

ESCEO-IOF expert panel reviews current evidence for efficacy of calcium supplementation

15 November 2016

An expert consensus meeting of the European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO) and the International Osteoporosis Foundation (IOF) has reviewed the evidence for the value of calcium supplementation, with or without vitamin D supplementation, in healthy musculoskeletal ageing.

Professor René Rizzoli, Chair of the ESCEO Scientific Advisory Board, stated, "Our aim was to comprehensively appraise current knowledge relating to the efficacy of [calcium supplementation](#), particularly in combination with [vitamin D](#) supplementation, for healthy musculoskeletal ageing, and specifically for reduction of fracture risk. We also felt it was important to address the [evidence](#) supporting claims of adverse health outcomes from supplementation as conflicting reports have caused some confusion among healthcare professionals, patients and the general public."

Based on current evidence, the expert panel concluded:

1. Calcium and vitamin D supplementation leads to a modest reduction in fractures, but use of [calcium](#) supplementation alone is not robustly supported.
2. The evidence for calcium and vitamin D supplementation for fracture reduction is most robust in those who are likely to be at greatest risk of calcium and/or vitamin D insufficiency; population-based interventions have not convincingly demonstrated benefit.
3. Although calcium is intimately involved in muscle physiology, the best clinical evidence suggests that vitamin D optimisation, rather than supplementation

- with calcium, leads to reduced risk of falls.
4. Calcium supplements are associated with gastrointestinal side effects and a small increased risk of renal stones.
5. The assertion that calcium with vitamin D supplementation increases cardiovascular risk is based on inadequate evidence; several studies demonstrate the converse or no cardiovascular effect.
6. A large randomised control trial of calcium supplementation powered to detect validated fractures and cardiovascular events is required to ultimately clarify this issue.
7. On the basis of the current evidence, we recommend that calcium and vitamin D supplements are generally appropriate for those with a high risk of calcium and vitamin D insufficiency and in those who are receiving treatment for osteoporosis.

Professor Cyrus Cooper, Chair of the IOF Committee of Scientific Advisors, stated: "Osteoporotic fractures are common, and loss of both bone, and muscle mass and function, predispose to serious health-defining events. In some countries, the lifetime risk of an incident fracture from the age of 50 years is 1 in 2 (50 %) for women and 1 in 5 (20 %) for men. In addition to causing substantial disability and morbidity, major [osteoporotic fractures](#) are associated with an approximately 20 % reduction in survival relative to non-fracture patients. The role of calcium and vitamin D supplementation should be therefore appreciated in the context of a devastating health outcome, which has massive impact not only on individuals but also on healthcare systems and societies as a whole."

The review '[The role of calcium supplementation in healthy musculoskeletal ageing](#)' has been

published in *Osteoporosis International*.

More information: N. C. Harvey et al, The role of calcium supplementation in healthy musculoskeletal ageing, *Osteoporosis International* (2016). DOI: [10.1007/s00198-016-3773-6](https://doi.org/10.1007/s00198-016-3773-6)

Provided by International Osteoporosis Foundation

APA citation: ESCEO-IOF expert panel reviews current evidence for efficacy of calcium supplementation (2016, November 15) retrieved 4 June 2022 from <https://medicalxpress.com/news/2016-11-esceo-iof-expert-panel-current-evidence.html>

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