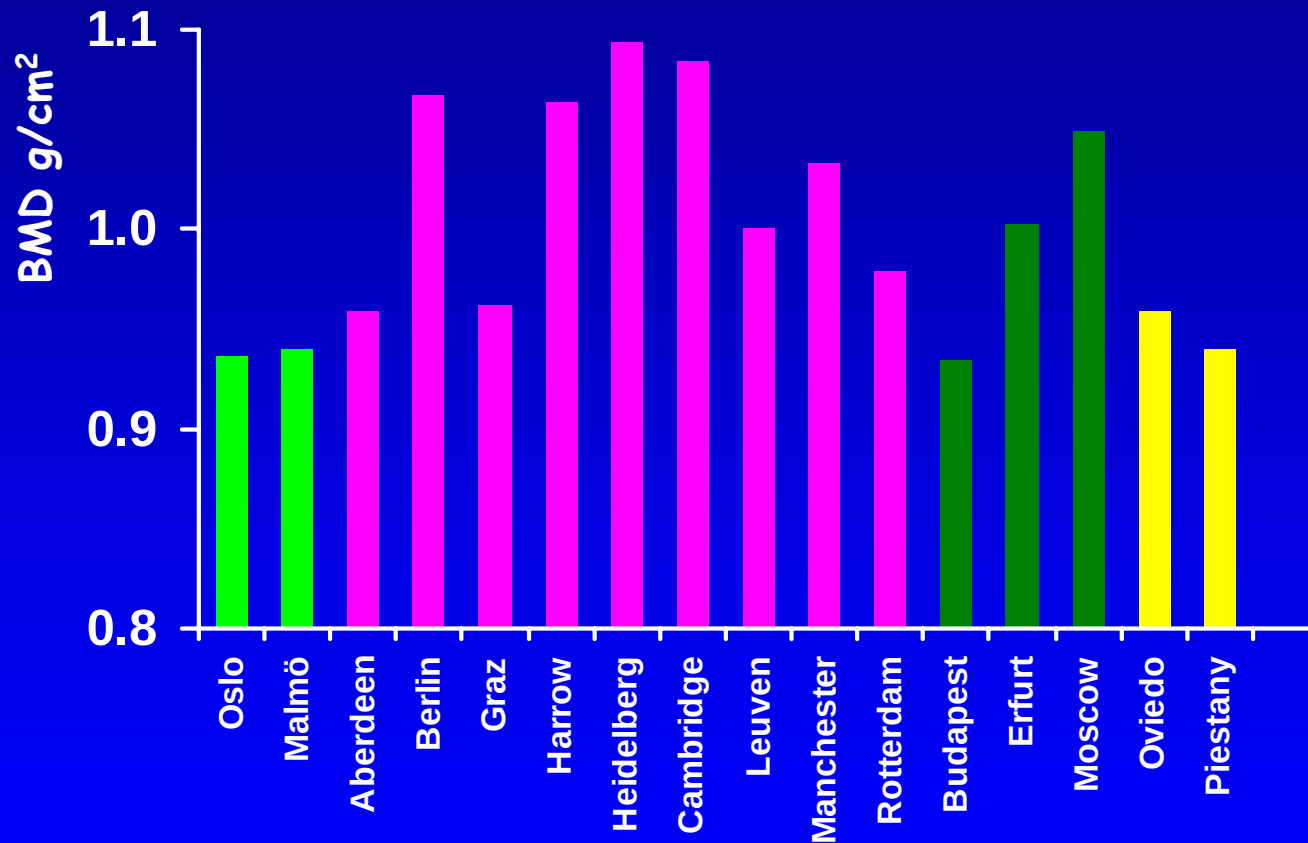


Hva kan forklare den høye
hyppigheten?

→ *Osteoporose?*

Spinal Bone Mineral Density in Women

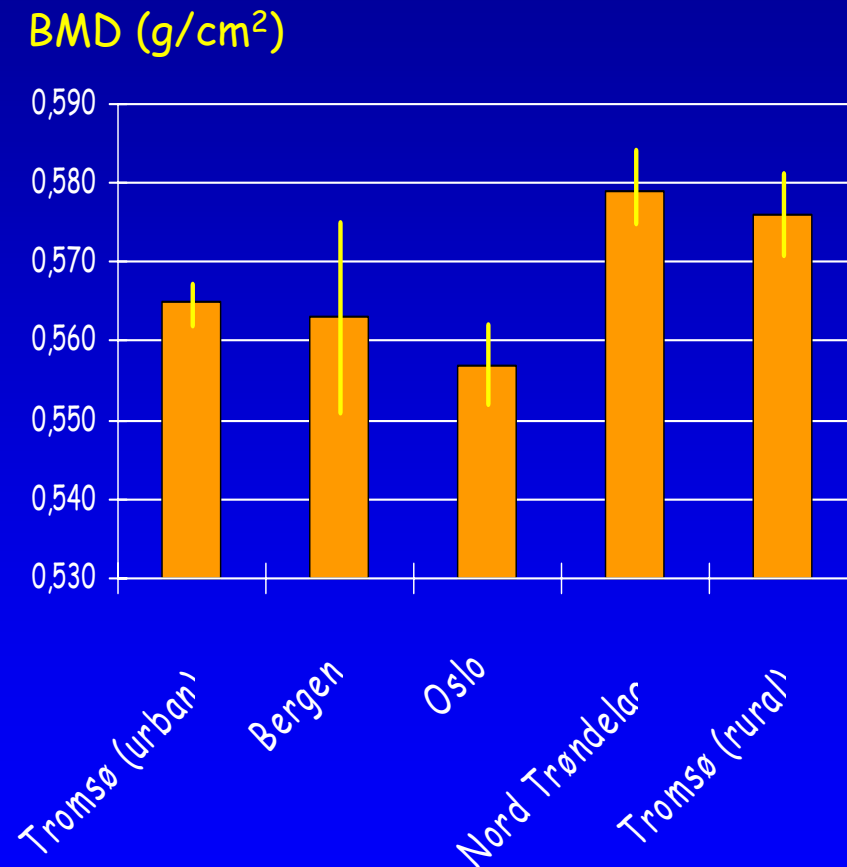
16 European Centers: The EVOS Study



(SD = 0.2, 160%)

Lunt et al, Osteoporos Int 1997

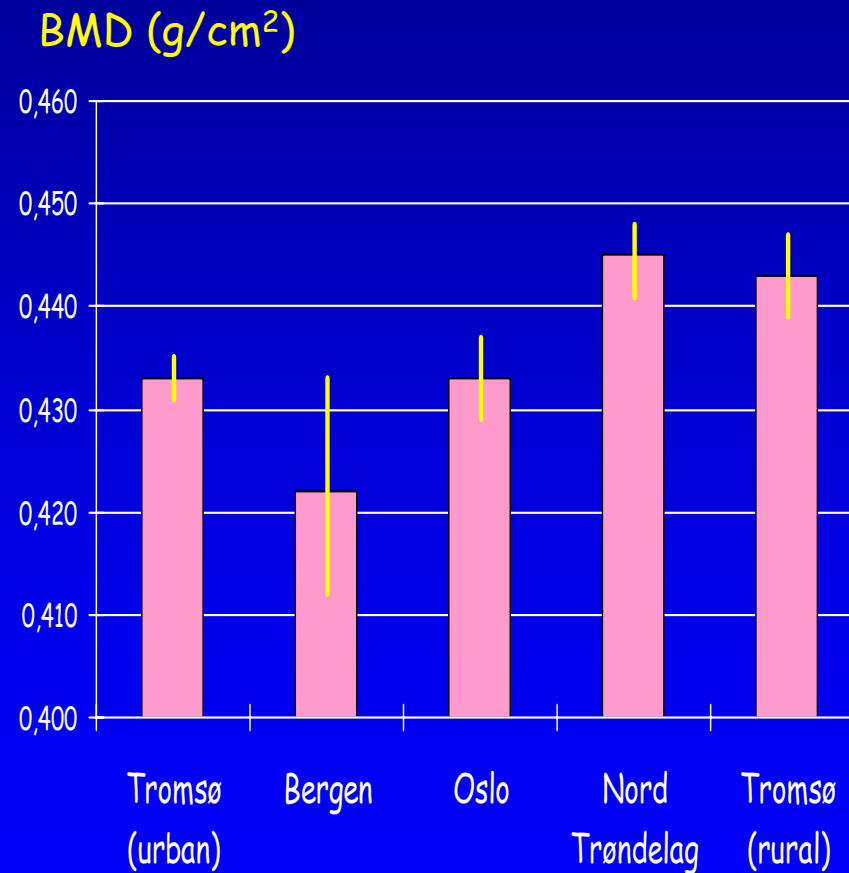
BMD (Distal Forearm), Men 40-75 years



* Age-adjusted

Meyer et al. Am J Epidemiol 2004

BMD (Distal Forearm), Women 40-75 years



* Age-adjusted

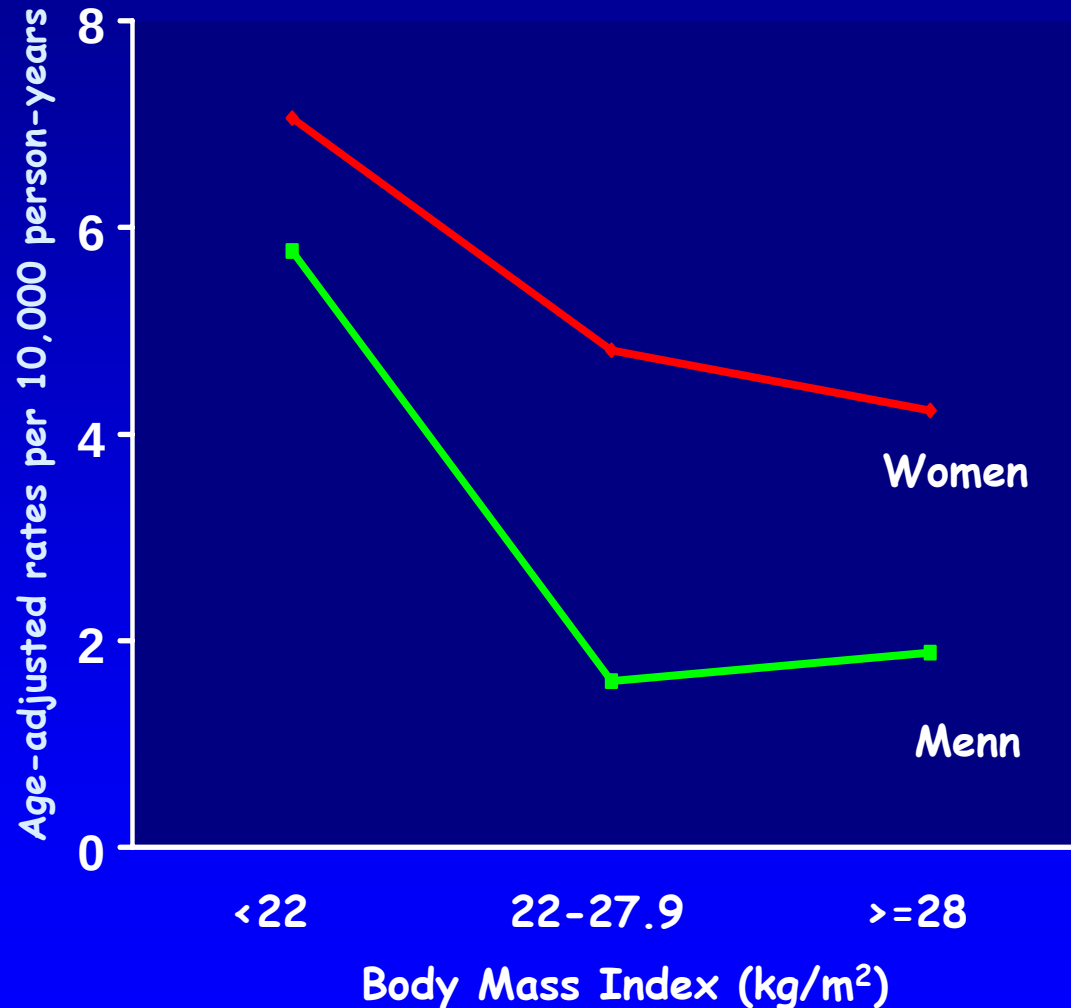
Meyer et al. Am J Epidemiol 2004

Hva kan forklare den høye hyppigheten?

- Osteoporose
- *Vekt?*

Body Mass Index and Incidence of Hip Fracture

Follow-up of 47 000 middle-aged Norwegians

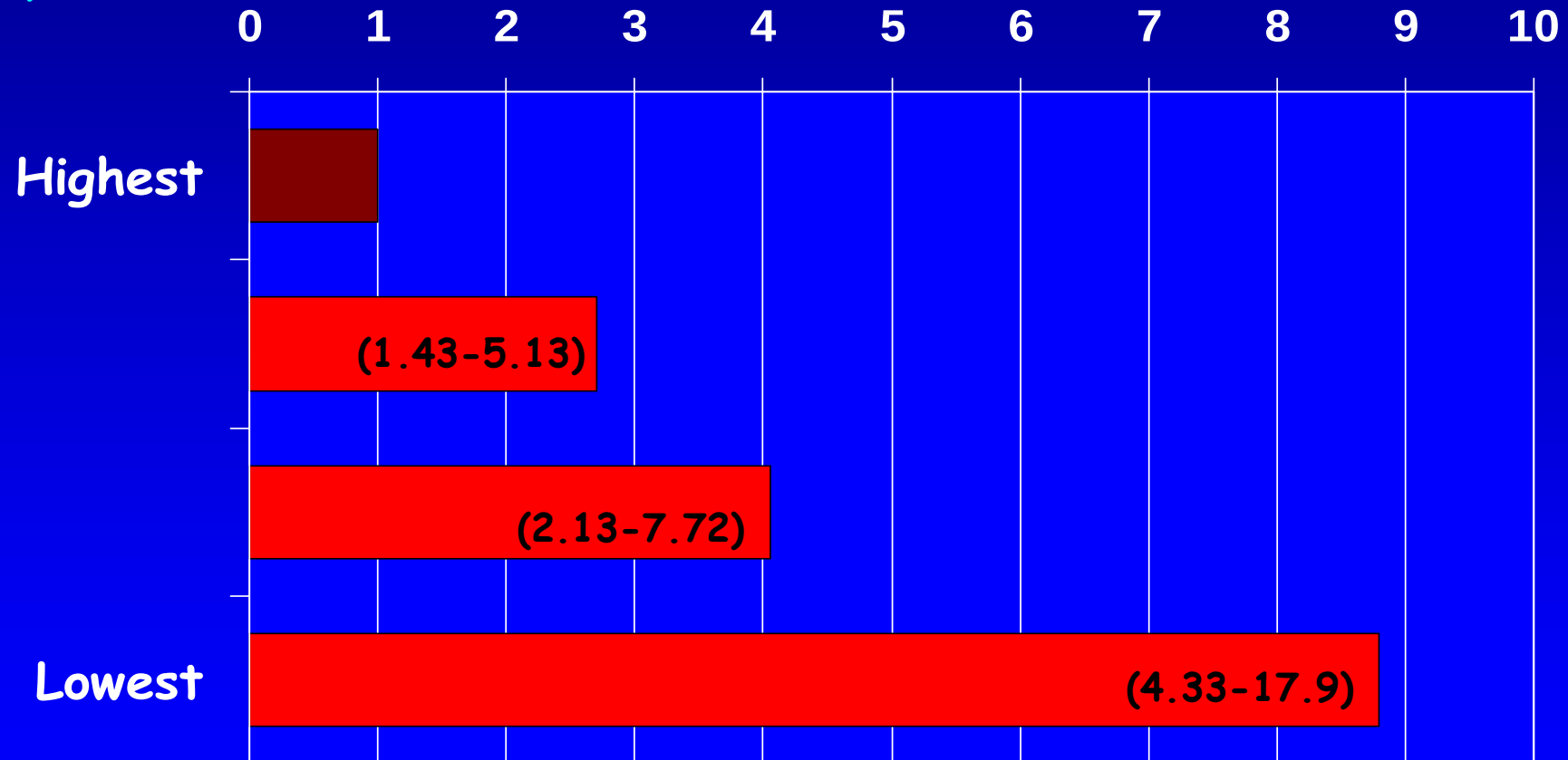


(Meyer et al. Am J Epidemiol 1993)

Skinfold Thickness and the Risk of Hip Fracture

Case-control study from Oslo - 1992/93

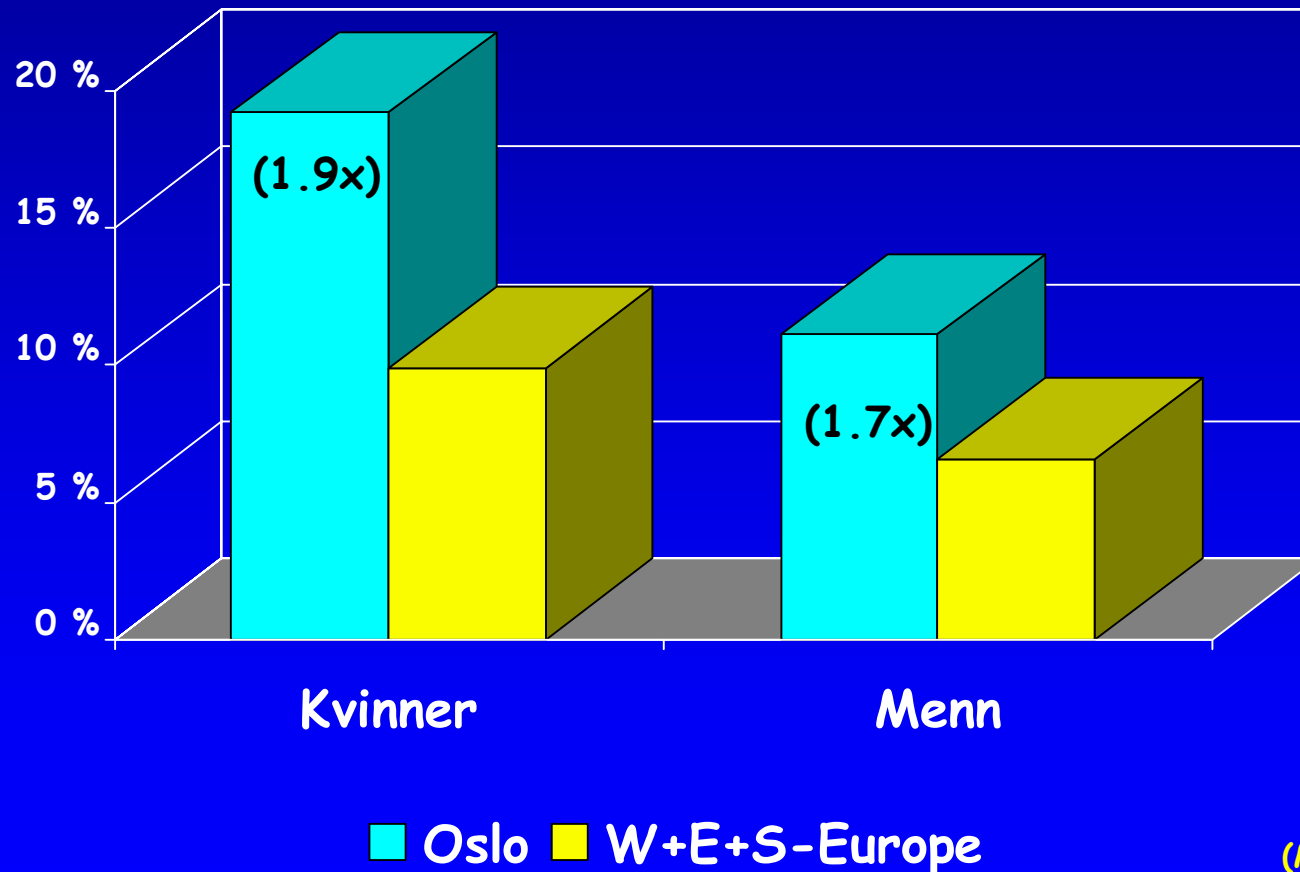
*Quarters of Triceps
Skinfold Thickness*



Odds Ratio

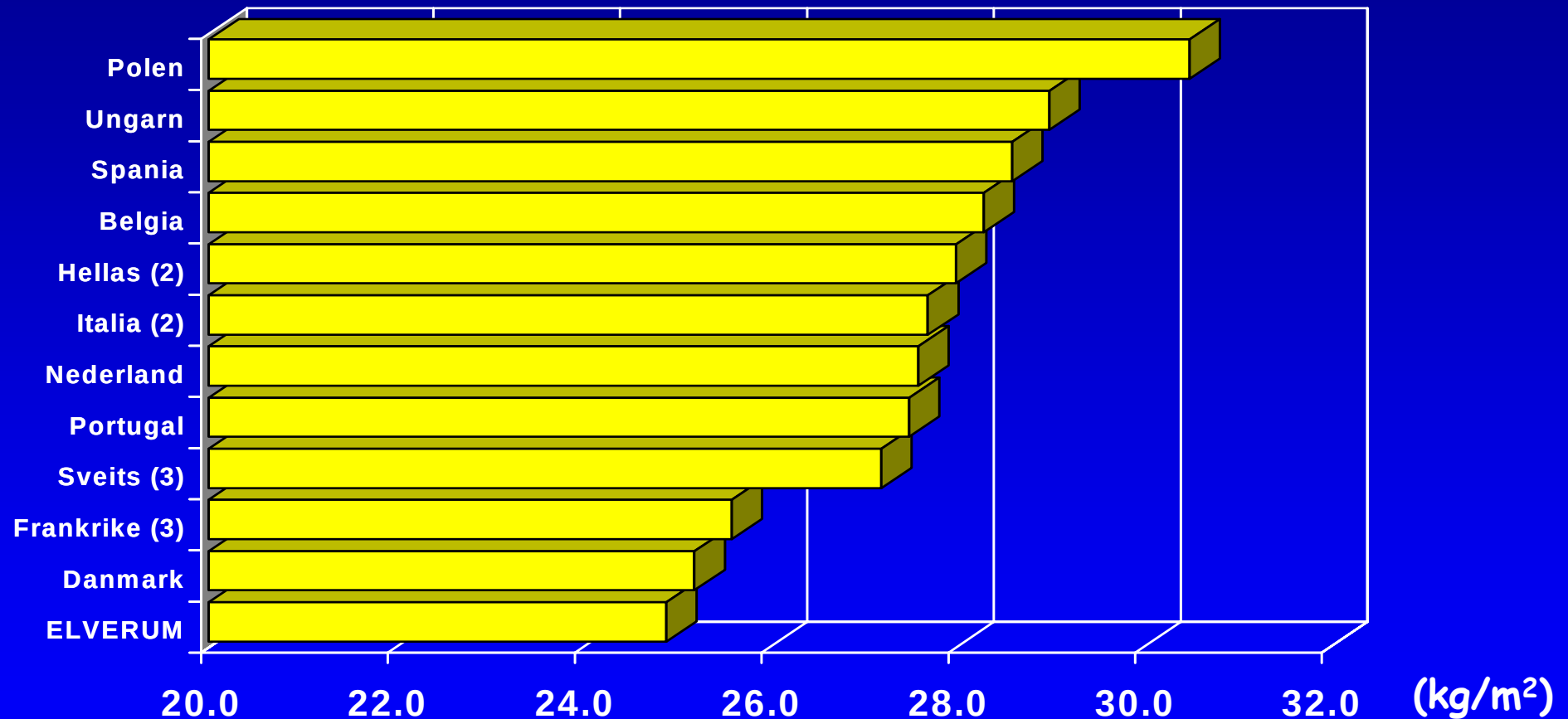
(Meyer et al. Osteoporos Int 1995)

Prevalence of BMI < 22 kg/m² European Men and Women 50-79 years (EVOS)



(Meyer et al. Bone 1995)

Mean BMI in Different Regions of Europe Women 70-75 years (SENECA)

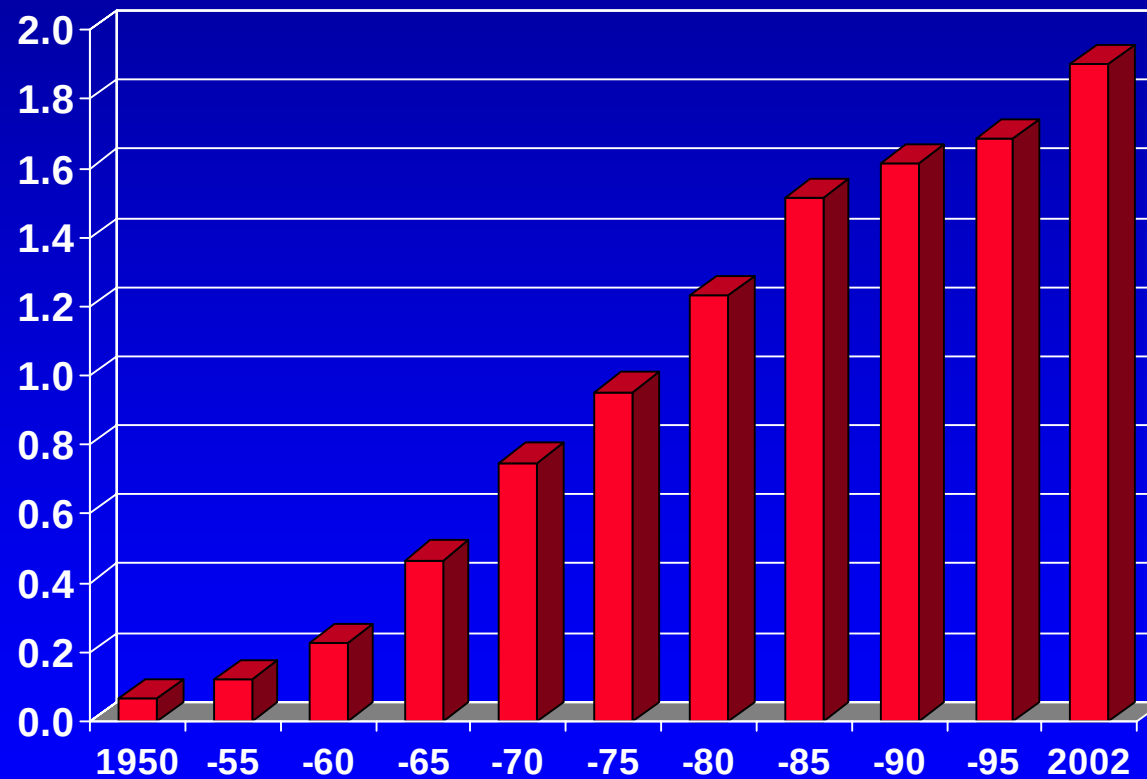


Hva kan forklare den høye hyppigheten?

- Osteoporose
- Vekt
- *Fysisk aktivitet?*

Fysisk (in)aktivitet: Antall personer i Norge

Millioner



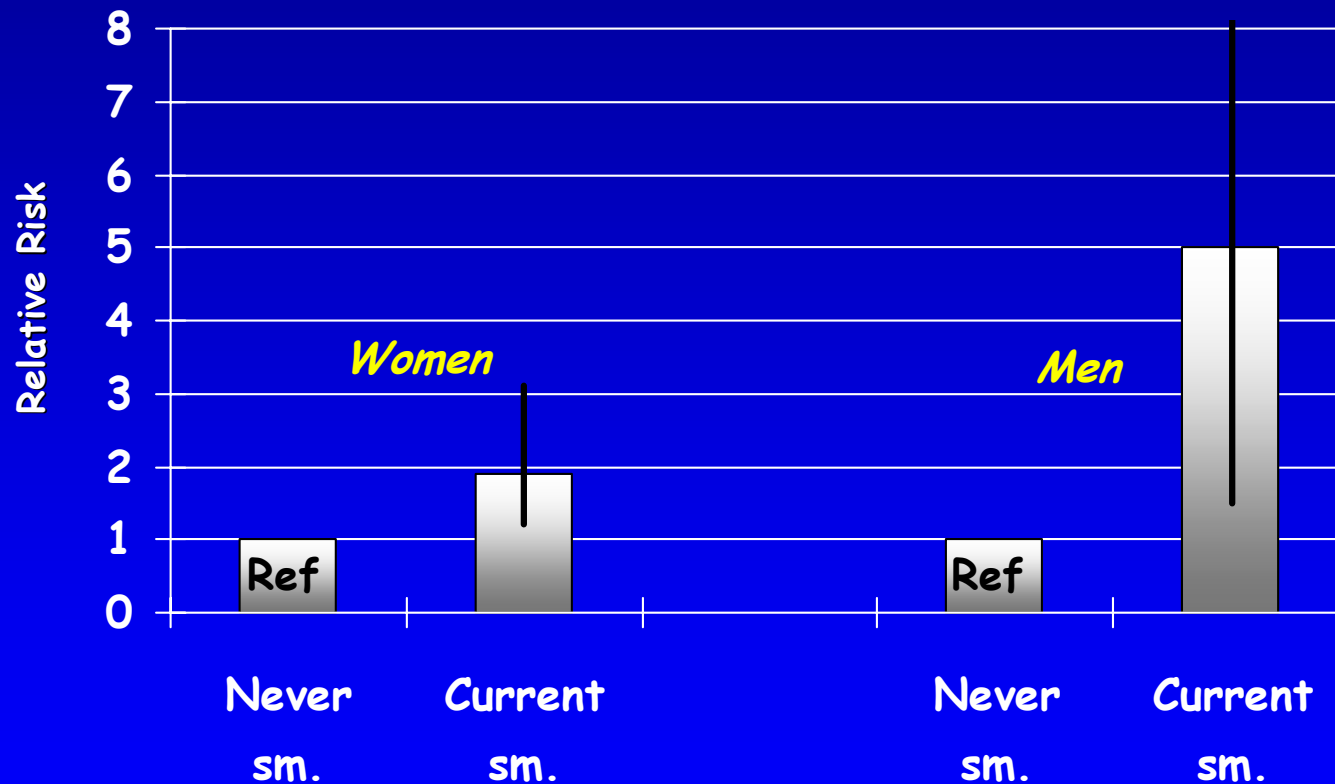
Hva kan forklare den høye hyppigheten?

- Osteoporose
- Vekt
- Fysisk aktivitet
- *Røyking?*

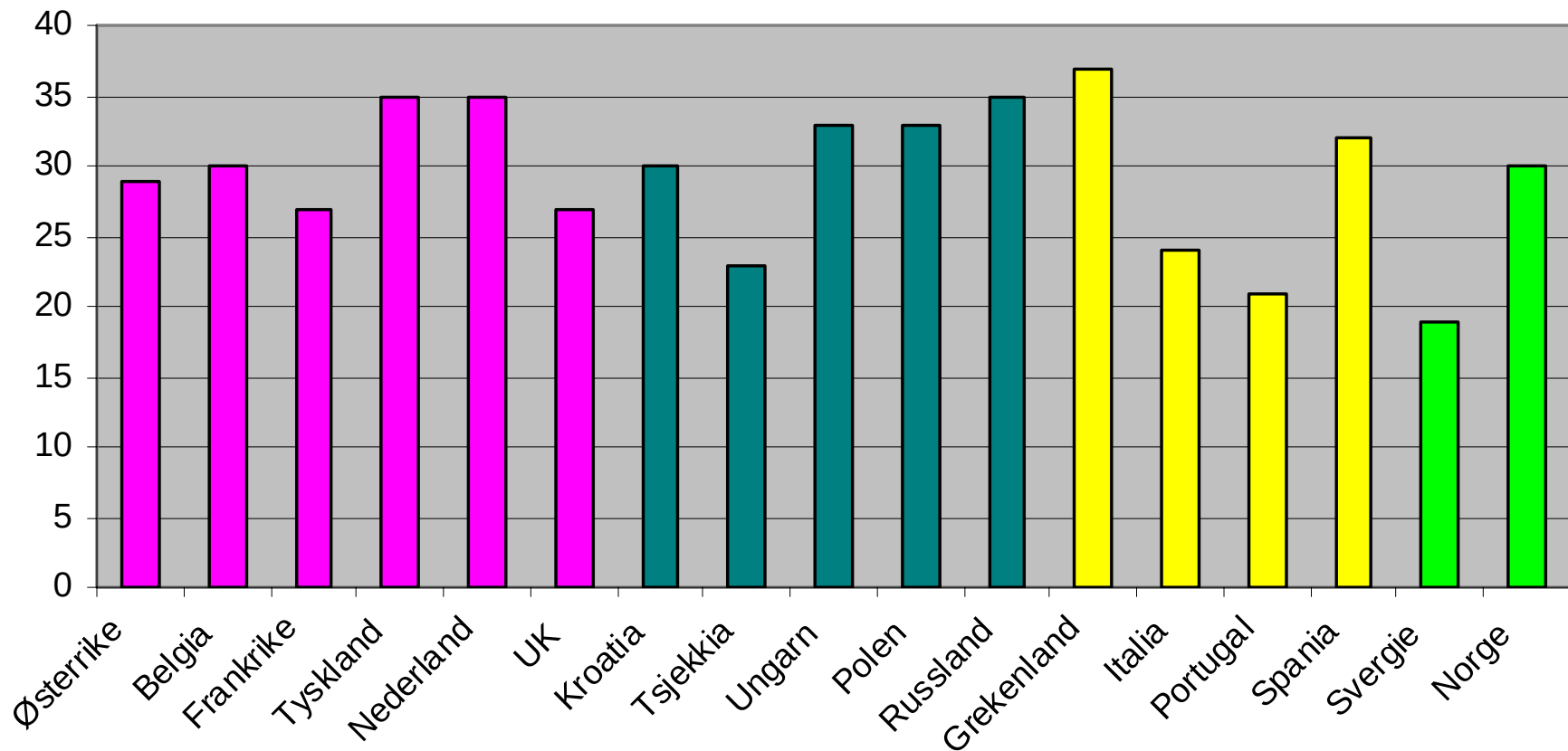
Smoking and Risk of Hip Fracture

Follow-up of Women and Men 50-74 years

Results from the Nord-Trøndelag Health Survey



Andel dagligrøykere i Europa Begge kjønn, 1999-2001

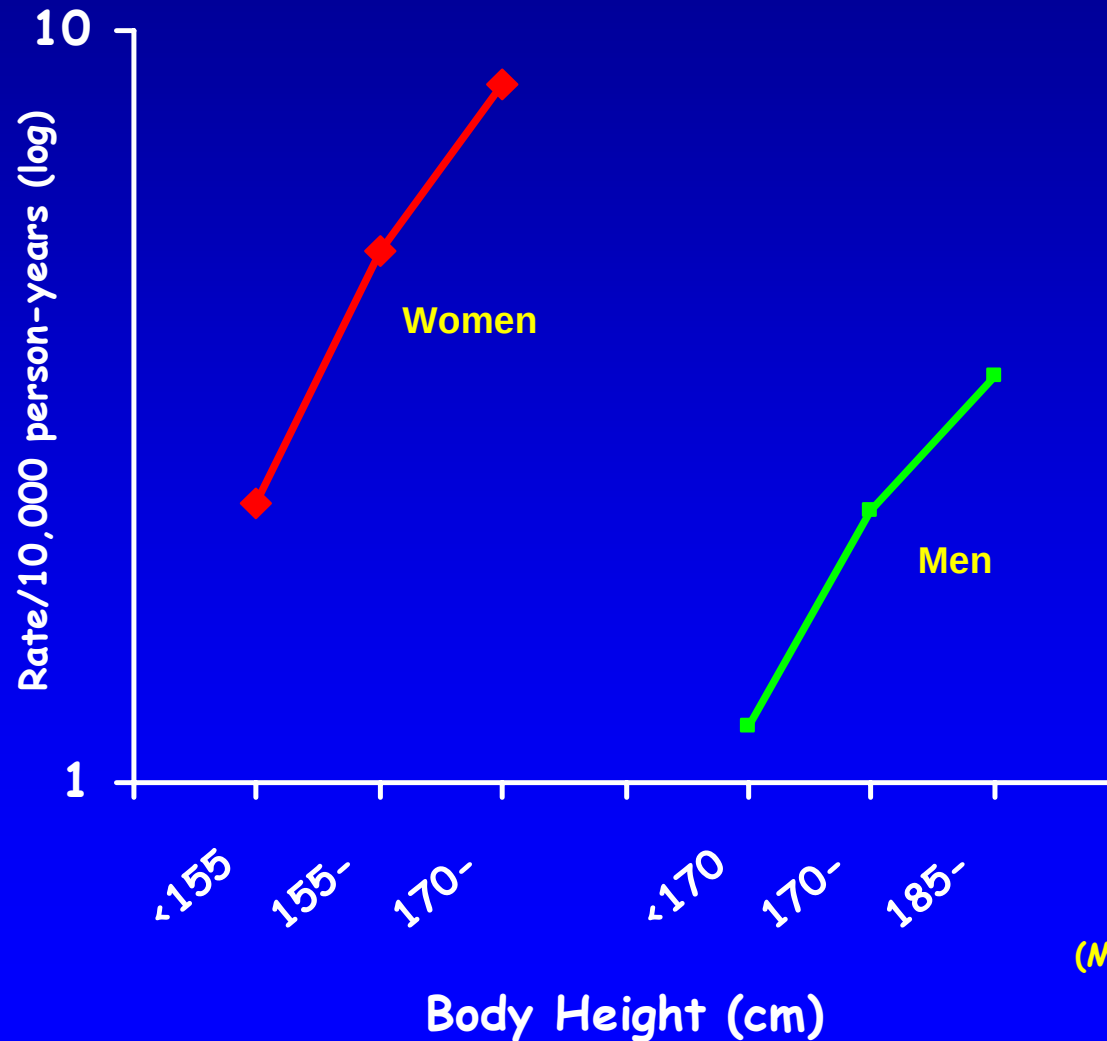


Hva kan forklare den høye hyppigheten?

- Osteoporose
- Vekt
- Fysisk aktivitet
- Røyking
- *Høyde?*

Body Height and Risk of Hip Fracture

Follow-up of 47 000 Women and Men



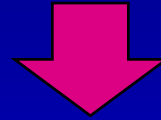
(Meyer et al. Am J Epidemiol 1993)

Body Height and Hip Fracture:

10 cm increases the risk of hip fracture with:

- 58% in women and 119% in men (Meyer et al. 1993)
- 55% in women (Cummings et al. 1995)

The population of Oslo is taller than populations in other parts of Europe*



Oslo compared to Western Europe:	+4.3 cm	men
Oslo compared to Eastern Europe:	+5.0 cm	
Oslo compared to Southern Europe:	+8.6 cm	
Oslo compared to Western Europe:	+2.2 cm	women
Oslo compared to Eastern Europe:	+2.7 cm	
Oslo compared to Southern Europe:	+5.2 cm	

* Data from women and men aged 50-79 years, the EVOS study

(Meyer et al. Bone 1995)

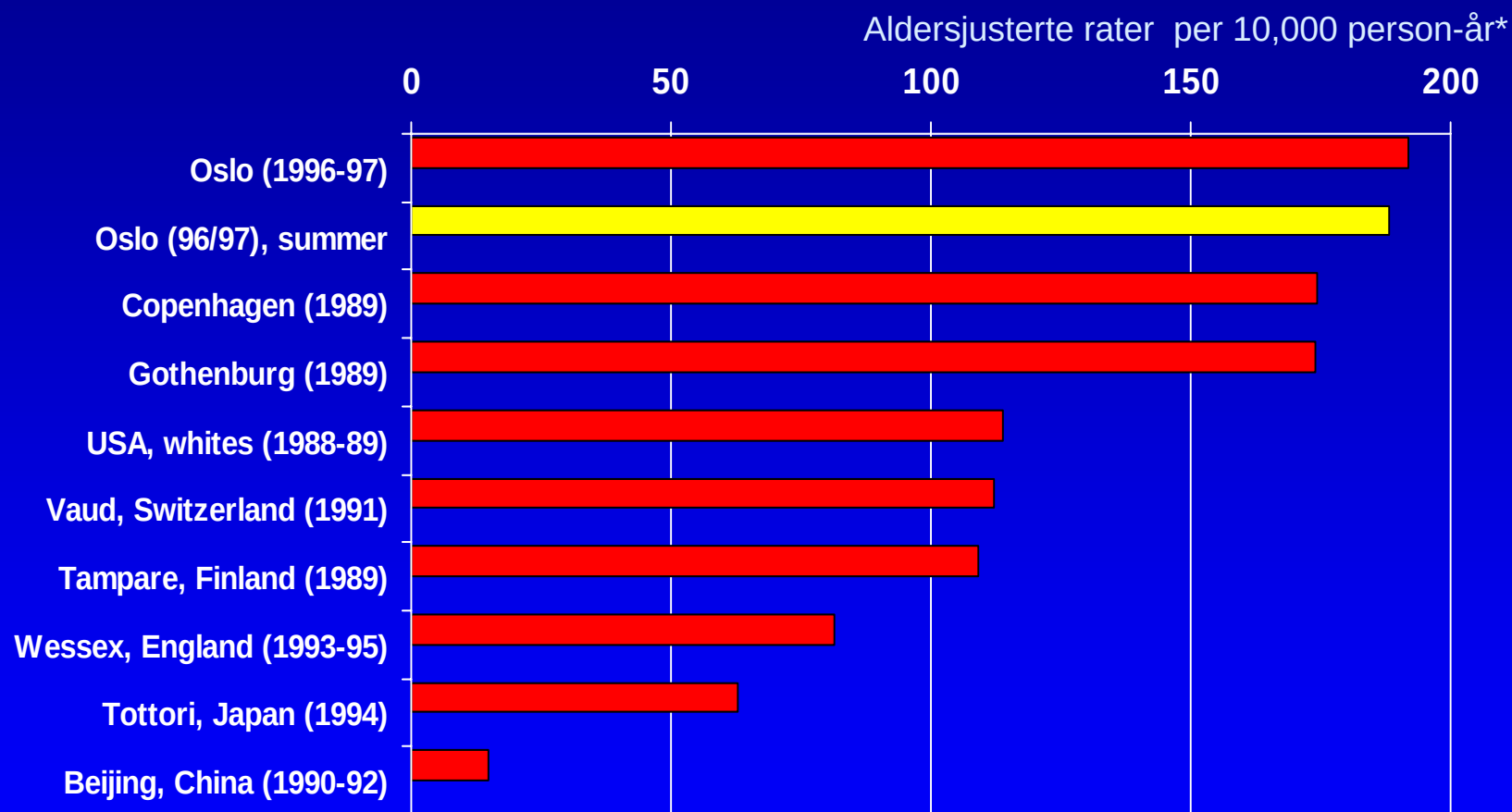
Body Height and the Number of Hip Fractures

- Given 9000 hip fractures (80% in women):
 - ➔ If mean height in Norwegians was reduced to Southern European levels, we would have expected 6587 hip fractures (diff. 2413)

Hva kan forklare den høye hyppigheten?

- Osteoporose
- Vekt
- Fysisk aktivitet
- Røyking
- Høyde
- *Glatt føre?*

Hyppighet av hoftebrudd i forskjellige populasjoner, Kvinner 65 år og eldre



(Lofthus et al. Bone 2001)

Osteoporotiske brudd: Hvorfor er Norge på verdenstoppen?

Osteoporose

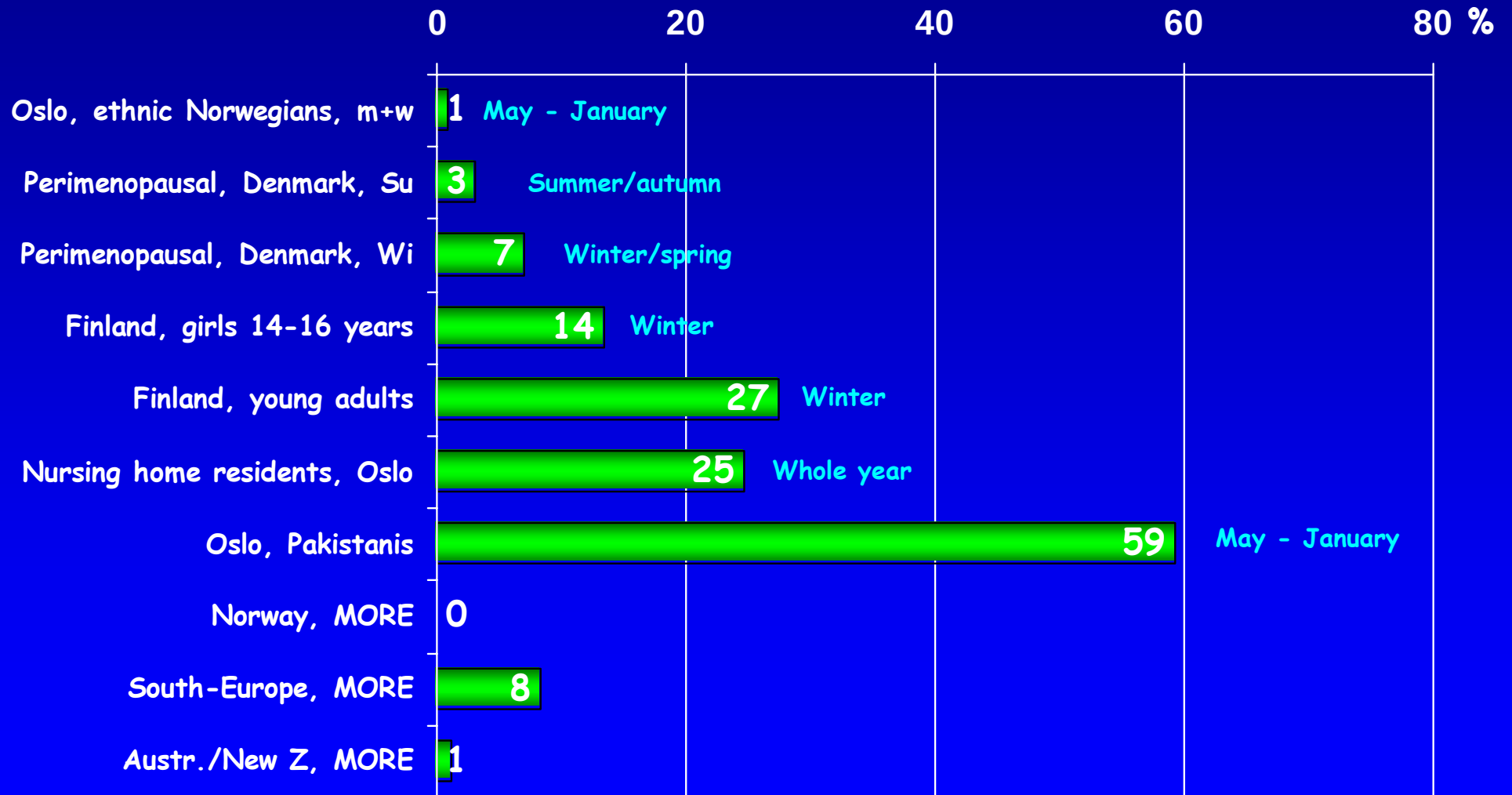
- + Vekt
- + Fysisk aktivitet
- + Røyking
- + Høyde
- + Glatt føre
- = Ikke god nok forklaring

Hva kan forklare den høye hyppigheten?

- Osteoporose
- Vekt
- Fysisk aktivitet
- Røyking
- Høyde
- Glatt føre?
- *Andre faktorer?*

Vitamin D

Proportione with 25(OH)D < 25 nmol/l



Økt bruddforekomst - risikofaktorer kan operere via:

- Beinmasse
- Fall
- Beinkvalitet

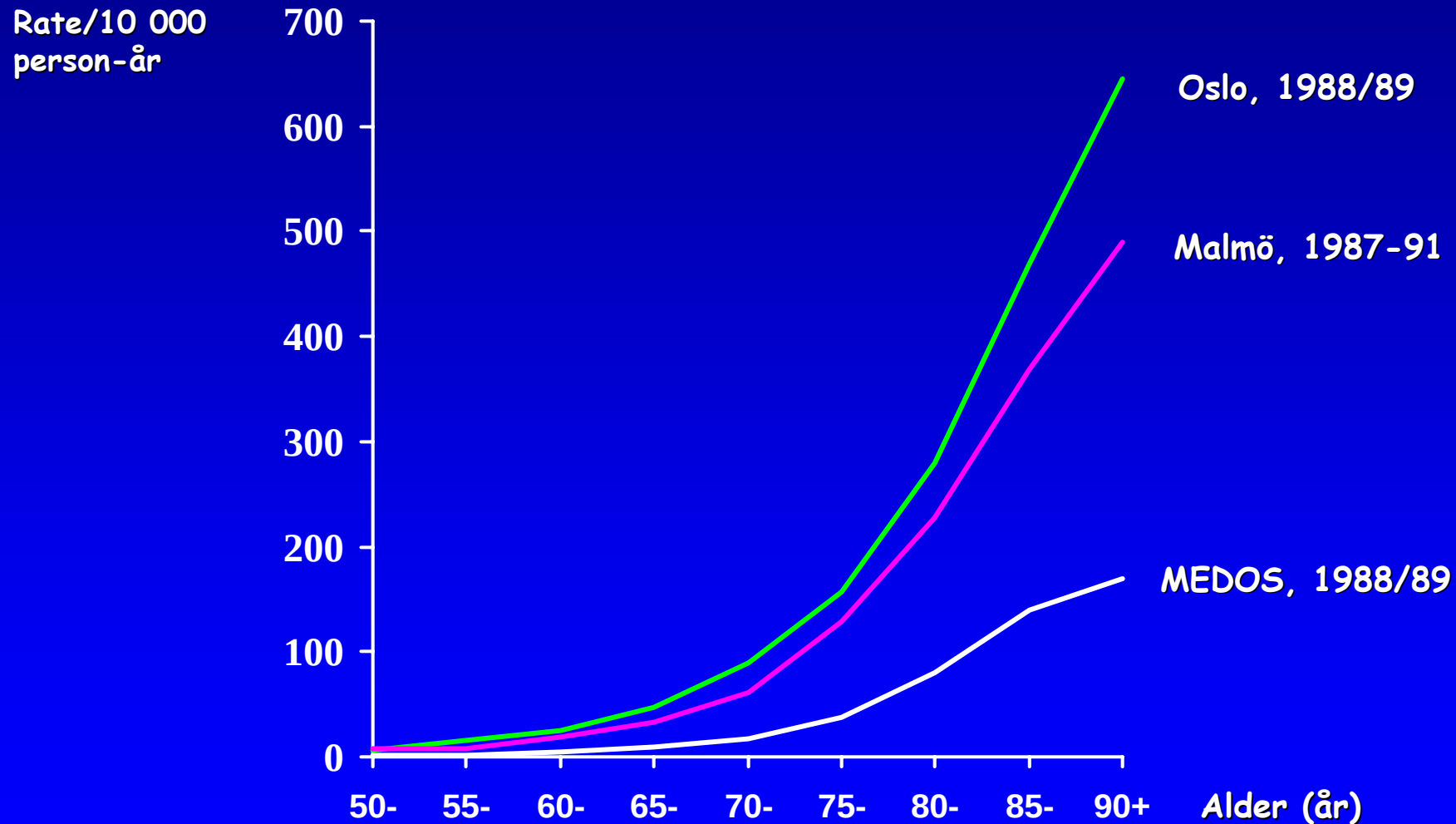
→ Etnisk bakgrunn

→ Miljø- og livsstilsfaktorer

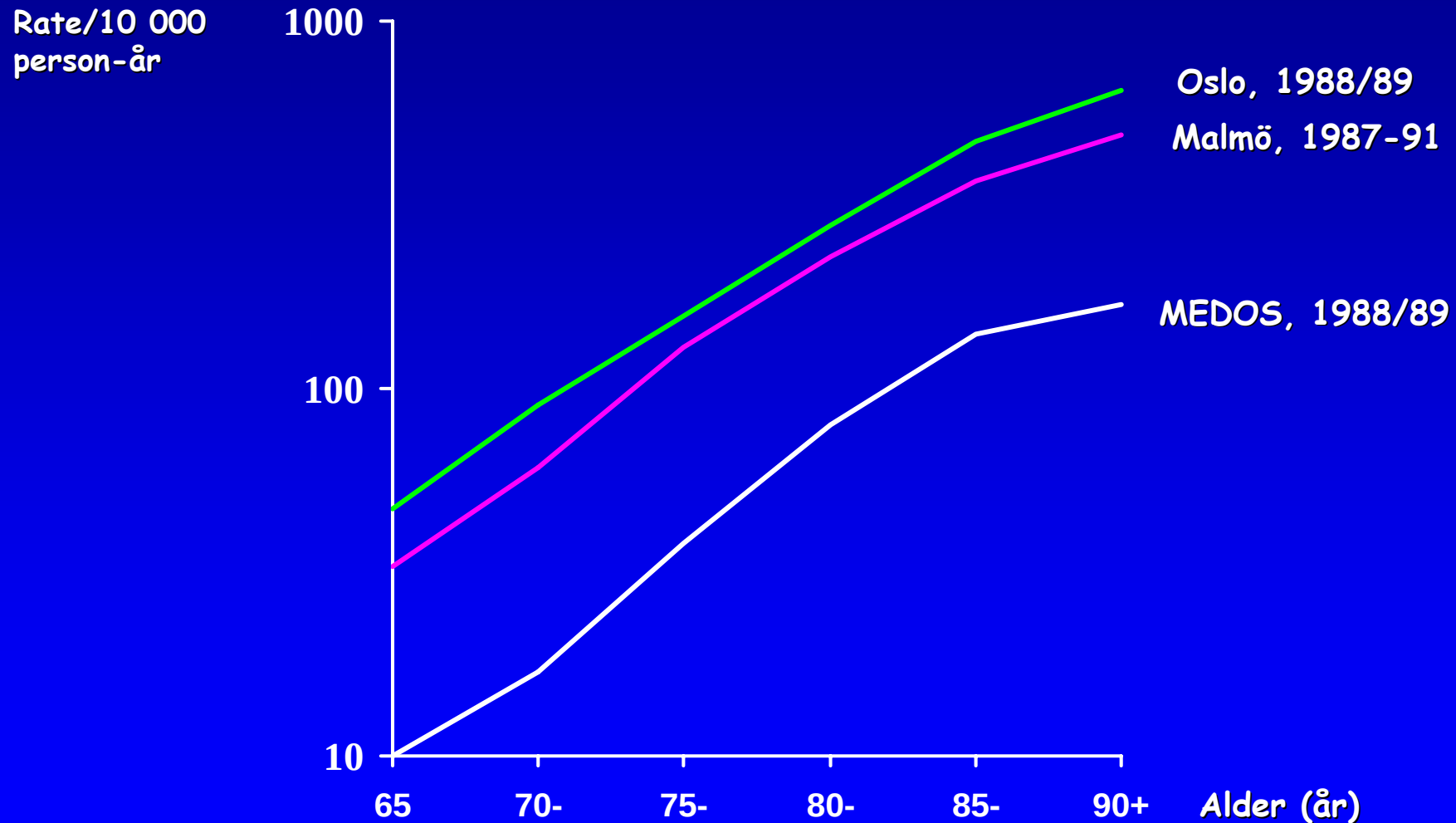
Osteoporotiske brudd: Hvorfor er Norge på verdenstoppen?

*Bedre kunnskap om dette vil være
av stor betydning for å bremse
den bruddepidemien vi har*

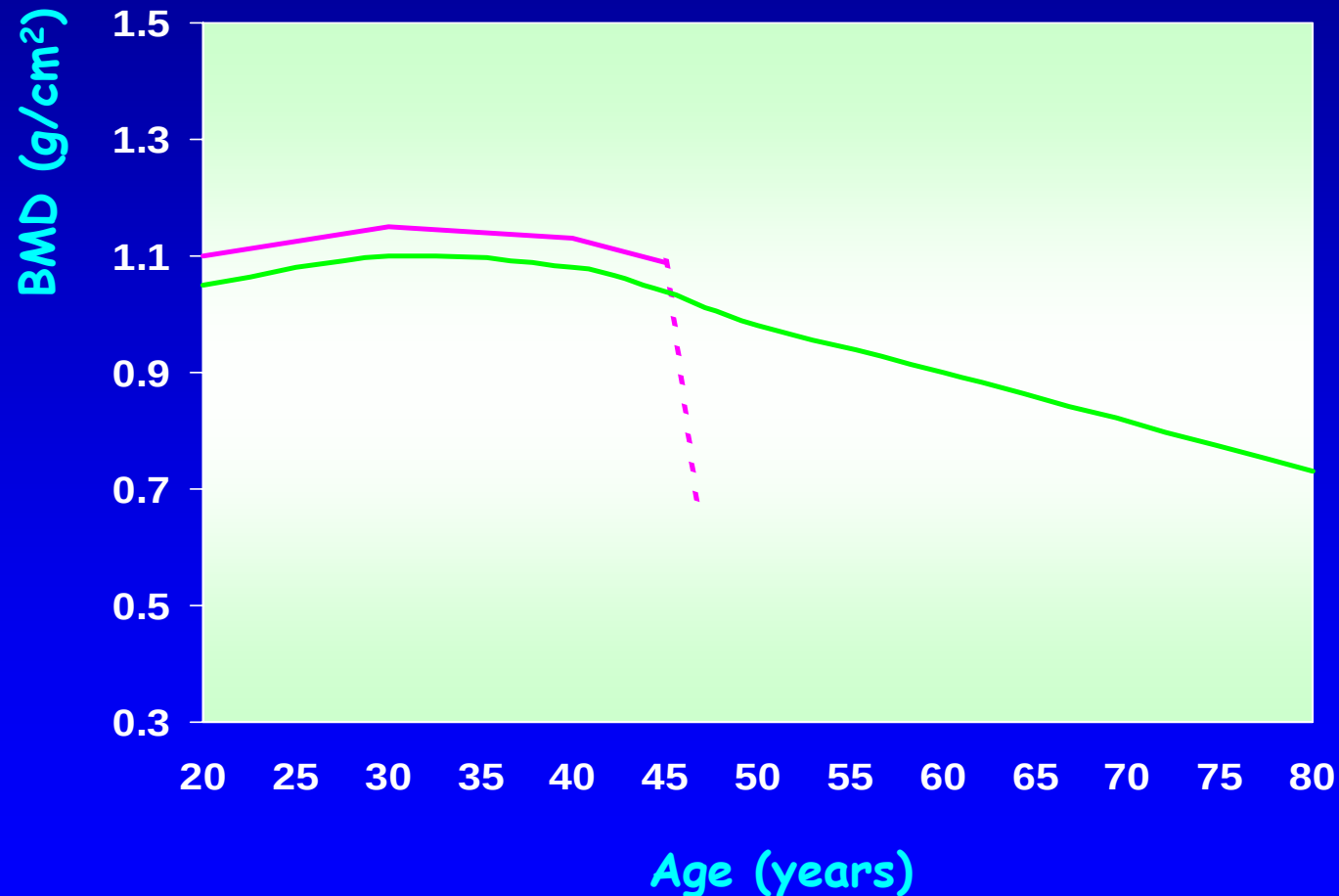
Hyppighet av hoftebrudd hos kvinner i forskjellige populasjoner



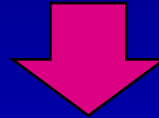
Hyppighet av lårhalsbrudd hos kvinner i forskjellige populasjoner



Estimated bone loss in an astronaut on a mission to Mars:



Increasing Body Height during 24 years 65-67 years old Norwegians*



Year of ex.	Height (mean)	
	men	women
1963-68	170.9 cm	158.3 cm
1989-92	174.6 cm	161.3 cm
Increase:	3.7 cm	3.0 cm

* Standardized height measurements, health screenings in 1963-68 (4591 men, 5584 women) and 1989-92 (5994 men, 6858 women), 3 Norwegian counties