

Vitamin D lowers the risk of premature death

Richard Béliveau

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A British study reports that people with blood levels of vitamin D below normal are more at risk of dying from cardiovascular and respiratory diseases and cancers.

Vitamin D plays several important roles in the maintenance of good health, as much through its participation in the functioning of a large number of basic physiological processes as through its essential role in the immune defense against microbial attacks.

This vitamin is produced by the action of UV-B rays from the sun and it is thought that the depigmentation of the black skin of early humans who migrated out of Africa to areas with less sunlight is an evolutionary adaptation to allow the generation of enough vitamin D quantities to meet the body's basal needs (1).

GENETIC VARIATIONS

Many studies have looked at the impact of vitamin D supplementation on the risk of developing a range of diseases, but these results are difficult to interpret because people with severe vitamin D deficiencies are excluded from these trials for ethical reasons (it is inappropriate to administer a placebo to a deficient person).

The blood levels of vitamin D reached as a result of supplementation can therefore exceed the basic physiological needs, which makes it difficult to visualize the consequences of a serious deficiency on the risk of chronic diseases and premature mortality.

A new approach, Mendelian randomization, overcomes this problem. This approach is based on the principle that certain genetic variants present randomly in a given population influence a specific phenomenon (vitamin D levels, for example).

By examining the impact of these variants on a health parameter (the risk of premature death, for example), it is therefore possible to establish a causal link between vitamin D deficiency and this risk of early death.

TOO LOW VITAMIN D, RISING MORTALITY

The UK Biobank is one of the most widely used cohorts for Mendelian randomisation studies, with over half a million participants from the UK who were recruited between 2006 and 2010 and provided a biological sample to determine their genotype.

Using this database, Australian researchers genetically predicted vitamin D levels by examining 35 variants known to influence levels of this vitamin (2).

They observed an association between predicted vitamin D levels and mortality risk, with a large increase at levels below 50 nM (the concentration considered normal).



This is particularly striking for very low concentrations of 10 nM, with a 6-fold increase in the risk of cardiovascular mortality, 4-fold in cancer-related mortality and 12-fold in that caused by respiratory diseases.

These estimates are consistent with vitamin D levels measured directly from participants, which show a significant increase in mortality risk at concentrations below 25 nM.

With the arrival of autumn, the marked reduction in the hours of sunshine considerably increases the risk of suffering from vitamin D deficiency.

The Canadian Cancer Society also recommends increasing vitamin D intake from October to April by taking daily supplements containing 1000 IU.

A simple and inexpensive way to enjoy the benefits of this vitamin.

- (1) Hochberg Z and AR Templeton. Evolutionary perspective in skin color, vitamin D and its receptor. *Hormones* 2010; 9: 307-311.
- (2) Sutherland JP et al. Vitamin D deficiency increases mortality risk in the UK Biobank: a nonlinear mendelian randomization study. *Ann. Int. Med* 2022; 175(11):1552-1559.