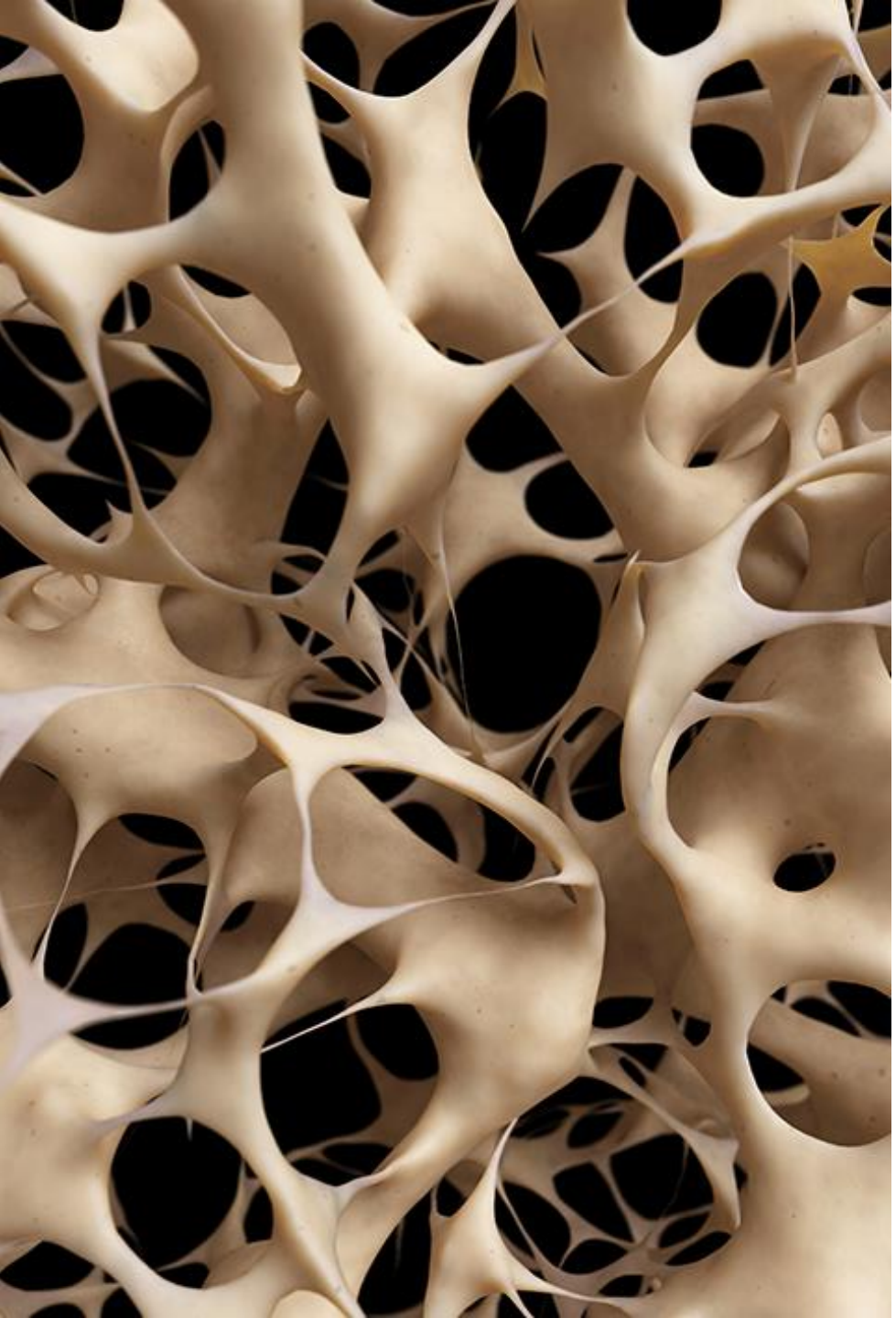
Er det livsfarlig å være benskjør?

Annette V. Hauger

Ph.d.-kandidat i helsevitenskap ved OsloMet

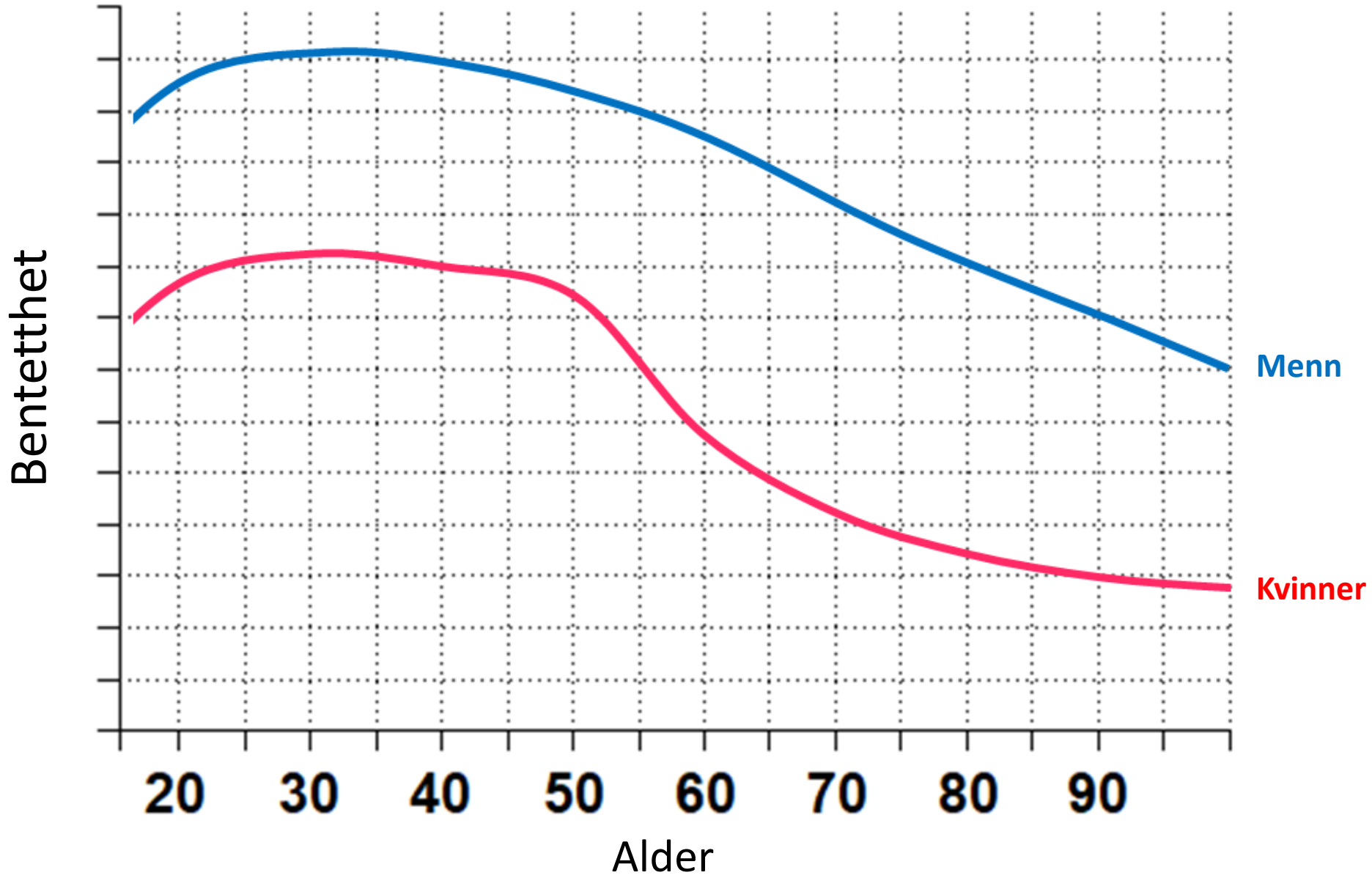
Aldring, helse og velferd / Folkehelseinstituttet



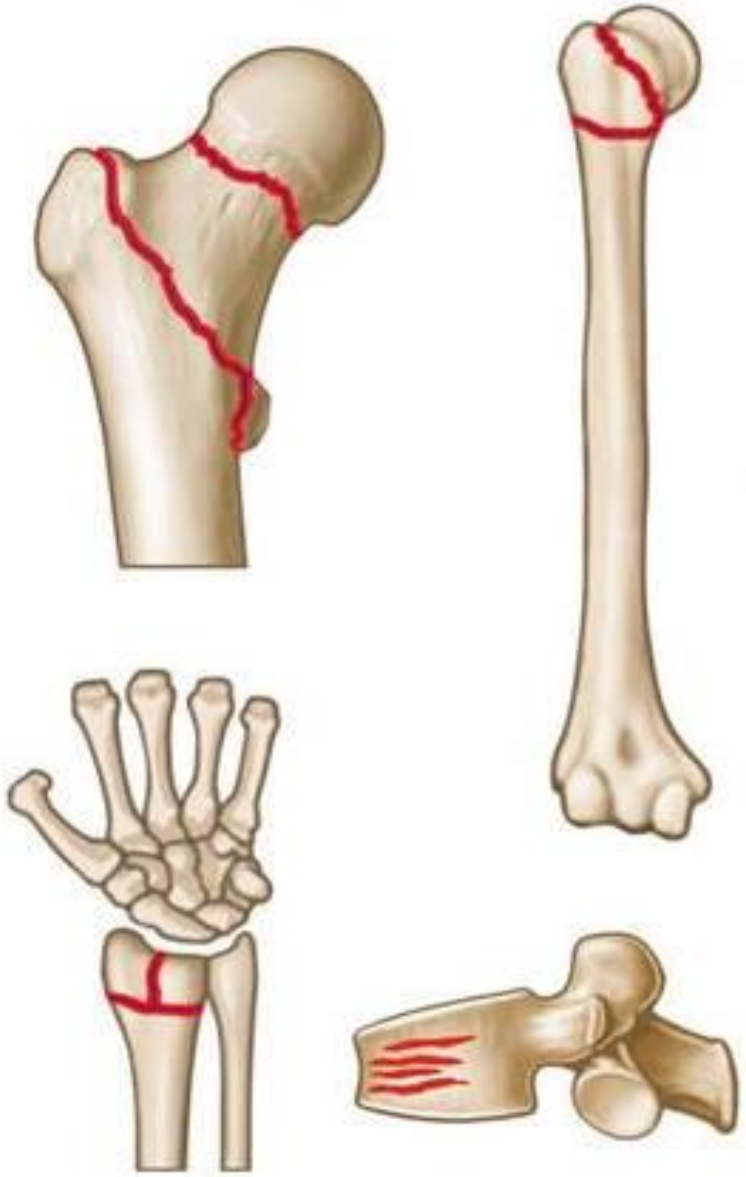
Benskjørhet - osteoporose

- Lav beintetthet → beinvevet er mindre sterkt og mer utsatt for brudd.
- Ubalanse i forholdet mellom nedbryting og oppbygging av beinvev.
- WHOs definisjon av **osteoporose**: bentetthet på mer enn 2,5 standardavvik under gjennomsnittet for unge, friske mennesker (T-score -2.5).
  Osteopeni – forstadiet til osteoporose (T-score -1 til -2.5)
- «Kvinnesykdom». Redusert østrogenproduksjon i overgangsalder → reduksjon i bentetthet
- Normal del av aldringsprosessen
  - Kan påvirkes gjennom medikamenter, kosthold og fysisk aktivitet

(Kanis JA et al. 1994, Warming L et al. 2001, Kling JM et al. 2014)



(Basert på tall fra Tromsøundersøkelsen 4 i 1994/95)



Bentetthet og brudd

- Bentetthet predikerer brudd like godt som- eller bedre enn blodtrykk predikerer slag

- «Osteoporotiske brudd»
  - Hofte
  - Håndledd
  - Overarm
  - Rygg

(Marshall D et al. 1996, Cummings SR et al. 2002)

Bentetthet og dødelighet

- Økt dødelighet forbundet med lav bentetthet
- Økt dødelighet skyldes ikke kun brudd
- Sammenheng mellom lav bentetthet og hjerte-/karsykdommer

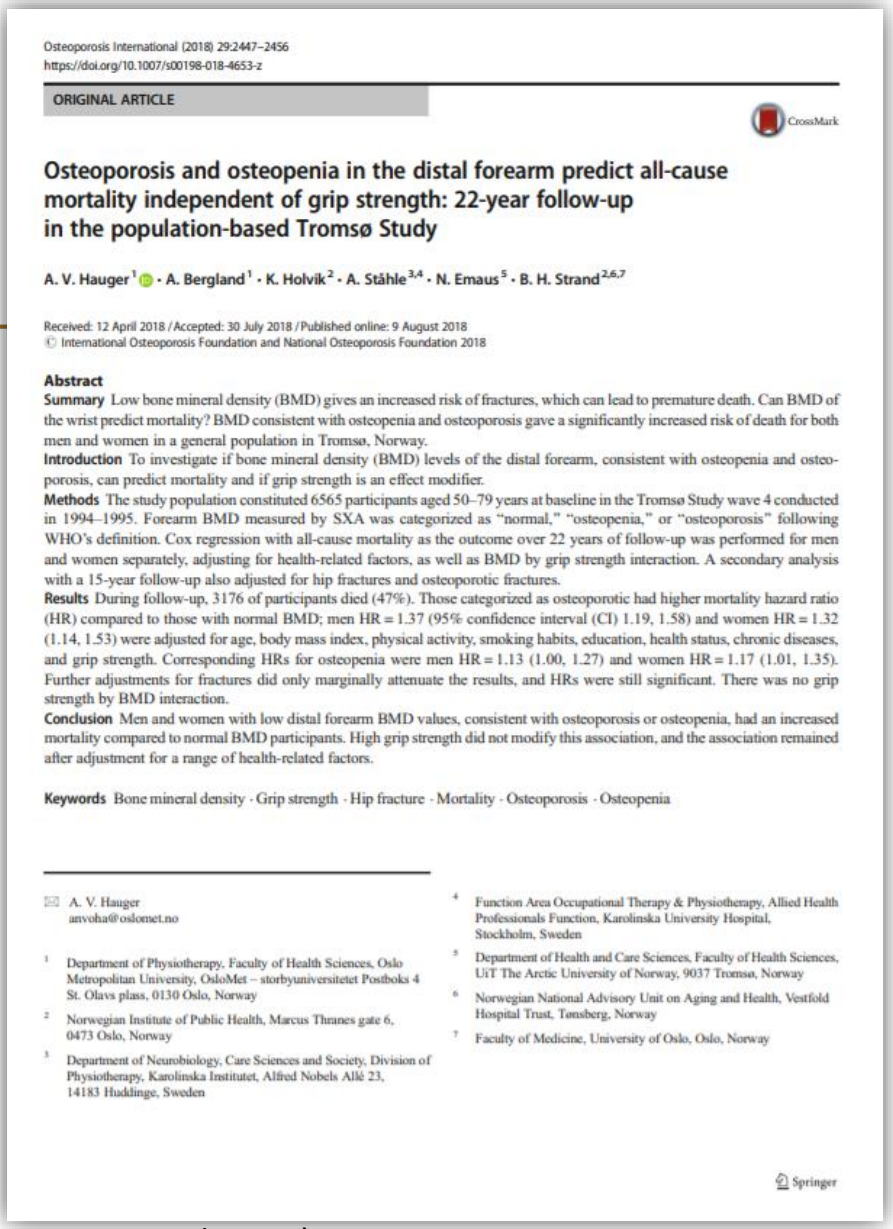
Vi har sett på:

- Sammenheng mellom osteoporose/osteopeni og dødelighet

→Hjelper det å ha god gripestyrke?

→Er det brudd som er årsaken til økt dødelighet?

- Endring i bentetthet og dødelighet



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ORIGINAL ARTICLE

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Osteoporosis and osteopenia in the distal forearm predict all-cause mortality independent of grip strength: 22-year follow-up in the population-based Tromsø Study

A. V. Hauger[1] · A. Bergland[1] · K. Holvik[2] · A. Ståhle[3,4] · N. Emaus[5] · B. H. Strand[2,6,7]

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Abstract

Summary Low bone mineral density (BMD) gives an increased risk of fractures, which can lead to premature death. Can BMD of the wrist predict mortality? BMD consistent with osteopenia and osteoporosis gave a significantly increased risk of death for both men and women in a general population in Tromsø, Norway.

Introduction To investigate if bone mineral density (BMD) levels of the distal forearm, consistent with osteopenia and osteoporosis, can predict mortality and if grip strength is an effect modifier.

Methods The study population constituted 6565 participants aged 50–79 years at baseline in the Tromsø Study wave 4 conducted in 1994–1995. Forearm BMD measured by SXA was categorized as "normal," "osteopenia," or "osteoporosis" following WHO's definition. Cox regression with all-cause mortality as the outcome over 22 years of follow-up was performed for men and women separately, adjusting for health-related factors, as well as BMD by grip strength interaction. A secondary analysis with a 15-year follow-up also adjusted for hip fractures and osteoporotic fractures.

Results During follow-up, 3176 of participants died (47%). Those categorized as osteoporotic had higher mortality hazard ratio (HR) compared to those with normal BMD; men HR = 1.37 (95% confidence interval (CI) 1.19, 1.58) and women HR = 1.32 (1.14, 1.53) were adjusted for age, body mass index, physical activity, smoking habits, education, health status, chronic diseases, and grip strength. Corresponding HRs for osteopenia were men HR = 1.13 (1.00, 1.27) and women HR = 1.17 (1.01, 1.35). Further adjustments for fractures did only marginally attenuate the results, and HRs were still significant. There was no grip strength by BMD interaction.

Conclusion Men and women with low distal forearm BMD values, consistent with osteoporosis or osteopenia, had an increased mortality compared to normal BMD participants. High grip strength did not modify this association, and the association remained after adjustment for a range of health-related factors.

Keywords Bone mineral density · Grip strength · Hip fracture · Mortality · Osteoporosis · Osteopenia

✉ A. V. Hauger
anvoha@oslomet.no

[1] Department of Physiotherapy, Faculty of Health Sciences, Oslo Metropolitan University, OsloMet – storbyuniversitetet Postboks 4 St. Olavs plass, 0130 Oslo, Norway

[2] Norwegian Institute of Public Health, Marcus Thranes gate 6, 0473 Oslo, Norway

[3] Department of Neurobiology, Care Sciences and Society, Division of Physiotherapy, Karolinska Institutet, Alfred Nobels Allé 23, 14183 Huddinge, Sweden

[4] Function Area Occupational Therapy & Physiotherapy, Allied Health Professionals Function, Karolinska University Hospital, Stockholm, Sweden

[5] Department of Health and Care Sciences, Faculty of Health Sciences, UiT The Arctic University of Norway, 9037 Tromsø, Norway

[6] Norwegian National Advisory Unit on Aging and Health, Vestfold Hospital Trust, Tønsberg, Norway

[7] Faculty of Medicine, University of Oslo, Oslo, Norway

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(Trivedi DP et al. 2001, Qu X et al. 2013, Stand BH et al. 2016, Hauger AV et al. 2018)

Populasjon - Tromsøundersøkelsen

- Første runde i 1974, totalt 7 runder pr i dag.
- Tromsø 4 (1994/95): bentetthetsmål i distal underarm og gripestyrke
- Menn og kvinner mellom 50 og 80 år (N=6 565)
- Friske menn og kvinner mellom 24 og 40 år som referansegruppe
- Oppfølging frem til november 2016 (22 år)

UiT / NORGES ARKTISKE UNIVERSITET

Økt risiko for død med osteopeni og osteoporose

- 39 % av kvinnene og 58 % av mennene døde i løpet av oppfølgingstiden

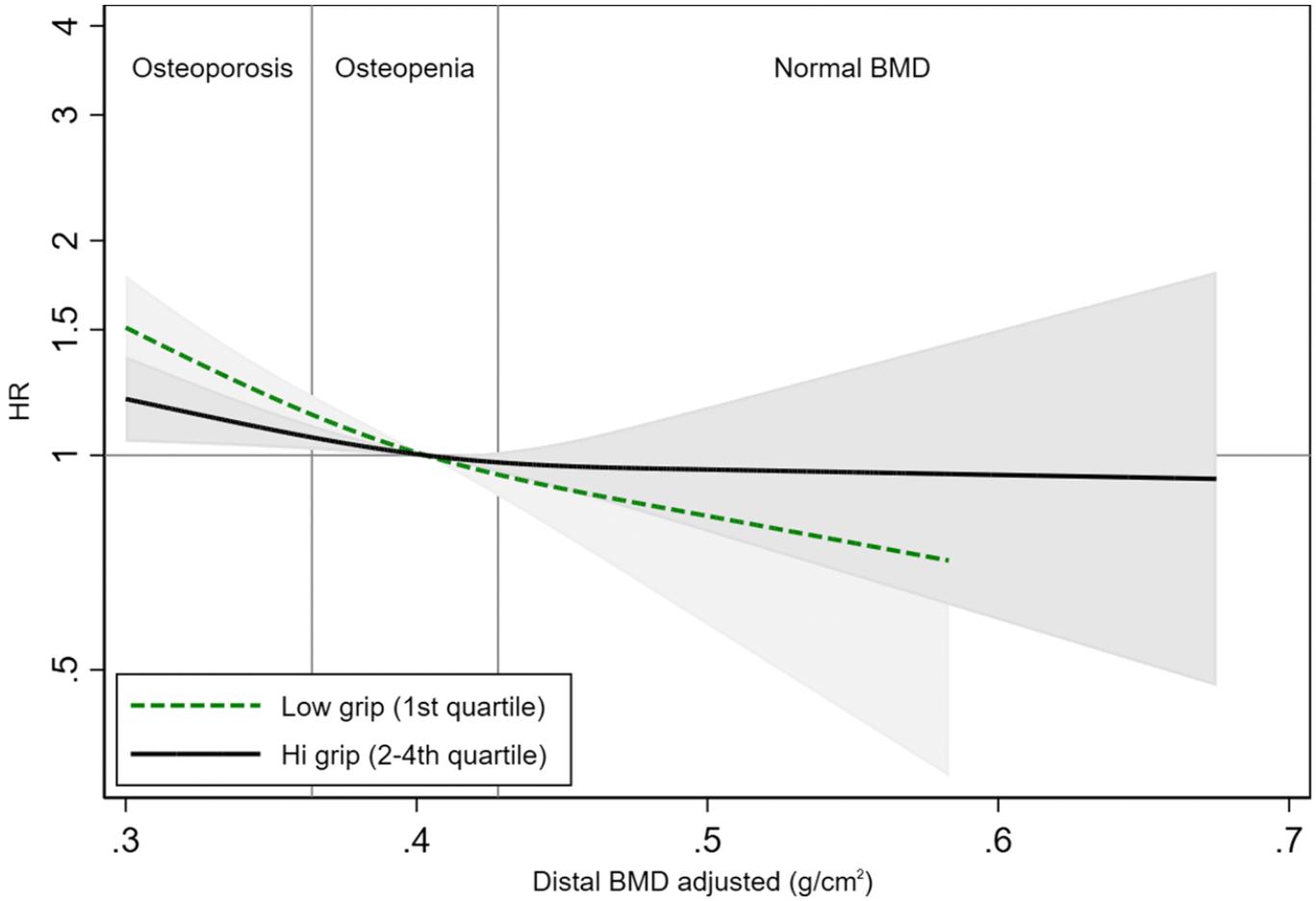
- Justert for alder, BMI, utdanning, røyking, fysisk aktivitet, selvrapportert helse og kroniske sykdommer

	Osteopeni	Osteoporose
Kvinner	↑17 %	↑32 %
Menn	↑13 %	↑37 %

- Også justert for osteoporotiske brudd

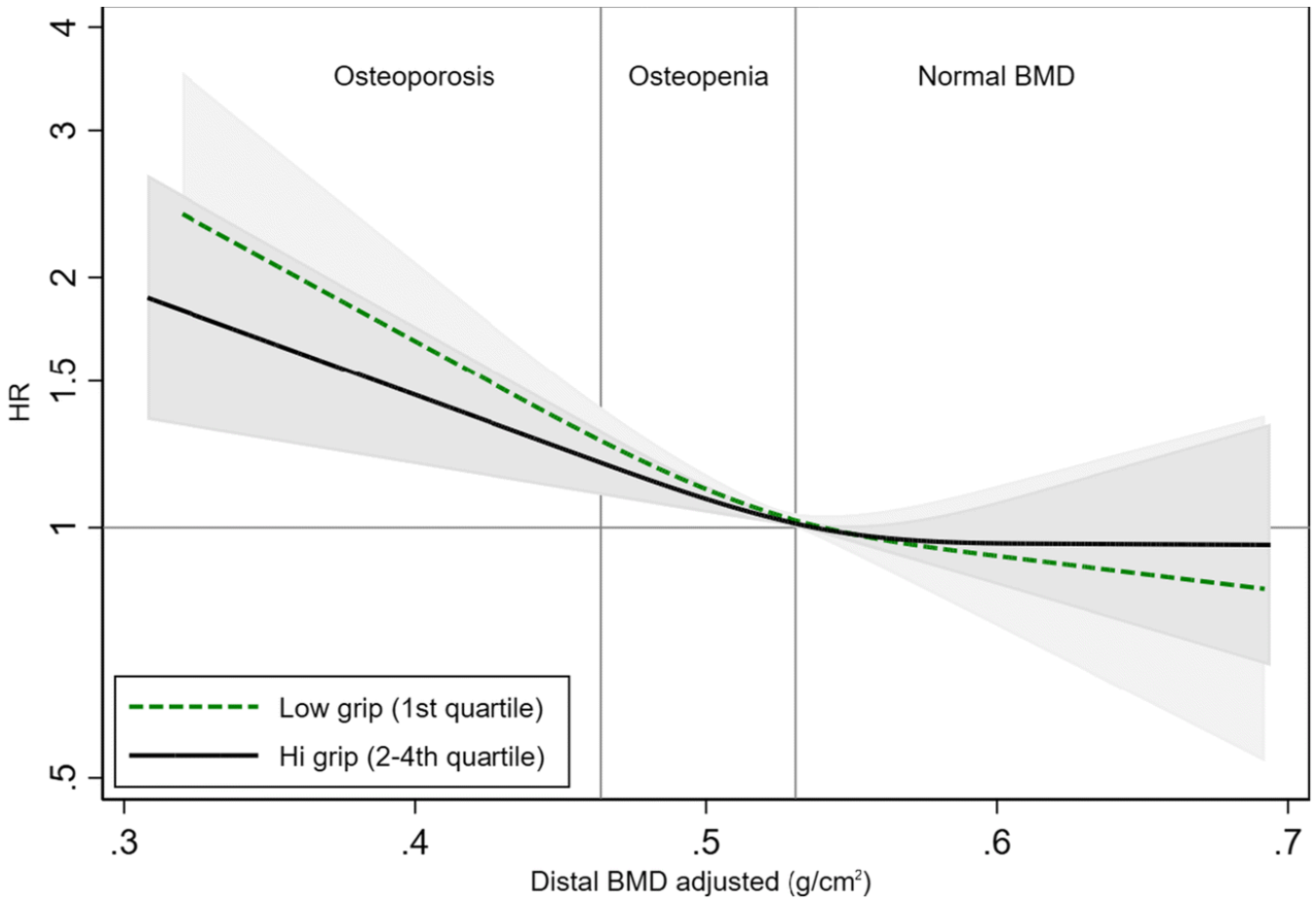
	Osteopeni	Osteoporose
Kvinner	Ikke sign	↑30 %
Menn	Ikke sign	↑23 %

Hjelper det å være sterk i klypa?



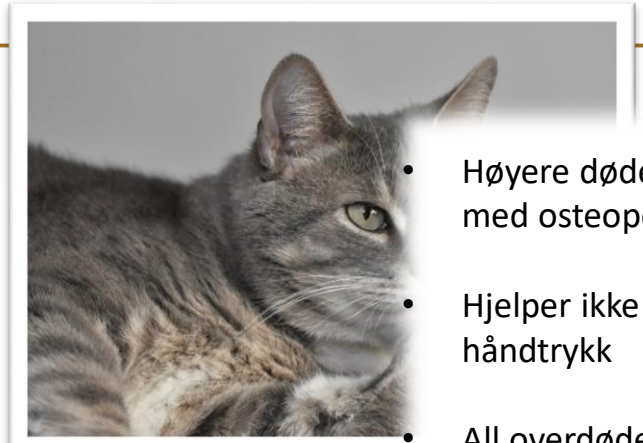
Kvinner

Hjelper det å være sterk i klypa?

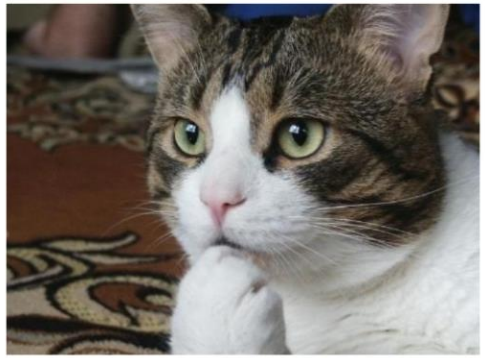


Menn

ER det livsfarlig å være benskjør?



- Høyere dødelighet hos personer med osteopeni og osteoporose
- Hjelper ikke med et sterkt håndtrykk
- All overdødelighet kunne ikke forklares med brudd



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