

nature**scienceupdate****Tea-bone stakes**

Cambridge researchers have announced that a daily dose of tea might fortify the bones and joints of elderly women. Is this just a storm in a teacup, asks David Adam?

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A daily cup of tea may protect elderly women from osteoporosis. Regular brews make the ageing bones of elderly women look five years younger and significantly reduce the risk of bone fractures, new research suggests.

Osteoporosis, or low bone mineral density (BMD), is the biggest cause of fractures in older women. Joints become dangerously thin and breakable. Hormone deficiencies are the leading cause of osteoporosis, so women over the age of 60 are most frequently affected.

Elderly tea-drinkers have 5% higher mean BMD at various sites than non tea-drinkers, Kay-Tee Khaw and colleagues at Cambridge University, UK, now report. This could mean a 10-15% decline in fracture risk, Khaw's team suggests.

Of the 1,256 women aged between 65 and 76 surveyed, 1,134 drank at least 1 cup of tea every day. BMD at the base of the spine and at two hip regions -- the 'greater trochanter' and 'Ward's triangle' -- was significantly higher in these tea-drinkers when the data were adjusted to account for age and body weight.

Others are not so sure that the difference really boils down to tea. "Ninety per cent of the subjects in the study drank tea. The incidence of osteoporosis in Great Britain is high, so the tea is not protecting them very much, if at all," says Susan Ott, a medic specializing in osteoporosis at the University of Washington, Washington.

Milky tea contains calcium and so could help to protect bones. But the Cambridge group found that BMD at all tested skeletal sites except one was similar in women who had tea both 'with' and 'without', they report in the *American Journal of Clinical Nutrition*¹. The apparent benefits of tea drinking are also independent of whether women smoke, drink coffee or use HRT, they add. Oddly, it makes no difference to the BMD increase if women drink one cup, two mugs or several pots of tea a day.

The positive effects of tea on bone density may be caused by the presence of 'isoflavonoids', Khaw's team proposes. Flavonoids -- brightly coloured chemicals found in fruit, vegetables and herbs -- are being credited with an increasing number of positive effects on health, many of which remain unproven. But isoflavonoids have been shown to mimic weakly the hormonal effects of oestrogen. This could moderate bone mineral loss.

Although this faint effect is probably swamped in pre-menopausal women with high natural oestrogen levels, the team suggest that it could make all the difference for older women, in whom oestrogen is in short supply.

But it is unclear whether tea-drinkers would consume enough flavanoids to show a biological effect, says Raphael J. Witorsch, a physiology professor at Virginia Commonwealth University, Virginia. He is "very sceptical" that tea consumption can delay osteoporosis. "Nothing in the literature that I am aware of shows that tea delays other discomfoting effects of the menopause," he cautions.

References

1. Hegarty, V. M., May, H. M. & Khaw, K. T. Tea drinking and bone mineral density in older women. *American Journal of Clinical Nutrition* **71**, 1003 - 1007 (2000)

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