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Studies Show Vitamin D Can Reduce Risk of Hospitalization from Respiratory Infections

Analysis by Dr. Joseph Mercola | March 24, 2026

STORY AT-A-GLANCE

- One in six U.K. residents has inadequate vitamin D levels, which increases their risk of respiratory tract infections like pneumonia and bronchitis that may require hospitalization
- Research shows people with severely low vitamin D face a 33% higher risk of being hospitalized for respiratory tract infections compared to those with optimal levels
- Daily vitamin D supplementation produced a statistically significant reduction in acute respiratory infection risk, with a 16% lower risk of developing a respiratory tract infection compared with those who took a placebo
- Benefits appear within four months of consistent daily supplementation and protect people regardless of their age, background health status, or existing chronic conditions
- Sunlight is ideally the primary vitamin D source, but if supplementation is needed, choose D3 paired with magnesium and K2 for optimal absorption and utilization

According to recent estimates, around 1 in 6 people in the United Kingdom (U.K.) have vitamin D levels that fall below the government's set standards.[1] When this becomes chronic, health problems eventually appear, such as respiratory tract infections that can lead to lengthy hospitalizations.[2]

Acute respiratory tract infection is characterized by symptoms such as fever, cough, sore throat, body aches, difficulty breathing, fatigue, and in severe cases, chest pain or shortness of breath.[3] Left unaddressed, these infections contribute to significant global

morbidity[4] and can escalate into life-threatening complications like respiratory failure.[5]

To combat respiratory tract infections, U.K. researchers are now sounding the alarm, linking low serum vitamin D levels to a higher risk of these health problems. As noted in other published studies, adequate levels of vitamin D help maintain immune system homeostasis — strong enough to fight off infections but regulated enough to avoid inflammation.[6] In the featured study below, they show just how much your vitamin D levels can influence your chances of being hospitalized.

Increased Vitamin D Intake Helps Protect Your Respiratory Health

In a 2026 study published in The American Journal of Clinical Nutrition, researchers performed an unmatched case-control study using data taken from the U.K. Biobank. A total of 36,258 participants were selected, which included different ethnic backgrounds — White, Asian, Black, and mixed ethnicities.

The overall goal of the study was to establish a link between serum vitamin D levels, 25-hydroxyvitamin D, the form measured in standard blood tests, and its effect on hospitalization rates of respiratory tract infections like pneumonia and bronchitis.[7]

- **Demographics at risk —** The researchers noted that middle- and older-aged adults are at a higher risk of these conditions.[8] Lead researcher Abi Bournot, Ph.D., argues that supplementation can help:[9]

> *"Supplementation of the vitamin, especially in the winter months when our exposure to sunlight is limited, is an effective way of increasing vitamin D and reducing the risk of serious respiratory tract infections. This is particularly important for older people who are at higher risk of death from such infections, and ethnic minority communities in the U.K., who are at a higher risk of vitamin D deficiency."*

- **The impact of vitamin D levels on hospitalization rates —** The researchers took existing vitamin D levels and hospital admission records from the dataset and used different analytical models to determine the connection between the two.

  Participants with serum vitamin D levels below 15 nanomoles per liter (nmol/L) had a 33% risk of hospitalization compared to adults with an average vitamin D level of 75 nmol/L or more. Note that this is the unit of measurement for U.K. In America, 75 nmol/L is equivalent to 30 nanograms per milliliter (ng/mL).

- **A look at other vitamin D ranges —** Findings show that vitamin D levels above 15 nmol/L (6 ng/mL) generally had lower hospitalization rates. For example, those who had an intermediate range (15 to 74 nmol/L; 6 to 29.6 ng/mL) "were not associated with a statistically significant increase in risk." Moreover, every increase of 10 nmol/L (4 ng/mL) in serum vitamin D was linked to a generally significant reduction in hospitalizations.[10]

  > *"Our findings of a significant association between increased vitamin D levels in our bodies and reduced hospital admission rates warrants further study, and points to the potential for vitamin D supplementation and consumption of vitamin D fortified foods to reduce the risk of hospitalization with respiratory infections in the future, and therefore mitigate pressures on the NHS [National Health Service],"* The researchers noted.[11]

Daily Vitamin D Intake Shows a Noticeable Advantage Against Respiratory Infections

In a related study published in The Lancet Diabetes & Endocrinology, researchers performed a meta-analysis from 40 randomized controlled trials to determine the impact of vitamin D supplementation on lowering the risk of acute respiratory infection.[12]

The study population involved a total of 61,589 participants across a wide range of countries and health backgrounds. Children to older adults were included, both healthy individuals and those with chronic conditions. This mix gives you a realistic sense of how vitamin D levels impact public health.

- **Key findings of the study —** The researchers reported that daily dosing produced a statistically significant reduction in acute respiratory infection risk, with a 16% lower risk of developing a respiratory tract infection compared with those who took a placebo.

  However, bolus dosing — giving vitamin D in large, intermittent doses — did not have this effect. Only daily intake produced an advantage.

- **Certain subgroups improved more than others —** The researchers reported that baseline vitamin D status, age, and dose size did not significantly modify the overall statistical outcome at the meta-analysis level, but the subgroup that showed clear significance was, again, the daily intake group. This shows that the frequency of intake plays an important role in determining the impact of vitamin D on your health.

  Another point worth noting is how consistent the findings were across different populations in the daily dosing subgroup. Whether participants were young, older, living with chronic illness, or generally healthy, the protective effect remained statistically reliable inside the daily-dose category. That means your background health status does not prevent you from gaining protection by vitamin D. Again, the main factor depends on a steady intake to support your immune system.

- **A look at the safety outcomes —** Serious adverse events were almost identical between vitamin D and placebo with an odds ratio of 0.96, which means that there is no meaningful increase in safety concerns from supplementation. Thus, there are close to no downsides when boosting your vitamin D levels.

More Data Show the Effectiveness of Daily Vitamin D

In another meta-analysis published in Nutrition Journal, researchers reviewed 43 randomized controlled trials with a total of 49,320 participants. Their goal was to figure out which vitamin D strategies work best for preventing acute respiratory infections. Similar to the previous study above, this one also involved children, adults, and older adults, people in good health, and others living with chronic issues.[13]

- **Daily dosing produced a measurable improvement —** The study reported "significant preventive effects of vitamin D supplementation" for daily users. This means that integrating vitamin D optimization into your routine every day offers a noticeable advantage. Even short-duration trials produced positive results.
- **Group-specific effects —** Exploring group-specific effects revealed even more insights. For example, daily dosing helped people across a wide age range, but the greatest benefits showed up in groups exposed to seasonal shortages of sunlight and those living in regions with long winter cycles. These are demographics most likely to face prolonged vitamin D insufficiency.
- **The downside of bolus dosing —** Similar to the previous study, this one also investigated bolus dosing and found similar results. Across the selected dataset, irregular dosing frequencies consistently failed to show significant benefit.

Optimize Your Vitamin D Levels with These Practical Strategies

In addition to reducing your risk of respiratory infections, increasing your vitamin D levels also benefits your health in different ways. In previous articles, I've highlighted how vitamin D supports metabolic health by improving **insulin resistance** and **lowers blood pressure**. These benefits offer a compelling reason to optimize your vitamin D production regularly, ideally every day.

The studies above focused on supplements because they're easier to standardize in research — but your body was designed to make its own vitamin D. Supplementation is only something to consider when blood tests make it clear that you're falling short.

1. **Make sunlight your main vitamin D source —** Your skin produces vitamin D the moment sunlight hits it. To maximize vitamin D production, expose as much skin as practical — arms and legs at minimum, torso if privacy allows. More skin surface means more vitamin D synthesis in less time, reducing your UV exposure while achieving the same benefit.

   Now, how do you know if you've produced enough vitamin D for the day? If you notice redness or burning, you've gone past your safe limit. When your skin tone looks unchanged, you're still within a safe range. This built-in feedback mechanism accounts for the current season, your latitude, and your natural skin pigmentation. However, before heading out, it's important to read the next point.

2. **Clear vegetable oils from your diet before ramping up sun exposure —** As mentioned earlier, sunlight is the ideal way to produce vitamin D. However, if your diet has included canola, soybean, sunflower, safflower, or other seed oils, the linoleic acid (LA) from them has already built up in your tissues.

   When LA absorbs ultraviolet light, **it oxidizes, drives inflammation, and damages DNA**. It also increases your sunburn risk, especially during the midday window when the ultraviolet B rays required for vitamin D production are strongest. To protect yourself, start by lowering your LA intake below 5 grams per day, and swap seed oils for traditional animal fats like tallow, ghee, or grass fed butter. If you can get it below 2 grams per day, that's even better.

   To help you track your daily LA intake, sign up for the upcoming Mercola Health Coach app. It contains a feature called the Seed Oil Sleuth, which calculates the LA in your food down to a tenth of a gram. This makes it far easier to stay within a healthy range.

   Note that your body needs about six months of avoidance from seed oils to start clearing LA from tissues. As LA levels fall, your skin becomes more resilient to sunlight, and your sunburn threshold rises. This also increases your ability to safely benefit from midday sunlight.

Here's another helpful tip — take C15:0 (pentadecanoic acid), which is normally found in grass fed dairy. In a previous article, I went into detail into how it accelerates the removal of LA from tissues.

3. **Choose vitamin D3, and pair it with magnesium and K2 —** If you need to take a supplement, choose D3 — this is the same form your skin makes. Interestingly, taking D2 reduces the availability of usable D3, disrupting the balance you're trying to restore. To make D3 work properly, support it with magnesium and vitamin K2. Magnesium activates vitamin D so your tissues can use it, and K2 ensures that calcium moves into your bones instead of settling in arteries or other soft tissues.

   These nutrients operate as a team. Without magnesium and K2, your body struggles to activate vitamin D, forcing you to take higher doses just to achieve the same effect. That approach creates more problems than it solves, specifically vitamin D toxicity.

4. **Test your vitamin D levels twice a year —** Knowing your baseline is important. So, I recommend keeping your vitamin D level between 60 and 80 ng/mL. If your results fall short, refocus on lowering your LA intake and gradually increasing safe sun exposure. Done right, you won't even have the need to spend on supplements. Regular testing also helps you adjust your approach over time, ensuring that your strategy matches your actual physiology, so you're not guessing all the time.

Frequently Asked Questions (FAQs) About Vitamin D and Respiratory Tract Infections

Q: How does vitamin D help protect against respiratory infections?

A: Vitamin D helps keep your immune system balanced and strong enough to fight infections while preventing excessive inflammation. Research shows people with severely low vitamin D face a 33% higher risk of hospitalization for respiratory

infections like pneumonia and bronchitis compared to those with optimal levels.

Q: Can vitamin D protect people with existing health conditions, not just healthy individuals?

A: Yes. Research involving tens of thousands of participants — including children, older adults, and people living with chronic conditions — found that the protective effect of maintaining adequate vitamin D levels was consistent across all groups. Your background health status does not prevent you from benefiting, making it a broadly relevant nutrient for immune support regardless of your current health situation.

Q: How do I know if my vitamin D levels are adequate?

A: The best way is to get a blood test measuring your serum 25-hydroxyvitamin D levels. Aim to keep your levels between 60 and 80 ng/mL (150 to 200 nmol/L). Testing twice a year lets you track whether your current approach — whether through sunlight, diet, or supplementation — is actually working for your individual physiology, so you're not left guessing.

Q: What supplements should I take alongside vitamin D?

A: Choose the D3 form and pair it with magnesium and vitamin K2. Magnesium activates vitamin D so your body can use it, while K2 directs calcium into bones rather than arteries. Without these cofactors, you may need higher doses that increase toxicity risk.

Q: How quickly will I see benefits from improving my vitamin D levels?

A: Benefits appear within a few months. Studies lasting less than four months showed noticeable improvements in respiratory infection rates, and the protective effects were consistent across all age groups and health backgrounds.

Sources and References

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