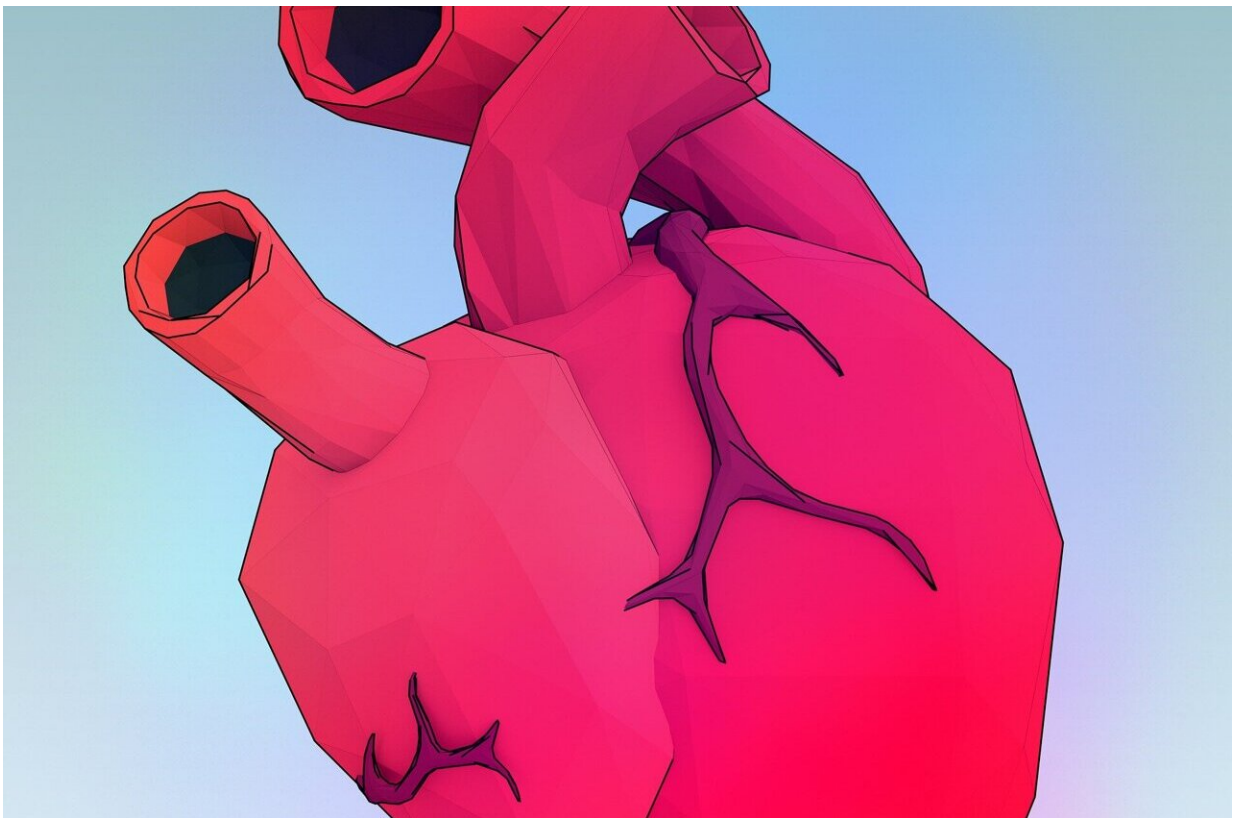


Calcium supplements linked to earlier death in older people with heart valve disease

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Calcium supplements, frequently given to older people to lessen the risk of brittle bones (osteoporosis) and fractures, are linked to a heightened risk of death among those with aortic valve stenosis, a progressive and

potentially fatal condition, finds research published online in the journal *Heart*.

What's more, these supplements seem to worsen the condition, which is the most common form of heart valve disease in adults in the developed world, irrespective of whether or not they are combined with vitamin D, the findings show.

Aortic stenosis occurs when the aortic valve, the main outflow valve of the heart, stiffens and narrows. This means it can no longer open fully, reducing or blocking blood flow from the heart into the [main artery](#) (aorta) and the rest of the body.

The only effective treatment is the replacement of the faulty valve, a procedure known as AVR (aortic valve replacement).

The association between dietary and supplemental calcium or vitamin D with [cardiovascular disease risk](#) and death is hotly contested. Yet evidence on their safety is mostly derived from animal studies, and the prescription of both these supplements has risen sharply in recent years, particularly among [postmenopausal women](#), point out the researchers.

The researchers therefore wanted to see what potential impact these supplements might have on death from any cause and from [cardiovascular disease](#), the need for AVR, as well as progression of [aortic stenosis](#) among older people.

They therefore tracked the heart health of 2657 patients (average age 74;42% women) with mild to moderate aortic stenosis between 2008 and 2018: the average monitoring period was more than 5.5 years.

Participants were divided into those not taking any supplements (1292;49%), those supplemented with vitamin D alone (332;12%), and

those given calcium plus or minus vitamin D supplements (1033;39%), 115 of whom took just a calcium supplement.

Those taking supplements had significantly more diabetes and [coronary artery disease](#) than those not taking supplements. They were also more likely to be taking statins, warfarin, and phosphate binders (to limit phosphorus absorption), to have had a [coronary artery bypass graft](#) and to need kidney dialysis.

During the monitoring period, 540 (20.5%) people died: 150 died of cardiovascular disease; 155 died of other causes; and 235 died of unknown causes. And 774 (29%) people had their aortic valve replaced.

More than a third of people in each of the groups developed severe aortic stenosis after 5 years.

Supplemental vitamin D alone didn't seem to affect survival. But supplemental calcium plus vitamin D was associated with a significantly higher (31%) risk of death from any cause and a doubling in the risk of a cardiovascular death. And it was associated with a 48% heightened risk of AVR compared with those not taking supplements.

Supplemental calcium alone was also associated with a heightened risk of death from any cause (24%) and a near tripling in the risk of AVR. And the risks of death from any cause and from cardiovascular disease were also higher among those taking [calcium supplements](#) who didn't have their [aortic valve](#) replaced.

This is an observational study, and therefore can't establish cause. Those taking supplements also had more risk factors for heart disease and death than those who weren't and the quantities of calcium intake from diet and supplements weren't assessed.

But the researchers nevertheless conclude: "Strengthened by its large sample size and extended follow-up period, our study suggests that calcium supplementation does not confer any [cardiovascular] benefit, and instead may reflect an elevated overall risk of AVR and mortality, especially in those not undergoing AVR."

In a linked editorial, Professor Jutta Bergler-Klein, of the Medical University of Vienna, points out that billions of dollars are spent every year on vitamin and mineral supplements for [older people](#) in the belief that these benefit health.

But we may need a rethink—at least when it comes to calcium supplements—she suggests, adding that the study findings should give doctors treating osteoporosis in people with heart disease, pause for thought.

"In patients with calcific [aortic stenosis] and high-risk [cardiovascular disease], the present study strongly adds to the evidence that long-term continuous calcium supplementation should be avoided if not mandatory," she writes.

More information: Supplemental calcium and vitamin D and long-term mortality in aortic stenosis, *Heart* (2022). [DOI: 10.1136/heartjnl-2021-320672](#)

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