

## Calcium Supplements and Heart Disease

***There has been a recent publication by Dr. Mark Bolland and colleagues from the University of Auckland, NZ, in the British Medical Journal (published online on July 31 2010), picked up by the media, about calcium supplements and a possible increased risk of heart disease.***

Osteoporosis Australia believes the results of this study, while being an important alert to possible harm, do not provide sufficient evidence to recommend that older women with osteoporosis should stop taking calcium supplements because of an increased risk of myocardial infarction (heart attacks). There is good evidence that calcium plays an important role in helping to prevent fractures. Preventing a fracture when we are older means that we are more likely to be able to maintain a better quality of life as we age: remaining mobile and living independently. Ensuring we consume sufficient calcium can help reduce our risk of fracture by 10-24%. However, the use of higher doses of calcium supplements in preventing osteoporosis should now be discouraged.

This new study which reviewed existing trials of calcium supplements to prevent fractures, showed an increased risk of myocardial infarction in elderly women and men taking calcium supplements. Importantly, cardiovascular events or death were not the primary study end-points. There was no increase in the risk of stroke and/or death in participants taking calcium supplements and none of the individual trials included in the analysis showed an increase in the risk of heart attacks. However, while some studies used medical and hospital records to verify the diagnosis of heart attacks, in some trials the diagnosis was based on self-reporting by patients. In addition, when evaluating these results it is important to consider that the total calcium intakes of the participants in these trials were up to 2400 mg per day (dietary calcium plus supplements). These levels are considerably higher than the current recommended dietary calcium intakes of 1000 to 1300 mg per day for adults and the elderly. At levels of calcium exceeding 2000 mg per day there may be some cause for concern. This is confirmed by the New Zealand study, which did not show an adverse effect of calcium supplements when dietary calcium intakes were less than 804 mg per day.

In addition, a similar analysis of several randomized controlled trials where calcium supplements were given, funded by the American Heart Association and published earlier this year, showed no adverse heart problems, or other negative effects, of taking calcium supplements alone. New Australian data from Professor Richard Prince's group in Perth also show no increase in heart attacks in elderly women on calcium supplements (at a dose of 1200mg per day), who were followed for a total of 9.5 years (5 years on calcium supplements and a further follow-up period of 4.5 years). Importantly, myocardial infarction in this study was validated through hospital admission data linkage.

Osteoporosis Australia would recommend achieving a total daily calcium intake of 1000 mg to 1300 mg per day, depending on age and sex, which should be achieved whenever possible through dietary intake from calcium-rich foods, with the addition of calcium supplements, when required. Many Australians do not consume sufficient dietary calcium, particularly those in the older age groups. Calcium supplements at a dose of 500 to 1000 mg per day, may be required in some individuals to increase total intakes to these recommended levels when this is not possible through dietary means alone.

## References

Bolland MJ, Avenell A, Baron JA, Grey A, MacLennan GS, Gamble GD, Reid IR. Effect of calcium supplements on risk of myocardial infarction and cardiovascular events: meta-analysis. *BMJ* 2010; 341:c3691.

Tang BM, Eslick GD, Nowson C, Smith C, Bensoussan A. Use of calcium or calcium in combination with vitamin D supplementation to prevent fractures and bone loss in people aged 50 years and older: a metaanalysis. *Lancet*. 2007 Aug 25;370(9588):657-66.

Daly RM, Ebeling PR. Is calcium harmful to health? *Nutrients* 2010; 2:505-522.

The Burden of Brittle Bones, Epidemiology, Costs & Burden of Osteoporosis in Australia 2007 Prepared by The Department of Medicine, University of Melbourne, Western Hospital, Footscray, Victoria. For Osteoporosis Australia, Final Draft August 2007.

Wang L, Manson JE, Song Y, Sesso HD. Systematic review: Vitamin D and calcium supplementation in prevention of cardiovascular events. *Ann Intern Med*. 2010 Mar 2;152(5):315-23.

Lewis JR, Calver J, Zhu K, Flicker L, Prince RL. Calcium supplementation and the risks of atherosclerotic vascular disease in older women: results of a 5-year RCT and a 4.5-year follow-up. *J Bone Miner Res*. 2010 Jul 7. [Epub ahead of print].