

## Vitamin D decreases cancer mortality

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*A randomized clinical study reports that taking vitamin D supplements decreases the risk of developing advanced and metastatic cancers.*

Over the past few weeks, there has been a lot of talk (with good reason) about the importance of vitamin D in reducing severe complications from COVID-19. Several studies have shown that vitamin D insufficiency (hypovitaminosis) was associated with an increased risk of developing severe forms of COVID-19 and of dying from the disease.

For example, a recent study reports that patients with COVID-19 who present with hypovitaminosis D upon admission to hospital are 4 times more likely to die from the disease (1).

### INCREASED SURVIVAL

These spectacular results should not make us forget that vitamin D exerts several other positive effects on health, in particular with regard to mortality associated with cancer (2).

Multiple studies have shown that vitamin D has a wide variety of anti-cancer actions, direct (inhibition of cell growth) or indirect (immunomodulatory, anti-inflammatory, anti-angiogenic) which, collectively, can slow the progression of cancer and prevent the onset of advanced and invasive forms of the disease, including metastases (3).

This protective effect has clear clinical benefits: for example, a study showed that women with breast cancer who have insufficient vitamin D levels (<50 nmol/L) have almost twice the risk of recurrence following treatment and dying from the disease (4).

### REDUCTION OF AGGRESSIVE CANCERS

The recently published results of a clinical study shed light on this link between vitamin D and the risk of developing aggressive forms of cancer (5).

In this randomized, double-blind study, 12,938 men and women aged 50 and over were randomly separated into 2 groups, a placebo group and an intervention group that received 2000 IU / day of a supplement of vitamin D3.

Over a five-year period, the researchers then tracked the occurrence of cancer in participants in both groups.

Overall, the researchers did not observe a significant difference in the incidence of total cancers between the two groups.

On the other hand, and this is where the results are interesting, they noted a significant decrease (17%) in the number of advanced and metastatic cancers in participants in the vitamin D group.



This decrease in the incidence of advanced cancers is even greater (38%) in thin people (BMI <25), but becomes insignificant (11%) in overweight people (BMI 25-29) and disappears completely in obese people (BMI ≥ 30).

Vitamin D is fat soluble, so it is likely that the presence of excess fat in overweight people creates a reservoir that sequesters the vitamin and decreases its concentration in the blood.

Another possibility is that the immune system is often disrupted in obese people (cells specializing in eliminating cancer cells, in particular) and these changes decrease the immunomodulatory effect of vitamin D.

Regardless, this lack of protection seen in obese people once again illustrates how overweight is an abnormal physiological condition, which can contribute to the development of conditions as serious as metastatic cancers.

Whether it is to prevent complications from COVID-19 or reduce the risk of fatal cancers, taking a vitamin D3 supplement (1000 IU and more) therefore represents a simple and inexpensive intervention that allows us to compensate for the drop in our blood levels of vitamin D caused by decreased hours of sunshine during the winter season.

- (1) De Smet D et coll. Serum 25(OH)D level on hospital admission associated with COVID-19 stage and mortality. *Am. J. Clin. Pathol.*, (Published online, Nov 25th 2020)
- (2) Keum N et coll. Vitamin D supplementation and total cancer incidence and mortality: a meta-analysis of randomized controlled trials. *Ann Oncol.* 2019 ; 30 : 733-743.
- (3) Feldman D et coll. The role of vitamin D in reducing cancer risk and progression. *Nat. Rev. Cancer.* 2014 ; 14 : 342-357.
- (4) Goodwin et al. Prognostic effects of 25-hydroxyvitamin D levels in early breast cancer. *J. Clin. Oncol.* 2009 ; 27 : 3757-3763.
- (5) Chandle PD et coll. Effect of vitamin D3 supplements on development of advanced cancer: a secondary analysis of the VITAL randomized clinical trial. *JAMA Netw Open.* 2020 ; 3 : e2025850.