

# OSTEOSCOOP

News on current events in osteoporosis and rheumatology

## Bone loss, weight loss, and weight fluctuation predict mortality risk in elderly men and women

N°83 – June 2009

**B**one mineral density (BMD) is a dynamic variable and is known to decline with advancing age. Although it has been shown that either low BMD or the greater the difference between two measurements in BMD is associated with all-cause mortality in women, it is not known whether the rate of BMD loss contributes to mortality risk independent of baseline BMD. Furthermore, the associations between BMD and bone loss and mortality in men have not been studied. Body weight is strongly related to BMD, such that higher weight is associated with higher BMD and reduced fracture risk. Although it was suggested that weight loss and weight fluctuation are associated with an increased risk of mortality, it is unknown whether the effect of weight loss or weight fluctuation on mortality is independent of baseline BMD and rate of bone loss. To answer these questions, a recent study [1] collected data from 1059 women and 644 men, older than 60 (as of 1989), of white background. All-cause mortality was recorded annually between 1989 and 2004. BMD at the femoral neck was measured by DXA at baseline and at approximately every 2 yr afterward. Data on incident osteoporotic fractures and concomitant diseases, including cardiovascular diseases, all types of cancer, and type I/II diabetes mellitus, was also recorded.

After adjustment for age, incident fractures and concomitant diseases, the following variables were independent risk factors of all-cause mortality in men: rate of BMD loss of at least 1%/yr, rate of weight loss of at least 1%/yr, and weight fluctuation of at least 3%. In women, in addition to the significant factors observed in men, lower baseline BMD was also an independent risk factor of mortality. In both sexes, baseline weight was not an independent and significant predictor of mortality risk. Approximately 36% and 22% of deaths in women and men, respectively, were attributable to the four risk factors.

These data suggest that, although low BMD was a risk factor of mortality in women, it was not a risk factor of mortality in men. However, high rates of BMD loss, weight loss, and weight fluctuation were also independent predictors of all-cause mortality in elderly men and women, independent of age, incident fracture, and concomitant diseases.

1. Nguyen ND et al. *J Bone Miner Res.* 2007;22:1147–1154.

### Bone loss, weight loss, and weight fluctuation predict mortality risk in elderly men and women

A recent study, conducted in men and women older than 60, has evidenced that high rates of BMD loss, weight loss, and weight fluctuation were independent predictors of all-cause mortality, independent of age, incident fracture, and concomitant diseases.

Low baseline BMD was also a risk factor of mortality in women, but not in men.

#### PARTIAL POPULATION ATTRIBUTABLE RISK FRACTION (PAR<sub>p</sub>) OF RISK FACTORS FOR ALL-CAUSE MORTALITY

	PAR <sub>p</sub> (%)	(95% CI)
<b>Women</b>		
Osteoporotic BMD (T-scores ≤ -2.5)	11.1	(5.6, 16.7)
Rate of bone loss (>1%/yr)	10.5	(4.4, 16.7)
Rate of weight loss (>1%/yr)	10.9	(5.2, 16.5)
Weight fluctuation (>3%)	3.4	(0.0, 7.8)
<b>Total</b>	<b>35.9</b>	

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