Selenium supplementation to improve bone health in postmenopausal women: the SeMS three-arm RCT

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Plain English summary

The SeMS three-arm RCT

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Plain English summary

Osteoporosis is a major public health problem. One in two women and one in five men over the age of 50 years will have a fracture. Fractures cause pain and disability and reduce life expectancy. There are effective medications for osteoporosis, but some people prefer not to take them because of concerns about possible side effects. Selenium is a nutrient that forms part of several important human biological processes, including anti-oxidants. Anti-oxidants may protect against the ageing of tissues, including bone, by mopping up damaging reactive oxygen molecules (sometimes called 'free radicals'). Selenium is present in soil, and therefore it is obtained from many foods. However, soil selenium levels are low in Europe, and dietary intake in the UK is below recommended levels. We previously found that women with higher blood selenium levels have stronger bones, so we proposed that giving selenium supplements could improve bone and muscle health.

We conducted a randomised double-blind placebo-controlled trial to compare selenium supplements with a placebo (dummy treatment) in postmenopausal women with below-average bone density. We gave selenium (at two different doses) or placebo once a day to 120 women for 6 months and measured the effects with blood and urine tests, bone density scans and muscle strength tests. After 6 months of treatment, selenium supplements did not have any effect on bone or muscle. We conclude that selenium supplements at these doses are not likely to be effective for treatment of osteoporosis and reduction in fracture risk in postmenopausal women.

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This report

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