

## Issue 85

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## Alcohol and bones

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### NUTRITION RESEARCH REVIEW

#### Study one: Moderate alcohol intake increases bone density

Moderate alcohol intake increases bone density in elderly women, according to results from a recent American study.

**Subjects:** 489 elderly (> 65 years) women, 297 of whom did not drink alcohol and 148 of whom did.

**Method:** Observational study in which alcohol consumption was compared with measures of bone mineral density (BMD).

**Results:** The alcohol drinkers had significantly higher BMD: total body BMD (4.5% higher), spine (10% higher) and mid-radius (6% higher). This difference was greatest in those women who consumed moderate amounts of alcohol (between 28.6 and 57.2 g/wk).

Metabolic measurements showed that the women who drank moderate amounts of alcohol had a marked reduction in markers of bone remodeling, and lower parathyroid hormone levels.

Ref: Rapuri PB et al. Alcohol intake and bone metabolism in elderly women. *Am J Clin Nutr* 2000;72:1206-1213

#### Study two: How much is too much?

A French study found a similar relationship, and was also able to identify a negative cut-off point for alcohol intake at a much higher intake level.

**Subjects:** 7,598 elderly women.

**Method:** Self-assessed alcohol intake was compared with BMD measured in total body and proximal femur, adjusted for age, weight and height.

**Results:** An increased BMD was seen in women who drank between 11-29 g/day of alcohol ( $p=0.0017$ ), but decreased BMD was seen in women drinking more than 30g/day ( $p=0.047$ ).

Ref: Ganry O et al. Effect of alcohol intake on bone mineral density in elderly women: The EPIDOS Study. *Epidemiologie de l'Osteoporose*. *Am J Epidemiol* 2000;151:773-80

#### Comments

It used to be thought that alcohol consumption was a negative risk factor for osteoporosis, based on epidemiological evidence and the simple fact that alcohol inhibits calcium absorption.

But looking at this more closely it seems that moderate intake may be beneficial. A similar benefit for moderate intake of alcohol appears to be true in relation to heart disease, gallstones and diabetes.

However, we also need to be aware that the evidence regarding alcohol and osteoporosis is still largely epidemiological and based on self-reported intake. People's reports on their own alcohol intake are well known to have limited reliability, particularly at the higher end of the scale.

It is not clear what the mechanism for a positive relationship might be, although the first of these two studies suggests it may be connected with the levels of parathyroid hormone, which in turn affect the dynamics of bone remodeling.

The second study suggests that the level where alcohol consumption has a negative effect on osteoporosis may be around 30g/day. This is equivalent to about 4 glasses of wine, and is a little less than the amount experts generally describe as 'heavy' alcohol consumption (40g/day for women). However, it is a limit that those who consume alcohol sensibly should have no trouble remaining within.

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