

# Vitamin D levels in the blood can predict future health risks and death

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Free, circulating vitamin D levels in the blood may be a better predictor of future health risks in aging men, according to a study being presented at e-ECE 2020. These data suggest the free, precursor form of vitamin D found circulating in the bloodstream is a more accurate predictor of future health and disease risk, than the often measured total vitamin D. Since vitamin D deficiency is associated with multiple serious health conditions as we get older, this study suggests that further investigation into vitamin D levels and their link to poor health may be a promising area for further research.

Vitamin D deficiency is common in Europe, especially in elderly people. It has been associated with a higher risk for developing many aging-related diseases, such as cardiovascular [disease](#), cancer and osteoporosis. However, there are several forms, or metabolites, of [vitamin D](#) in the body but it is the total amount of these metabolites that is most often used to assess the vitamin D status of people. The prohormone, 25-dihydroxyvitamin D is converted to 1,25-dihydroxyvitamin D, which is considered the

active form of vitamin D in our body. More than 99% of all vitamin D metabolites in our blood are bound to proteins, so only a very small fraction is free to be biologically active. Therefore the free, active forms may be a better predictor of current and future health.

Dr. Leen Antonio from University Hospitals Leuven in Belgium and a team of colleagues investigated whether the free metabolites of vitamin D were better health predictors, using data from the European Male Ageing Study, which was collected from 1,970 community-dwelling men, aged 40-79, between 2003 and 2005. The levels of total and free metabolites of vitamin D were compared with their current health status, adjusting for potentially confounding factors, including age, body mass index, smoking and self-reported health. The total levels of both free and bound vitamin D metabolites were associated with a higher risk of death. However, only free 25-hydroxyvitamin D was predictive of future health problems and not free 1,25-dihydroxyvitamin D.

Dr. Antonio explains, "These data further confirm that vitamin D deficiency is associated with a [negative impact](#) on general health and can be predictive of a higher risk of death."

As this is an observational study, the causal relationships and underlying mechanisms remain undetermined. It was also not possible to obtain specific information about the causes of death of the men in the study, which may be a confounding factor.

"Most studies focus on the association between total 25-hydroxyvitamin D levels and age-related disease and mortality. As 1,25-dihydroxyvitamin D is the active form of vitamin D in our body, it was possible it could have been a stronger predictor for disease and mortality. It has also been debated if the total or free vitamin D levels should be measured. Our data now suggest that both total

and free 25-hydroxyvitamin D levels are the better measure of future health risk in men," says Dr. Antonio

Dr. Antonio and her team are currently finalising the statistical analysis and writing a manuscript on these findings.

**More information:** Abstract 1044: Free 25-hydroxyvitamin D, but not free 1.25-dihydroxyvitamin D, predicts all-cause mortality in ageing men

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