

# How to Get Vitamin D in Fall and Upcoming Winter

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## STORY AT-A-GLANCE

- › Fall's shorter days and lower sun angle reduce ultraviolet (UV) B exposure, making it harder to produce adequate vitamin D through sunlight alone
- › Check daily UV Index and consider your skin type (Fitzpatrick phototype) to determine sun exposure needs; darker skin tones require more time in sunlight
- › Consume vitamin D-rich foods like wild-caught Alaskan salmon, rainbow trout, herring, and UV-exposed mushrooms to supplement reduced sun exposure during fall and winter months
- › If you choose to take a supplement, vitamin D3 taken with healthy fats is the preferred form, with a target blood level of 60 to 80 ng/mL. Pairing it with magnesium and vitamin K2 supports vitamin D metabolism and calcium balance
- › Reduce linoleic acid (LA) intake to below 5 grams a day and consider C15:0, which is a fat that may help displace LA stored in your skin, allowing safer sun exposure for vitamin D production in the long run

As most of you know, I am a passionate advocate of optimizing your vitamin D levels because of its many capabilities. In previous articles, I've discussed in detail how it supports [immune function](#), its role in [blood sugar regulation](#), and research linking healthy vitamin D levels to a [lower risk of colorectal cancer](#).

The best way to produce vitamin D is through sensible sun exposure. However, with autumn now in full swing, the days are getting shorter. Thus, people who live in areas that get less sunlight may not be able to produce enough vitamin D through sun exposure alone.

To spread awareness of this issue, I appeared on NTD News, offering viewers practical strategies to optimize their vitamin D levels during fall, as well as the upcoming winter. These points are also explored below.

## **Why Fall Makes Vitamin D Trickier to Optimize**

Fall is a beloved season in the U.S., drawing nature lovers to destinations from New York's Hudson Valley to Colorado and Washington state to admire the changing foliage.<sup>1</sup> However, the same seasonal shift that brings fall colors also makes vitamin D harder to come by:

- **Changes in the Earth's tilt relative to the sun** — Earth's distance from the sun varies throughout the year, but that isn't what causes the seasons — Earth is actually closest to the sun in early January. Seasons are caused by the 23.5-degree tilt of Earth's axis.<sup>2</sup> During fall, the Northern Hemisphere is tilting away from the sun, which brings shorter days, a lower sunlight angle, and cooler temperatures. The result? Less UVB reaches your skin, which can lower your vitamin D levels.
- **Factors affecting vitamin D production** — Ultraviolet B (UVB), the type of sunlight that triggers vitamin D production on your skin, is affected by season, time of day, latitude, clouds, and your skin's melanin concentration.

In many places during summer, incidental sun is enough to produce vitamin D, but often not in late fall and winter. So, shifting your diet and taking supplements (as needed) can help you maintain healthy levels.<sup>3</sup>

## **How Much Sun Exposure Helps in Autumn?**

There isn't a one-size-fits-all approach when optimizing your vitamin D in fall. Here are some guidelines to help, starting with a daily forecast tool from the U.S. Environmental Protection Agency (EPA):<sup>4</sup>

- **Check the daily UV Index (UVI)** – This is a forecast issued daily by the National Weather Service and the EPA that tells you how strong the sun's UV radiation is expected to be. Here's a tip – the highest readings occur in the hours around solar noon.<sup>5</sup>
- **Consider your Fitzpatrick phototype** – It's a guide that describes how certain skin colors react when exposed to sunlight. Thus, it can give you a rough sense of how your skin responds to sun exposure, and how much time in the sun it may need. Here's a chart from DermNet to help you:<sup>6</sup>

| Skin Type | Typical Features                                        | Tanning Ability                     |
|-----------|---------------------------------------------------------|-------------------------------------|
| I         | Pale white skin,<br>blue/green eyes,<br>blonde/red hair | Always burns, does not<br>tan       |
| II        | Fair skin, blue eyes                                    | Burns easily, tans poorly           |
| III       | Darker white skin                                       | Tans after initial burn             |
| IV        | Light brown skin                                        | Burns minimally, tans<br>easily     |
| V         | Brown skin                                              | Rarely burns, tans darkly<br>easily |
| VI        | Dark brown or black skin                                | Never burns, always tans<br>darkly  |

Framing the information above within the context of my NTD News segment, if you live in higher latitudes and/or have deeper skin tones, you'll generally synthesize less D from the sun, especially during fall.

What's a good sign your body has produced enough for the day? [In a previous article](#), I noted that the limit is when your skin begins to turn slightly pink. If that doesn't even happen to you during fall, then you may need to make up the difference through your diet and, if needed, supplements.

## The Best Foods for Vitamin D in Fall

Continuing the point above, vitamin D is also found in various foods. The table below shows you well-known sources and how much you'll get, depending on serving size:<sup>7</sup>

| Food                      | Serving Size | Vitamin D Amount (IU) |
|---------------------------|--------------|-----------------------|
| Rainbow trout, freshwater | 3 ounces     | 645                   |
| Salmon                    | 3 ounces     | 383 to 570            |
| Herring                   | 3 ounces     | 182                   |
| Tilapia                   | 3 ounces     | 127                   |
| Yogurt, plain             | 8 ounces     | 116                   |
| Kefir, plain              | 1 cup        | 100                   |
| Cheese, American          | 1.5 ounces   | 85                    |
| Mushrooms, raw            | 1 cup        | Between 0 to 1,110    |

**Note:** The dairy values above reflect fortified, commercially produced products. That said, I don't recommend commercially pasteurized dairy. If you consume dairy, choose raw, grass fed options, keeping in mind that they aren't fortified and provide less vitamin D.

# Should You Take Vitamin D2 or D3, and How Much?

Aside from food, supplementation is another way to support healthy vitamin D levels. However, there is some confusion between what is generally available to consumers — vitamin D2 and D3:

- **Have yourself tested first** — No matter which strategy you employ — sunlight exposure, food, and supplements — it's always a good idea to have your vitamin D levels tested to know your baseline.

When visiting a lab, ask for a 25-hydroxy vitamin D test. This measures the current vitamin D levels circulating within your body. Conventional guidance, such as that from the Office of Dietary Supplements, considers 20 nanograms per milliliter (ng/mL), or 50 nanomoles per liter (nmol/L), sufficient for most people.<sup>3</sup> However, I consider 40 ng/mL (100 nmol/L) the lower cutoff for sufficiency, and even then, I believe even that isn't enough — the real benefits of vitamin D appear when you reach a range between 60 and 80 ng/mL (150 to 200 nmol/L). Note: Talk to your health care provider about whether this testing is appropriate for you.

- **Vitamin D2 versus D3** — As noted in my interview with NTD News, vitamin D2 comes from plants, while vitamin D3 comes from animals. If you're going to pick one, I recommend vitamin D3, as it's more effective at raising and maintaining blood vitamin D levels.

One more thing about vitamin D3 — it's a fat-soluble nutrient. This means that it's best absorbed when you take it with meals that include healthy fat, such as pasture-raised egg yolks, tallow, or grass fed butter.

- **Supplement interactions** — When taking vitamin D3 supplements, remember to increase your intake of magnesium and vitamin K2. Magnesium helps your body convert vitamin D into its active forms, while vitamin K2 helps direct calcium to your bones and away from your arteries. For every 5,000 international units (IUs) of

vitamin D you ingest, take around 180 micrograms (mcg) of vitamin K2 in MK-7 form, as well as 400 milligrams (mg) of magnesium. Specifically, glycinate and malate are the preferred forms).

- **Medications affecting vitamin D function** — Check with your doctor if you're taking medications such as statins and steroids. According to the Office of Dietary Supplements, corticosteroid medications such as prednisone can impair vitamin D metabolism.<sup>8</sup>
- **Rechecking interval** — **Have your blood tested every three to six months.** This gives you enough time to see how your levels are responding and whether adjustments are needed.

## Does Using Sunscreen in Fall Block Vitamin D Production?

Public messaging about sunlight exposure can be confusing. For example, dermatology organizations advise not seeking UV exposure for vitamin D because UV is a known skin-cancer risk factor and even advise wearing sunscreen while outside.<sup>9</sup> The message many people take away is that sunlight should be avoided altogether.

- **The link between sunlight and skin cancer** — The fear of increased cancer risk emphasized by dermatologists has some merit, but it's important to understand the nuances. As I mentioned in the interview, frequent sun exposure is associated with a higher risk of squamous cell and basal cell carcinoma. But the good thing is that these are usually caught early and are highly treatable, making mortality risk very low.

Meanwhile, some observational research has linked regular, non-burning sun exposure to a lower risk of melanoma,<sup>10,11,12,13,14</sup> which is the dangerous type of skin cancer you don't want to get. I suspect a major reason skin is more vulnerable to sun damage today is that many of us eat a diet high in **linoleic acid (LA)**, which is

unstable and can form harmful oxidation byproducts when your skin is exposed to sunlight. Thus, reducing the LA stored in your tissues may allow you to enjoy the benefits of sunlight more safely — this process is explained below.

- **Avoid excessive use of sunscreens** — These products limit vitamin D synthesis. According to the Office of Dietary Supplements, sunscreens with an SPF of 8 or more appear to block vitamin D-producing UV rays.<sup>3</sup> Some chemical UV filters, such as benzophenone-3, have also raised concerns about hormone disruption,<sup>15,16,17,18,19</sup> which is why natural mineral-based sunscreens are preferable to chemical ones.

I recommend using sunscreen strategically, such as only applying it when you're going to be out in the sun for prolonged periods of time.

## A Simple Fall Checklist

Based on all the information I outlined above, monitoring and increasing your vitamin D levels can be burdensome. To help, here's a handy checklist you can keep for reference. I recommend printing it out and hanging it somewhere visible:

- **Daily base intake** — The Office of Dietary Supplements sets a Recommended Dietary Allowance (RDA) of 600 IUs a day for most adults, rising to 800 IUs after age 70.<sup>20</sup> However, there is good evidence that this number is far too low.

The RDA was set in 2011 by the Institute of Medicine (IOM), now the National Academies of Sciences, Engineering, and Medicine. It was meant to be the daily intake that would bring 97.5% of people to a blood level of 25-hydroxyvitamin D [25(OH)D] of at least 50 nmol/L (20 ng/mL). In 2014, researchers at the University of Alberta identified a statistical error in how that figure was calculated. The IOM based its estimate on the average 25(OH)D levels reported in each supplementation study, rather than on the variation among the individual participants in those studies.

Individual responses to vitamin D vary far more than study averages do, so this method overstated how many people would actually reach the target on 600 IUs. When the researchers reanalyzed the IOM's data correctly, they estimated that 8,895 IUs a day would be needed for 97.5% of individuals to reach 50 nmol/L.<sup>21</sup>

A separate group of researchers confirmed the error using individual-level data from a different population and estimated the requirement at roughly 7,000 IUs a day.<sup>22</sup> A larger follow-up analysis pooled 108 published estimates and arrived at 2,909 IUs a day for healthy adults. The same paper's analysis of nearly 14,000 observations from a health program found that the requirement rose with body weight: 3,094 IUs for normal-weight, 4,450 IUs for overweight, and 7,248 IUs for obese individuals.<sup>23</sup>

Depending on the analysis and a person's body weight, these estimates put the requirement roughly five to 15 times higher than the current RDA. Even so, the RDA has not been revised.<sup>24</sup>

As noted in my interview with NTD News, many adults can take 10,000 IUs a day without problems — although that's well above the 4,000 IU tolerable upper intake level the Office of Dietary Supplements sets for adults.<sup>10</sup> That said, the only way to assess your daily requirement is by checking your levels. It's not the dose that matters but rather your blood level. For general health, a blood level between 60 and 80 ng/mL appears ideal, with a lower cutoff at 40 ng/mL.<sup>25,26,27,28</sup>

- **Shop smart** — Keep fish such as wild-caught Alaskan salmon in your rotation. This variety is a better choice than farmed fish, which have a less favorable fat profile. Similarly, if you consume dairy, look for raw, grass fed varieties rather than commercially pasteurized products.
- **Mind your medications** — Consult with your doctor to rule out interactions on vitamin D synthesis if you're currently taking medications for a disease.
- **Develop your sun sense** — Regularly review the UVI reports and be mindful of your Fitzpatrick phototype to make sure you don't get sunburned.

- **Test and retest** — Take a 25-hydroxy vitamin D test and aim for a range between 60 to 80 ng/mL.

## The Issue of Sunlight Exposure Without Fixing Your Diet

One important aspect I emphasized in my interview is linoleic acid (LA) becoming embedded in your skin. Clearing it is crucial when it comes to optimizing vitamin D levels because sunlight exposure can cause toxic metabolites to form, which may damage your cellular health. That said, it is paramount that you reduce your LA intake right away.

At the same time, I recommend adding pentadecanoic acid, also known as C15:0. It is a rare, odd-chain saturated fat that may help displace LA in your skin, which might shorten the time it takes for your skin to safely handle regular sun exposure. For an in-depth explanation of how this process occurs, read [“The Fast-Track Path to Clearing Vegetable Oils from Your Skin.”](#) Once you've familiarized yourself with the benefits of C15:0, here are the steps I recommend:

1. **Keep LA intake below 5 grams a day** — Remove all industrial seed oils (often marketed as “vegetable oils”) from your diet, including soybean, corn, sunflower, safflower, cottonseed, canola, and grapeseed oils. LA is common in ultraprocessed foods, condiments, restaurant meals, and packaged snacks.

High levels of LA also accumulate in the fat of conventionally raised, grain-fed livestock — especially chicken and pork. To minimize exposure, choose pasture-raised or grass fed meat whenever possible.

2. **Include C15:0 daily** — Use a high-quality pentadecanoic acid powder or a certified butter or ghee concentrate rich in C15:0. Following this habit consistently may support steady uptake into your tissues.

**Check your progress every three months** — Use a red blood cell test or dried blood spot test to check that your C15:0 levels are at least 0.4% and that LA remains under 5% of your total fat levels. These benchmarks may indicate successful cellular remodeling. (Talk to your health care provider about whether this testing is appropriate for you.)

If your results stop improving, look for unrecognized sources of LA or review your dosing for possible inconsistencies.

- 3. Encourage fat turnover through healthy lifestyle changes** — Boost the clearance of stored LA with time-restricted eating, high-intensity training, and regular heat exposure via sauna sessions or hot baths.

A note on high-intensity training — limit it to 75 minutes or less per week, as longer bouts **can hinder recovery and longevity**. When it comes to meal timing, avoid chronic or extreme restriction, which can suppress thyroid function and metabolism. Instead, I recommend time-restricted eating (TRE) where you eat all of your meals for the day within a window of 12 to 18 hours — longer in winter, shorter in summer.

- 4. Build up sun tolerance gradually, especially in the first four to six months after you eliminate seed oils** — While LA remains high in your body fat, the skin may be more prone to UV-induced oxidative stress and sunburn. During this period, avoid high-intensity midday sunlight (11 a.m. to 3 p.m.) and go out during early morning or late afternoon instead.

Once LA levels decline and cell membranes stabilize, your skin's resilience improves, allowing you to start going out at solar noon, increasing your exposure slowly without burning.

## **Frequently Asked Questions (FAQs) About Optimizing Vitamin D Levels in Fall**

**Q: How much sun do I need for vitamin D in the fall?**

**A:** There's no one-size-fits-all answer, since your vitamin D production depends on factors like your skin tone, latitude, and the daily UV Index. As a rule of thumb, check your local UVI forecast each day.

If you have pale or fair skin, you'll only need a short time of direct sunlight exposure. Those with deeper skin tones may need to take longer for similar vitamin D output. However, during late fall or for those living in northern regions, UVB levels often drop too low to make enough vitamin D, meaning sunlight alone may not be sufficient.

**Q: What's the best time of day to make vitamin D in autumn?**

**A:** The best window is around solar noon — roughly between 11 a.m. and 2 p.m. — when the sun's rays hit the Earth most directly. This is when UVB exposure is strongest, allowing your body to produce vitamin D more efficiently in less time. If you've recently cut out seed oils, though, hold off on high-intensity midday sun for the first four to six months, as explained above.

In fall, the sun's lower angle means UVB rays are weaker, so early morning or late afternoon exposure won't trigger much vitamin D production. If you live in northern states, your skin may not generate any vitamin D during the later months of fall. In those cases, food and supplementation become helpful.

**Q: Which foods are highest in vitamin D for fall meal planning?**

**A:** When sunlight isn't enough, you can boost your vitamin D by adding certain foods to your meals. Natural sources include fish like wild-caught Alaskan salmon, rainbow trout, herring, and tilapia. Dairy products such as yogurt, kefir, and cheese

also provide smaller amounts, mainly when fortified. If you eat dairy, I recommend raw, grass fed options. For plant-based options, mushrooms exposed to sunlight or UV light are viable.

**Q: Should I take vitamin D3 or D2 in fall?**

**A:** If you're planning to take a supplement, vitamin D3 (cholecalciferol) is the superior choice. D3 is the form your body naturally makes from sunlight and is more effective at raising and maintaining blood levels than D2 (ergocalciferol), which comes from plants. Since it's a fat-soluble vitamin, take D3 with a meal that includes healthy fats, such as grass fed butter, pasture-raised egg yolks, or tallow, so it can be absorbed well.

For every 5,000 IUs of vitamin D3, pair it with about 180 mcg of vitamin K2 (MK-7 form) and 400 mg of magnesium to support vitamin D metabolism and help balance calcium. Lastly, always test your levels before supplementing, especially if you're taking medications.

**Q: When should I test my vitamin D levels in fall?**

**A:** It's best to test early in the season (around late September or October) to establish your baseline and then retest every three to six months to track progress. Ask your health care provider for a 25-hydroxy vitamin D test for accurate results.

While conventional guidance considers 20 ng/mL sufficient for most people, I consider 40 ng/mL the lower cutoff for general health, and believe the optimal range for supporting immune and metabolic health is between 60 and 80 ng/mL. If your results are below this range, consider combining sun exposure with dietary and supplemental vitamin D3 throughout fall and winter.

*This article is for informational purposes only and does not constitute medical advice. Consult a qualified health care provider before making changes to your health regimen.*

## Sources and References

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- <sup>1</sup> [USA Today, October 3, 2025](#)
- <sup>2</sup> [National Weather Service, "The Seasons, the Equinox, and the Solstices"](#)
- <sup>3, 8, 10</sup> [Office of Dietary Supplements, "Vitamin D"](#)
- <sup>4</sup> [EPA, "Sun Safety Tips"](#)
- <sup>5</sup> [BBC, August 12, 2025](#)
- <sup>6</sup> [DermNet, "Fitzpatrick Skin Phototype"](#)
- <sup>7</sup> [DGA, "Food Sources of Vitamin D"](#)
- <sup>9</sup> [AAD, "Vitamin D"](#)