

VITAMIN D SECRETS

HOW TO KNOW IF YOU ARE **DEFICIENT** IN
VITAMIN D AND HOW TO EASILY **OVERCOME** THIS



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Introduction

Unfortunately, the experts estimate that around a billion people in the world are deficient in vitamin D. Something that you probably don't know is that vitamin D is not really a vitamin. It is actually a prohormone.

A prohormone is a substance that your body will transform into a hormone. All of the cells in your body have a receptor for this prohormone which is not the case with other vitamins. For ease of reference, we will refer to this prohormone as its most common name which is vitamin D.

Your body needs to break down a prohormone into a form that it can use. When this happens, vitamin D will circulate through your body and it performs several different functions. It is critical for healthy bones and helps to promote bone growth and the health of your muscles.

In this special report, we will explain why vitamin D is so essential for your body, what causes a vitamin D deficiency and the symptoms of this that you need to watch out for, and the things that you can do to ensure that you have the right levels of vitamin D.

So, let's get right into it...

Why Vitamin D is essential for your Body

As we mentioned in the introduction, vitamin D is essential for good bone health. It helps in the development of strong bones and this becomes very important as you age. Vitamin D will also take calcium from your blood and will use it to create and repair muscle tissue and bone. You need vitamin D to help your parathyroid gland to properly regulate the levels of calcium in your blood as well.

Vitamin D Deficiencies

You may have heard of “rickets” before as it is the most common kind of vitamin D deficiency. Children can suffer from rickets if their bone tissue doesn’t mineralize correctly. This usually results in their bones being too soft and becoming deformed.

But rickets is not the only type of vitamin D deficiency. There have been several studies that revealed that there are several other health problems that can result from vitamin D deficiency. We will discuss these later on in this special report.

Vitamin D is also important for your immune system. Your immune cells all have a receptor for vitamin D and they are able to synthesize the active vitamin D hormone or metabolite. This means that there is definitely a connection between them.

A lack of vitamin D is also associated with autoimmune disorders such as rheumatoid arthritis and multiple sclerosis. When the right level of vitamin D is in your blood, your immune system will function properly and protect you from autoimmune disorders and possible infections.

Vitamin D is required for communication within your body

It is important that the calcium levels in your body are correct and vitamin D will communicate between your skeleton, your kidneys and your intestines to ensure that this is the case. Healthy and strong bones are the result of your body having the correct levels of calcium.

If your vitamin D levels are low or there is not enough calcium for your bones, your parathyroid gland will borrow calcium from your skeleton which has the overall effect of making your bones weaker.

In the next section, we will discuss what causes vitamin D deficiency.

What Causes Vitamin D Deficiency?

There are actually several causes of vitamin D deficiency. The main problem is that vitamin D deficiency is not always easy to spot. You need to know what the symptoms are so that you can detect it. This probably explains why the experts think that more than a billion people across the globe have a deficiency in vitamin D.

We will discuss the symptoms of vitamin D deficiency in detail in the next section. Here we will look at some of the most common causes of vitamin D deficiency.

Your Diet can cause a Deficiency in Vitamin D

If you do not eat the types of food that enable the development of vitamin D then this can cause you to be deficient in the vitamin. The foods that help to develop vitamin D are animal-based and include:

- Beef liver
- Fish
- Egg yolk
- Fish oils

- Fortified milk products

Vegans are more prone to vitamin D deficiency as they do not consume any of these foods. There are supplements available that vegans can take to make up for the vitamin D that they are losing out on.

You have Very Dark Skin

If you have very dark skin then the pigment or melanin can prevent the formation of vitamin D when you are out in the sun. This can apply if you have a tan as well as if your skin is naturally dark.

The bottom line here is that the darker your skin is, the less chance it will have to form vitamin D with exposure to direct sunlight. Even if you spend a lot of time sunbathing this can still be a problem.

You have a Problem with your Digestive Tract

Some people have a problem with their digestive tract which means that they cannot absorb dietary fat or vitamin D. If you have a medical condition such as cystic fibrosis, celiac disease, or Crohn's disease these

can limit the ability of your intestines to absorb the vitamin D that you consume.

These medical conditions can restrict the absorption of dietary fats as well and because vitamin D is fat-soluble, this can result in the same problem occurring.

You are not getting enough Sunlight

Your skin can only make vitamin D when you are exposed to direct sunlight. If you do not venture outdoors very often, your chances of being deficient in vitamin D will rise significantly.

You may work a job that prevents you from getting much sunlight or you could be homebound. If you live in a northern latitude country you can be deprived of enough sunlight. Wearing head coverings and robes for religious purposes can also limit exposure to the sun.

Living in an area that has a lot of pollution or smog can also restrict your sunlight exposure. Where you live can really make a difference as can the season and the time of day that you venture out into the sun. In some parts of the US such as Cleveland, Ohio, there will be no UV-B light for 6 months of the year due to the sun's position and the ozone layer.

Please be aware that the sun is strongest between 10am and 3pm.

You are Overweight / Obese

Being overweight or obese can leave you vitamin D deficient. If you have a body mass index of 30 or more then your fat cells may not be efficient enough to extract the required vitamin D from your blood and circulate it around your body.

Your Kidneys cannot process Vitamin D properly

Your kidneys play an important role in the conversion of vitamin D into an active form. If your kidneys are damaged or diseased, or have slowed down due to age, they may be unable to perform the conversion process properly which will result in vitamin D deficiency.

You are an Older Person

It is more difficult for our skin to create vitamin D from sunlight as we get older. As you age, your kidneys tend to slow down as well, so there may be sufficient vitamin D in your blood but your kidneys are unable to perform the conversion process as efficiently as they used to.

You take Specific Medications

Unfortunately, there are many medications that can lead to a deficiency in vitamin D. If you take laxatives then you run the risk of the vitamin D, as well as other nutrients, being flushed from your digestive system before they can be absorbed. Taking steroids can also be a problem as they tend to reduce the absorption of calcium and this impairs the metabolism of vitamin D.

Vitamin D is derived from cholesterol, so if you are taking medications that lower cholesterol such as colestipol or statins this can lower vitamin D synthesis in your body.

Some weight loss drugs like orlistat can lower the levels of vitamin D absorption in your body. Vitamin D levels in your body can also be affected by taking seizure control medication such as phenobarbital and phenytoin. In addition to this, thiazide diuretics such as indapamide and HCTZ (hydrochlorothiazide) will usually lower urinary calcium excretion. If you take vitamin D supplements with these thiazide medications then you could be at risk of hypercalcemia.

In the next section, we will discuss vitamin D deficiency symptoms...

Vitamin D Deficiency Symptoms

We recommend that you visit your doctor and have a blood test performed as there are not a lot of vitamin D deficiency symptoms that are reliable. There are some vitamin D deficiency symptoms that you can watch out for though.

Experiencing Cramps, Weakness or Aching Muscles

There was a study performed on participants that were suffering from chronic pain. The study revealed that over 70% of the participants had a deficiency in vitamin D. Some of the pain sensing nociceptors in your body have a vitamin D receptor. In another study with rats, vitamin D deficiency was shown to result in sensitivity and pain.

Other studies with humans have confirmed that taking vitamin D supplements have helped participants suffering from chronic pain. Always bear in mind that pain and aches are the way that your body signals to you that there is something wrong.

You Suffer from Chronic Exhaustion

Being exhausted a lot can be a sign of vitamin D deficiency. If you are feeling tired all of the time then go and see your doctor and get a blood test. Please bear in mind that a vitamin D deficiency is not the only problem that can result in chronic exhaustion.

Frequently Suffering from Infections

The cells in your body that help you to fight infections need to directly interact with vitamin D. Several studies have determined that there is a link between respiratory tract infections such as pneumonia, influenza, bronchitis and the common cold and a deficiency in vitamin D.

Again, if you believe that you are suffering from too many infections, go and see your doctor and ask for a blood test to confirm if you have a vitamin D deficiency.

Lower Back and Bone Pain

If you suffer from bone pain or lower back pain then this could mean that you are severely deficient in vitamin D. It can also mean that you have been deficient in vitamin D for quite some time.

Lower back or bone pain results from a significant loss of calcium from bone tissue. This calcium takes time to develop. If you are experiencing these pains then go to your doctor for a blood test.

It takes a Long Time for Wounds to Heal

Studies conducted in test-tubes indicate that vitamin D raises the levels of the compounds in your body that will form new skin to heal any wounds that you have.

In other studies, it was found that participants with reduced levels of vitamin D are more prone to an increased level of inflammatory markers. These are known to slow down the healing process and can prevent it from working properly. Visit your doctor for a blood test if your wounds tend to heal slowly.

You Experience Hair Loss

This tends to be a symptom of vitamin D deficiency in women more than men. Some research has linked hair loss in women to vitamin D deficiency, but you need to be aware that there is not much scientific evidence to support this right now.

Alopecia areata is an autoimmune disease which results in significant hair loss from the head and other areas of the body. There is a link to rickets which as you know is a vitamin D deficiency in children. If you are experiencing hair loss, see your doctor for a blood test to check your vitamin D levels.

You Experience Mood Changes

This is an interesting symptom as the medical world are not sure why depression is linked to vitamin D deficiency, but in tests, several patients suffering from depression were shown to have low levels of vitamin D. The good news is that when these patients rectified their vitamin D deficiency the depression subsided a bit.

In the next section, we will discuss the potential impact of vitamin D deficiency...

The Potential Impact of Vitamin D Deficiency

If you are deficient in vitamin D this can cause you a lot of problems. In this section, we will discuss the most common problems that people with low levels of vitamin D can suffer from.

High Blood Pressure and Heart Disease

There have been several studies that have indicated that a vitamin D deficiency can result in high blood pressure, strokes, peripheral arterial disease (PAD), congestive heart failure, and heart disease.

Studies have confirmed that the right levels of vitamin D in the body helps to regulate blood pressure in your kidneys too.

Osteoporosis and Bone Disorders

The bones in your body are consistently being remodeled. When you get older, the breakdown rates of your bones will exceed the rate of buildup.

This is especially true for women who are going through the menopause. Your bone density declines as you age.

Long-term vitamin D deficiency or calcium deficiency can result in osteoporosis. Your bones rely on the surrounding muscles for their strength, and your muscles need vitamin D for the right growth and development.

Autoimmune Disorders

Evidence is continuing to mount linking vitamin D deficiency with different autoimmune disorders such as systemic lupus erythematosus, inflammatory bowel disease, rheumatoid arthritis, and multiple sclerosis. People that suffer from these autoimmune disorders tend to have lower levels of vitamin D in their body than those that do not.

Complications with Pregnancy

There was a study conducted in 2019 which indicated a link between vitamin deficiency and pregnant women who were at risk of preeclampsia resulting in giving birth too early. The study also

suggested that there could be a link between vitamin D deficiency and gestational diabetes.

A pregnant woman that is vitamin D deficient is also more likely to suffer from bacterial vaginosis. You need to be aware that receiving too much vitamin D during pregnancy can be linked with children developing allergies to food in the first couple of years of their life.

Higher Risk of Infections

Prior to the invention of antibiotics, certain infections such as tuberculosis were treated with cod liver oil each day and the patient being exposed to plenty of direct sunlight. Many studies have indicated a link between an increased number of infections and vitamin D deficiency.

The Risk of Diabetes

One of the most important functions of vitamin D is that it regulates blood sugar levels in your pancreas. In addition to this, vitamin D tends to improve the sensitivity of your body to insulin. This is the hormone that your body creates to regulate your blood sugar levels. A vitamin D

deficiency can result in insulin resistance and this can cause the onset of diabetes.

The Risk of Types of Cancer

If you have the right levels of vitamin D in your body then this will help to stop any abnormal cells multiplying in colon or breast tissues. This can prevent breast or colon cancer and may also help to treat these diseases. Vitamin D may also help to prevent prostate cancer too.

In the next section, we will discuss foods that have vitamin D...

Foods that have Vitamin D

These days, there are often minerals and vitamins added to processed foods. It is fairly common for vitamin D to be added to some grains and the majority of dairy products.

You will find the highest levels of vitamin D in animal products such as beef liver, and fatty fish (e.g. mackerel, salmon, and tuna). The level of vitamin D in foods is measured in international units (IU).

Levels of Vitamin D in Specific Foods

Here is a list of foods with their vitamin D content from lowest to highest:

- Fruits and Vegetables – Zero IU
- Grains and Cereals – Zero IU
- Portabella Mushrooms – half a cup has 4 IU
- Swiss Cheese – one ounce has 6 IU
- Cheddar Cheese – one ounce has 12 IU
- Fortified Cereal – one cup has 40 IU
- Egg Yolk – one large yolk has 41 IU
- Cooked Beef Liver – three ounces has 42 IU

- Scrambled Egg – one large egg has 44 IU
- Sardines (in a can with oil drained) – two sardines have 46 IU
- Fortified Yogurt – six ounces has 80 IU
- Fortified Soy, Oat, or Almond Milk – one cup has between 100 and 144 IU
- Fortified Milk – one cup has between 115 and 124 IU
- Fortified Orange Juice – one cup has 137 IU
- Tuna (in a can with water drained) – three ounces has 154 IU
- Mushrooms (raw, white, sliced and exposed to UV light) – half a cup has 366 IU
- Cooked Salmon – three ounces has 447 IU
- Cooked Swordfish – three ounces has 566 IU
- Cooked Trout – three ounces has 645 IU
- Cod Liver Oil – one tablespoon has 1360 IU

You can see from this list that specific animal products have more vitamin D in them than other foods do. When you are food shopping check the nutrition labels to see how much vitamin D is in the products you want to purchase. Be careful as fortified foods do not always contain the same amounts of vitamin D.

In the next section, we will discuss how much vitamin D you need...

How Much Vitamin D you need

If you are in good health, the amount of vitamin D that you require each day will depend on your age. As you get older, you will need to increase the amount of vitamin D that you consume because your body will not be able to create and utilize as much vitamin D as a younger person.

In this section, we will provide you with the general guidelines for daily amounts of vitamin D (RDA) for the different age ranges. You need to bear in mind that your doctor may require you to consume higher levels of vitamin D if you currently have a deficiency or are at risk of bone disorders like osteoporosis. Be sure to meet with your doctor to discuss your needs.

Recommended Vitamin D Amounts (RDA) by Age Range

Please take special note of the upper limits in this list. Vitamin D is a fat soluble and if you get too much you can experience a buildup of toxic levels in your body.

Too much vitamin D can result in serious side effects so be careful not to exceed the recommended daily amounts without consent you're your doctor.

- 0-6 month infant requires 400 IU each day (do not exceed 1,000 IU per day)
- 6-12 months infant requires 400 IU each day (do not exceed 1,500 IU per day)
- 1-3 year old children require 600 IU each day (do not exceed 2,500 IU per day)
- 4-8 year old children require 600 IU each day (do not exceed 3,000 IU per day)
- Children over 9 years old and adults require 600 IU each day (do not exceed 4,000 IU per day)
- Adults over 70 years old require 800 IU each day (do not exceed 4,000 IU per day)
- Pregnant or lactating women (between 14 and 50 years old) require 600 IU each day (do not exceed 4,000 IU per day)

In the next section, we will discuss the diagnosis and treatment of a vitamin D deficiency...

Vitamin D Deficiency Diagnosis and Treatment

You need to check with your doctor first to see if you are deficient in vitamin D. Your doctor will perform a simple blood test and there is no need for you to fast before the test or to prepare for it in any other way. To test for vitamin D deficiency usually the doctor will perform a 25-hydroxyvitamin D test.

You need to be aware that this blood test is different to one that you may undertake at a regular physical. Be sure to discuss with your doctor that you are concerned that you may be deficient in vitamin D.

If the results of the test show that there is between 20 and 50 nanograms of vitamin D per milliliter (ng/ml) in your blood this is considered satisfactory for the majority of healthy people.

But if the result is less than 12 to 20 ng/ml then the doctor will inform you that you are vitamin D deficient. Your doctor will recommend an intake of food rich in vitamin D or a supplement for you to consume each day.

Your Doctor may Prescribe Different Levels of Vitamin D

It may be the case that your doctor will prescribe vitamin D levels which are higher than the recommended amounts we discussed previously in an attempt to get you up to normal vitamin D levels.

Your doctor will probably prescribe a supplement rather than ask you to consume foods that have a higher vitamin D content such as fortified milk products, beef liver or fish.

Two Types of Vitamin D

You need to be aware that there are 2 types of vitamin D which are D2 and D3. D2 is also called cholecalciferol and is found in animal products. D3 is also called ergocalciferol and this is found in some plants.

You can get D3 over the counter at most pharmacies. If your doctor wants you to have D2 then a prescription is required for this. It is usual for D2 to be available in 50,000 IU and you will take this once or twice a week. D3 is absorbed by your body more easily.

Don't take too much Vitamin D

Going out in direct sunlight will never provide you with too much vitamin D. But with supplements, you can easily get too much vitamin D and this can result in some nasty side effects such as hypercalcemia (this is too much calcium in the blood), poor appetite, constipation, increased thirst and urination, or nausea.

Extreme cases of too much vitamin D can cause confusion, weakness, and even ataxia (this is a neurological issue which can make you slur your words and act clumsily).

If your doctor prescribes more than the usual amount of vitamin D then you need to watch out for these symptoms and tell your doctor right away if you experience any of them.

Don't Consume too much Vitamin A

As well as your vitamin D intake, keep an eye on the amount of vitamin A you are getting. Like vitamin D, if you have too much vitamin A in your body this can buildup and result in toxic side effects.

Conclusion

A lot of people in the United States are getting less than the recommended daily amount of vitamin D. The National Health and Nutrition Examination Survey conducted a 3 year study from 2013 to 2016 that revealed around 92% of males and over 97% of females (an average of 94% of all people) over a year old were receiving less than the recommended daily amount of 400 IU from the food they consumed.

Further analysis of this data revealed that the average daily amounts of vitamin D from food and drinks was around 204 IU in males and only 168 IU in females. Children between the ages of 2 and 19 only received an average of 196 IU per day.

The data also revealed that around 28% of the participants older than 2 were taking a vitamin D supplement, while 26% of participants between 2 and 5 years old took supplements, and 14% between 6 and 11 years old were taking supplements.

The numbers of participants taking supplements increased with age. For those aged between 12 and 19, 10% took supplements and 49% of males and 59% of females over 60 were also taking a vitamin D supplement.

Not surprisingly, the study also confirmed that the levels of vitamin D in participants increased significantly when they ate a healthy diet. A healthy diet in the United States consists of:

Consuming a variety of fruits, vegetables, whole grains, low fat or fat-free milk products, and healthy oils.

Drinking milk, consuming cereals, yogurts and margarines, and orange juice fortified with vitamin D. There are small amounts of vitamin D in cheese.

Consume a variety of foods with protein such as soy products, seeds, nuts, legumes, eggs, poultry and lean meat, and seafood.

Consume fatty fish such as tuna, salmon and mackerel as these are all good vitamin D sources. Egg yolks and beef liver have smaller amounts of vitamin D in them.

Limit the amount of trans-fats and saturated fats consumed.

Limit the amount of sodium and added sugars consumed.

The message here is clear. Consume those foods that are high in vitamin D and get out into the sun to avoid a vitamin D deficiency. If you think that you are deficient in vitamin D then get checked out by your doctor.

Essential Resources

Use these essential resources to help you:

The Truth About Vitamin D

<https://www.webmd.com/vitamins/ai/ingredientmono-929/vitamin-d>

7 Healthy Foods That Are High In Vitamin D

<https://www.healthline.com/nutrition/9-foods-high-in-vitamin-d>

Vitamin D Deficiency

<https://medlineplus.gov/vitaminDdeficiency.html>

Vitamin D Deficiency Symptoms And Treatment

<https://my.clevelandclinic.org/health/articles/15050-vitamin-d--vitamin-d-deficiency>