New research on vitamin D and respiratory infections important for risk groups

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Studies have shown that supplementary vitamin D seems to provide a certain degree of protection against respiratory infections. A new study involving researchers from Karolinska Institutet has now made the most comprehensive synthesis to date of this connection. The study, which is published in *The Lancet Diabetes & Endocrinology*, confirms that vitamin D protects against respiratory infections, a result that can have significance for the healthcare services.

Whether vitamin D can reduce the risk of infection is a still an open issue. Four years ago, a synthesis of current research was published that showed that vitamin D supplementation can provide a certain degree of protection against respiratory infections.

Now, the same researchers from, amongst other institutes, Karolinska Institutet, Harvard Medical School and Queen Mary University of London, have expanded the earlier material with an additional 18 studies and carried out new analyses.

Their results are based on 43 randomized and placebo-controlled studies on the possible relationship between vitamin D and respiratory infections involving almost 49,000 participants.

The material the researchers have drawn on comprised published as well as registered but as yet unpublished studies, and is the most comprehensive such compilation to date.

The new study adds further information about vitamin D as a protection against respiratory infections, but does not cover the question of whether vitamin D can protect against COVID-19.

Daily dose most effective

While the total protective effect against respiratory infections was 8%, the researchers found, for example, that a daily dose of vitamin D is much more effective than one given every week or month. There is no reason, either, to exceed the recommended dose.

"A particularly high dose doesn't seem necessary," says study co-author Peter Bergman, associate professor at the Department of Laboratory Medicine, Karolinska Institutet. "Those who received 400-1000 IU/day had the best response, as the group that received such a dose demonstrated a reduction in infection risk of 42%. I want to stress that there were no signals in the study that normal doses of vitamin D were dangerous or caused adverse reactions."

Lower risk in vulnerable groups

One conclusion that Dr. Bergman says can be drawn from the study is that the healthcare services should be more alert to groups that have a known risk of vitamin D deficiency, such as people with dark skin, overweight people and the elderly.

"A daily dose of vitamin D can protect the bones and perhaps also reduce the risk of respiratory

infections in vulnerable groups," he continues. "The wider population will probably not benefit as much from the supplement, though. Vitamin D doesn't make healthy people healthier."

The researchers are now interrogating the mechanisms behind the protective effect of vitamin D against respiratory infections—for instance, what genetic factors determine why people respond differently to vitamin D supplements.

One weakness of the compilation procedure is the possible influence of "publication bias," in that studies that do not demonstrate an effect are never published, which can create a false impression of how effective vitamin D is. To compensate for this, data from registered but as yet unpublished studies were also included.

The study received no external funding. Some of the co-authors have declared the receipt of grants from pharmaceutical companies and/or vitamin supplement manufacturers, although outside of this study. See the scientific paper for a full list of potential conflicts of interest.

More information: David A Jolliffe et al. Vitamin D supplementation to prevent acute respiratory infections: a systematic review and meta-analysis of aggregate data from randomized controlled trials, *The Lancet Diabetes & Endocrinology* (2021). DOI: 10.1016/S2213-8587(21)00051-6

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