

Vitamin D and Type 2 Diabetes: What You Need to Know



Vitamin D is a fat-soluble vitamin that plays a vital role in many aspects of health, such as bone health, immune function, and inflammation. However, did you know that vitamin D may also affect your risk and management of type 2 diabetes?

Photo: Fleur

Kaan/Unsplash.com

What is the link between vitamin D and type 2 diabetes?

Type 2 diabetes is a chronic condition when your body becomes resistant to insulin, the hormone that regulates blood sugar levels. This leads to high blood sugar levels, damaging various organs and tissues.

Vitamin D may influence the development and progression of type 2 diabetes in several ways. For instance, vitamin D may:

- Enhance the function of pancreatic beta cells, which produce insulin.
- Improve insulin sensitivity so your cells can use glucose more efficiently.
- Reduce inflammation, which is associated with insulin resistance and diabetes complications.
- Several studies have found that people with low vitamin D levels are more likely to develop type 2 diabetes than those with adequate levels. However, the evidence on whether vitamin D supplementation can prevent or treat type 2 diabetes is not conclusive.

Other studies have shown that vitamin D supplementation may improve blood sugar control and A1C levels (a measure of average blood sugar over three months) in people with type 2 diabetes.

Therefore, more research is needed to determine the optimal dose, duration, and form of vitamin D for diabetes prevention and management.

How much vitamin D do you need?

The amount of vitamin D you need depends on several factors, such as age, skin colour, sun exposure, diet, and health status. The NHS recommends that adults and children from the age of 1 year onwards require 10 micrograms (μg) or 400 international units (IU) of vitamin D daily. However, some people may need more or less depending on their individual circumstances.

The best way to know if you are getting enough vitamin D is to check your blood levels. A blood test can measure the amount of 25-hydroxyvitamin D (25(OH)D), your body's leading vitamin D form. The optimal range of 25(OH)D for general health is between 50 and 125 nanomoles per litre (nmol/L) or 20 and 50 nanograms per millilitre (ng/mL).

Suppose you have type 2 diabetes or are at risk of developing it. In that case, you may want to aim for the higher end of this range, as some studies have suggested that higher vitamin D levels may be associated with better diabetes outcomes. However, you should consult your doctor before taking supplements or changing your medication.

What are some symptoms of vitamin D deficiency?

Vitamin D deficiency commonly affects your bone health, immune system, and overall well-being. Some of the symptoms of vitamin D deficiency are:

- **Frequent illness or infections.** Vitamin D helps your immune system fight off harmful germs and viruses. You.
- **Fatigue and weakness.** Vitamin D is involved in energy production and muscle function. You may feel tired, sluggish, or weak if you have low vitamin D.
- **Bone and back pain.** Vitamin D helps your body absorb calcium and phosphorus, which are essential for bone health. If you have low vitamin D levels, you may lose bone density, develop osteoporosis, or experience bone and back pain.
- **Hair loss.** Vitamin D plays a role in hair growth and maintenance. If you have low vitamin D levels, you may experience hair loss or thinning hair.

- **Poor wound healing.** Vitamin D helps your body heal wounds and fight infections. If you have low vitamin D levels, you may notice that your cuts or bruises take longer to heal or get infected easily.
- **Depression.** Vitamin D affects your mood and mental health. Low vitamin D levels may make you feel anxious, depressed, or irritable.

If you have any of these symptoms, consult your doctor or health professional and check your vitamin D levels. You may need to supplement or make lifestyle changes to increase your vitamin D intake from sunlight and food sources. By doing so, you may improve your health and quality of life.

How can you get more vitamin D?

Two main ways to get more vitamin D are sunlight and food.

Sunlight is the most natural and effective source of vitamin D. When your skin is exposed to ultraviolet B (UVB) rays from the sun. It converts a cholesterol derivative into vitamin D. However, the amount of vitamin D you can make from sunlight depends on many factors, such as the time of day, season, latitude, cloud cover, sunscreen use, skin colour, and age.

The NHS advises that most people should be able to get enough vitamin D from sunlight between late March and the end of September by spending short periods outdoors without sunscreen. However, this may not apply to everyone, especially those who live in northern regions, have darker skin tones, or stay indoors most of the time.

Food is another way to get more vitamin D. However, there are not many foods that naturally contain significant amounts of vitamin D. Some of the best sources are oily fish (such as salmon, mackerel, herring, and sardines), liver, egg yolks, and red meat. Some foods are fortified with vitamin D, such as milk, yoghurt, cheese, breakfast cereals, orange juice, and margarine.



However, meeting your daily vitamin D needs from food alone may be challenging. Therefore, you may want to consider taking a supplement if you are at risk of deficiency or have low blood levels. Vitamin D supplements are widely available in different forms (such as tablets, capsules, drops, and sprays), doses

(ranging from 400 to 4,000 IU), and types (such as vitamin D2 or D3).

Photo: Maria Kozyr/Unsplash.com

The type of vitamin D supplement you choose may affect its absorption and effectiveness. Vitamin D3 is the most common and preferred form, as it is more potent and raises blood levels more efficiently than vitamin D2. However, vitamin D2 may be suitable for vegans and vegetarians, as it is derived from plant sources, while vitamin D3 is usually derived from animal sources (such as lanolin or fish oil).

The dose of vitamin D supplement you need may vary depending on your blood levels, health status, and other factors. The NHS recommends that adults and children over the age of 1 year should take a daily supplement containing 10 µg or 400 IU of vitamin D during the autumn and winter months when sunlight is limited. However, some people may need higher doses to correct a deficiency or achieve optimal levels.

You should always consult your doctor before taking any vitamin D supplements, especially if you have a medical condition, take any medication, or are pregnant or breastfeeding. Taking too much vitamin D can cause side effects and toxicity, such as nausea, vomiting, constipation, kidney stones, and high blood calcium levels.

Conclusion

Vitamin D is an essential nutrient that may significantly impact your risk and management of type 2 diabetes. However, many people are deficient in vitamin D, especially those with diabetes or at risk of developing it. Therefore, monitoring your vitamin D levels and ensuring you get enough of this vital vitamin from sunlight, food, and supplements is essential. By doing so, you may not only improve your diabetes outcomes but also your overall health and well-being.