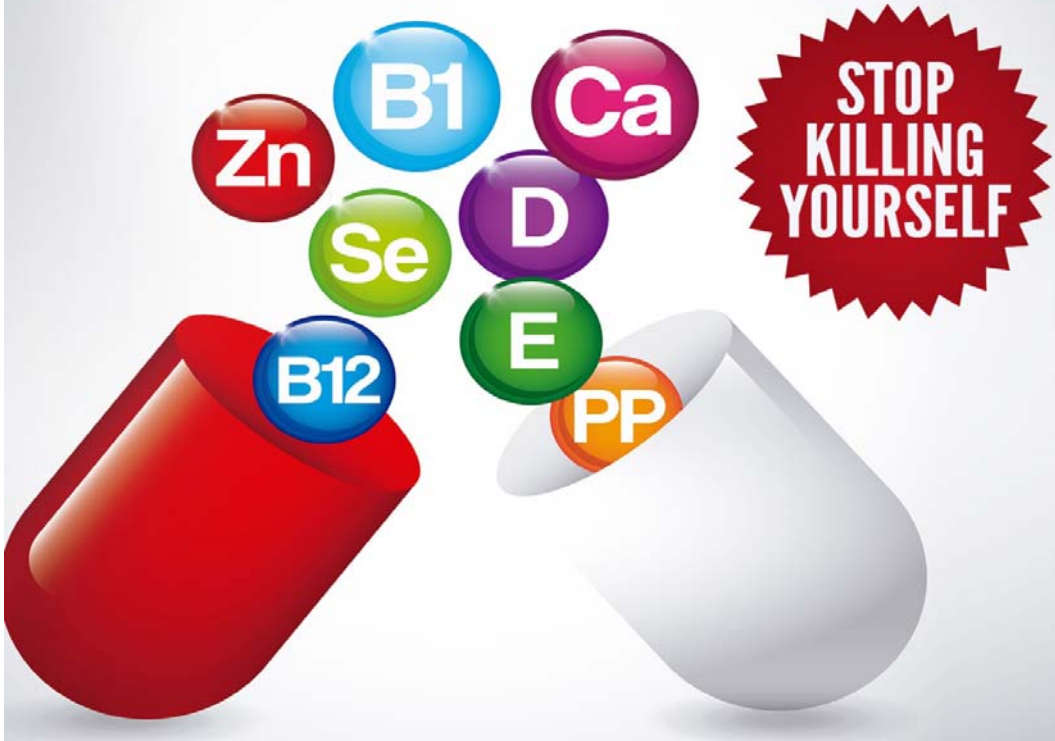
VITAMIN DEFICIENCY

Gain Control of Your Health, Diet and Save Your Life



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Introduction

"In 2012 the World Health Organization reported that about 250 million preschool children are affected by VAD (vitamin A deficiency), and that providing those children with vitamin A could prevent about a third of all under-five deaths, which amounts to up to 2.7 million children that could be saved from dying unnecessarily."

"A study from the University of California-San Diego School of Medicine suggests a link between vitamin D deficiency and early death."

" Vitamin D Deficiency Significantly Raises Your Risk of Cancer and All-Cause Mortality" *By Dr. Mercola*

Vitamins play an integral and an almost central role in our health and wellbeing. They form the backbone of our very existence and are the reason we live as we do. In this book titled' Vitamin Deficiency - Stop killing yourself'; we go through great depths to teach you ways and means to lead a healthy and nutritious life. We give you facts on the biochemistry and physiology of vitamins while illustrating the health effects they are likely to have on you.

In an age that is burdened by ailments and deficiencies; understanding the role of vitamins and the implications your diet and lifestyle have on it can help you lead a better quality of life; one that is healthy and disease-free.

On that note, we welcome you to the guide on vitamins and hope you utilise the insight to lead a healthy and vigorous life.

Chapter 1

Outlining the importance of vitamin A or Retinol

Vitamin A consists of a category of unsaturated organic compounds whose primary purpose is to provide nutrition and aid healthy wellbeing. This group of nutritional compounds come from both animal and plant sources and are derived into retinol and cartoneoids respectively. While Retinol comes from the animal sources of Vitamin A; Beta-cartone; a bi-product, comes from plant based carotenoids.

Retinol, the fat-soluble type of vitamin A is responsible for healthy vision, strong bones, and glowing skin but it is only found in animal based foods.

Well, what about vegetarians then?

Thankfully, our body is capable of converting plant-based carotene compounds into retinal and retinoic acids as its considered to be the most active and useful forms of vitamin A. This section highlights the various sources and benefits of Retinol; the animal form of Vitamin A.

Consuming the required levels of vitamin A can:

- Contribute to ideal cell differentiation and growth
- Help in creating a powerful immune system
- Aid mind and body development and health
- Aid healthy vision and eye health
- Improve iron metabolism in the body
- Improve skin health

Foods rich in Vitamin A

Typically, foods rich in high fat content have a larger ratio of retinol content. The below list highlights foods that are rich in vitamin A content:

- Milk: Milk is a good source of several nutrients and is known to be rich in vitamin D, vitamin A, and calcium. The higher the fat content in the milk; the richer it is in retinol or vitamin A content.
- Meat and Poultry: Meat and poultry are rich in nutrients such as vitamin A, proteins, vitamin B, iron, vitamin E, and zinc.
- Cheese: Now, the content of retinol found in cheese depends on the type of cheese you wish to consume. On an average, 4 ounces of cottage cheese that contains 2% of fat contains 84 international units of retinol, while 3 ounces of cream cheese contains 1075 international units of retinol and 4 ounces of semi soft goat cheese contains 1164 international units of retinol.

Now in addition to this, you can also have a variety of plant-based carotenoids foods, which in turn get converted into retinol by your body. These foods include:

- Sweet potato
- Carrots
- Spinach
- Kale
- Mustard greens
- Collard greens
- Turnip greens
- Swiss chard

- Winter squash
- Romaine lettuce
- Bok choy
- Cantaloupe
- Bell peppers
- Parsley
- Broccoli
- Asparagus
- Sea vegetables
- Chilli peppers
- Tomato
- Basil
- Papaya
- Shrimp
- Eggs
- Brussels sprouts
- Grapefruit (pink/red)

Daily requirements

According to the dietary reference intake (DRI), the recommended daily amount (RDA) for an adult of 25 years is 900 micrograms/ day; amounting to 3000 IU. However, the National Health Service recommends an adult of 25 years consumes an amount of 700 micrograms; amounting to 600 IU. While the dosage and dietary intake vary slightly, on an average, we suggest you refer to the following chart for daily dietary intake:

Animal Sources of Vitamin A (Retinol)	Serving Size	Vitamin A (IU)	% of dietary intake for Women	% of dietary intake for Men
Wild boar liver	1 ounce	100,000 IU	4,330%	3,330%
Turkey	½ cup	25,950	1120%	865%
Beef liver	3 ounce	22,175	960%	740%
Cod liver oil	1 tsp.	4,500	200%	150%
Chicken liver	3 ounce	4,255	185%	140%
liver sausage	2 slices	7,975	345%	265%
Canned beef stew	1 cup	3,860	165%	130%
Any type Multi-grain cereals or bars	1 bar o 1 cup	750	30%	25%
Fortified breakfast cereals	1 cup	500–750	20–30%	15-25%
Ensure Drink	1 can	578	25%	20%
Raisin bars	1 cup	517	20%	15%
Skimmed milk with added vitamin A	1 cup	500	20%	15%
Margarine that contains vitamin A	1 tbsp	500	20%	15%
Whole and slim fat butter	1 tbsp	355	15%	10%
Eggs	1 large	335	15%	10%
Salmon and Tuna	3.5 ounce	324	15%	10%
Cheddar cheese	1 ounce	284	12%	9%
Whole milk	1 cup	250	10%	8%
Sweet potato	1 med.	28,058	1215%	935%
Pumpkin, canned	½ cup	19,065	825%	635%
Carrots, cooked	½ cup	13,418	580%	445%
Spinach, cooked	½ cup	11,458	495%	380%
Collards, cooked	½ cup	9,769	420%	325%
Kale, cooked	½ cup	9,558	415%	320%
Turnip greens, cooked	½ cup	8,828	380%	290%
Winter squash	½ cup	5,353	230%	175%

Red peppers, cooked	½ cup	3,738	160%	125%
Cantaloupe	1 cup	5,411	235%	180%
Lettuce, Green Leaf	1 cup	4,147	180%	135%
Green peas, cooked	1 cup	3,360	145%	110%
Apricots, dried	3	2,022	88%	65%
Butternut squash, cooked	½ cup	1,900 IU	80%	60%
Broccoli, cooked	½ cup	1,208	52%	40%

Ensuring you get the required quantities of retinol or vitamin A is essential for a healthy body. In fact, not consuming the required quantity can result in blindness and a number of deficiencies.

What's more, studies reveal that those consuming large quantities of alcohol are more prone to vitamin A deficiencies. Alcohol is known to accelerate the enzyme activity in the body, resulting in the breakdown of retinol. In addition to this, it also interferes with the conversion of plant carotenoids into retinol; making them more prone to diseases and ailments caused due to the lack of retinol content in the body.

Now, while it is important to consume the required quantities of retinol in a day, it is also important you restrict it to the recommended numbers only. Consuming too much retinol or vitamin A can impact birth rates and cause abnormalities in the liver, nervous system, and bone density. In particular, accumulation of excessive vitamin A in the body can cause osteoporosis and impact the metabolic rate of your bone.

Causes of vitamin A deficiency

We have already mentioned the importance of vitamin A to visual health. Vitamin A or retinol is one of the nutrients responsible for the formation

of rhodopsin: a pigment in the retina that is photo receptive in nature. Your liver stores the maximum quantity of vitamin A in your body, estimating to about 90% of it. It then releases it to the different parts of your body though retinol binding protein. However, when your body does not get the required quantity of the vitamin A; it shows up in the form of various deficiencies in your body. The causes stem from reasons ranging from primary deficiencies caused due to inadequate intake and secondary deficiencies caused due to mal-absorption of fat and any disorder your livers might suffer from.

Prolonged deficiency, if left untreated can impair the overall immunity of your body; in the process making it vulnerable to diseases such as night blindness and xerophthalmia; a condition that leads to drying up of tear glands in the eye.

Studies reveal that consuming a diet that predominantly consists of only rice and rice-based foods can in fact, be one of the primary causes of vitamin A deficiency. Rice is devoid of B-carotene; inferring that when you consume a diet that consists of only rice; you are depriving your body of the carotene and retinol nutrient it needs. This is also the reason why countries that thrive on rice as their staple meal are prone to suffer from prolonged deprivation of vitamin A in their body.

In addition to this, mal-absorption, and any abnormalities in the process of storing or transporting essential vitamins to the various parts of the body can cause vitamin A deficiencies. Therefore, having a balanced diet that consists of a good share of essential nutrients becomes imperative for healthy being.

Treatment for vitamin A deficiency

Vitamin A deficiency can be easily treated and prevented by consuming and administering the required levels of nutrient intake. Consuming foods that are rich in vitamin A content while monitoring the daily levels such that they do not exceed the recommended range can help prevent and overcome any signs of deficiency. Foods such as liver, chicken, eggs, fortified cereal, milk, greens and potatoes are rich in vitamin A content. Following the diet chart listed below can help you easily overcome any deficiency you might be currently facing. In addition to this, doctors also prescribe oral supplements that are rich in the vitamin. The below list highlights the recommended levels of daily supplement you should consume when suffering from a deficiency. While this is the general recommendation prescribed by doctors; we advise you to seek prior medical approval before administrating yourself with the mentioned dosage.

Age	Male	Female	Pregnancy
0 to 6 months	600 mcg	600 mcg	
7 to12 months*	600 mcg	600 mcg	
1 to 3 years	600 mcg	600 mcg	
4 to 8 years	900 mcg	900 mcg	
9 to13 years	1700 mcg	1700 mcg	
14+ years	2800 mcg	2800 mcg	3000 mcg

Skin problems due to vitamin A deficiency

Your skin is the largest organ in your body. It is also the first to detect and reflect signs of your internal health. Deficiency in vitamin A can cause a number of abnormalities in the skin such as:

- Dry skin
- Broken fingernails
- Pigmentation or skin discoloration
- Acne

Vitamin A aids superior skin health by promoting the overall growth and vitality of skin cells. In addition to this, it promotes epidermal differentiation, modulates dermal development factors, prevents sebaceous gland activity, and reduces the formation of androgen. What's more, it also reduces the build-up of bacterial debris on hair follicles and skin cells.

Out of the above symptoms, Acne continues to be one of the earliest signs of vitamin A deficiency. Painful blemishes and zits on your skin can be the first indicators that point out to a plausible vitamin A deficiency.

Vitamin A deficiency causes skin cells to secrete and retain keratin and bacterial residues; thereby making your skin appear scaly, oily and blemished with acne. Consuming vitamin A rich foods and supplements can help address the root cause of the problem; ultimately overcoming all your skin problems.

Blindness due to vitamin A deficiency

It is a known fact that vitamin A deficiency causes various forms of blindness, ranging from premature or preventable blindness in children, partial blindness and night blindness in adults. In fact, in countries such as Africa and South-East Asia, the deficiency has impacted a large number of people; causing preventable blindness in children and night blindness in many undernourished pregnant women.

Among the three types of blindness, night blindness remains the most common adversity people are affected with. Adults, both men and women; young and old become prone to this impairment when suffering from vitamin A deficiency. However, contrary to common belief, this condition does not mean the person cannot see at night times only. People suffering from this impairment suffer from poor vision at night or in dimly lit surroundings.

Vitamin A or retinol plays a pivotal role in converting nerve pulses into images inside the retina. When a patient is deficient, these pulses fail to convert as there is inadequate light; ultimately leading the patient to lose partial or full sight at such times. Now while night blindness, partial blindness and preventive blindness can be caused due to a number of other reasons; conditions caused due to any deficiency in vitamin can be successfully treated by administering required levels of vitamin A through food and supplement drugs.

Signs and symptoms of Vitamin A deficiency

When it comes to preventive care and effective treatment; knowing and identify the signs and symptoms of the deficiency can be the differential factor to healthy living and speedy recovery. Some of the early symptoms of the deficiency include:

Abnormal changes in the eye

One of the earliest signs of vitamin A deficiency often shows up in the eye. The symptoms include itching, burning, and irritation followed by swollen eye lids and dried up tear glands.

In addition to this, one should stay wary of **partial or night blindness** where in a person suffers from impaired vision at certain times or under certain light conditions.

A condition called **Xerophthalmia,** in which a person suffers from a dry and lustreless pigmented cornea, is also known to be caused by the deficiency. In this condition, the tear glands stop secreting tears, leaving the cornea dry, washed out and prone to bacteria and other foreign-body attack.

Epithelial changes

Keratinization is the process of converting cells into skin and nails. Vitamin A deficiency is known to cause hardening of the outer layer of cells, also called the **epithelium.**

Abnormal changes in the skin

Vitamin A deficiency can affect the skin by causing:

- **Xeroderma,** a condition that leads to excessive scaling and itching of skin
- Skin blemishes and acne all over the skin
- Excessive retention of sebum oils on the skin

Abnormal changes in the respiratory tract

Vitamin A deficiency can impact the respiratory tract by:

- Causing dryness in respiratory organs such as the nose, throat, and bronchi; in the process making it vulnerable to bacterial infection.

Chapter 2

Outlining the importance of Vitamin B Complex

Vitamin B complex is a set of eight water-soluble vitamins. These vitamins help convert foods such as carbohydrates into glucose and fuels, required for performing daily activities. Contrary to popular misconception; these vitamins are chemically different in their composition and hence fall into eight distinct categories as opposed to being referred to as one. The fact that they are water soluble in nature infers they are easily dissolvable in water and are hence not stored by the body. Together, these eight compounds aid healthy metabolism of fat and protein in the body and are essential for healthy skin, hair, eyes, liver and the nervous system.

The following section highlights the importance of the eight distinct compounds of vitamin B complex:

Vitamin B1 (Thiamine)

Vitamin B1 is also known as Thiamine. This vitamin was the first vitamin identified in the group and is hence termed with the number one suffixed to it. It is known to play a vital role in maintaining and coordinating the various biochemical processes in the body. Consuming the required levels of this vitamin can contribute to:

- *Enhanced nutrient absorption, eventually leading to better health*
- *Effective synthesis of nucleic acids*
- *Ideal nerve impulses and functionalities*
- *Ideal heart functionality*
- *Healthy psychological health*

Foods high in Thiamine

Considering it plays a pivotal role in the overall vitality and health of your body, it becomes imperative you consume the required levels of the vitamin on a daily basis. Here is a list of foods rich in Thiamine or vitamin B1 content:

Sources of Vitamin B1 or Thiamine	Thiamine in 100 grams of serving
Fish	0.43mg (28% DV)
Lean pork	1.12mg (74% DV)
Nuts	0.71mg (47% DV)
Seeds such as sunflower and fax	1.48mg (99% DV)
Wheat bread	0.47mg (31% DV)
Green Peas	0.28mg (19% DV)
Cooked Asparagus	0.16mg (11% DV)
Beans	0.43mg (28% DV)
Navy beans	0.24mg (16% DV)

Causes of vitamin B1 deficiency

While there could be several other reasons causing vitamin B1 deficiency; studies have attributed the condition to the following most common causes:

- Inadequate dietary intake. This could come from missed meals, inadequate consumption of wheat and bread, large consumption of processed meals and beef as opposed to freshly cooked meals and white meat.
- Predominant consumption of foods low in thiamine. Foods such as white rice, sugar, and all forms of glucose are innately very low in thiamine content.
- Excessive alcohol consumption
- Consumption of foods that destroy thiamine. These foods include betel nuts and raw fish.
- Malnutrition

- Chronic Diarrhea, renal failure, diabetes and IBD ailments

Signs and symptoms of Vitamin B1 deficiency

- Weight Loss

  One of the first symptoms of this deficiency is weight loss. Considering the deficiency is largely attributed to malnutrition, patients are most likely to lose weight and appear scrawny.

- Weakness

  This is a chain reaction to the previous symptom. When the body is malnourished and thin, it most definitely won't have the fuels to convert into energy; making the patient appear blatantly weak and tired at all times.

- Irregular Heart Rate

  Studies reveal that the deficiency impacts the functionality of the heart; putting it through undue stress without the required levels of fuels to pump it. This can ultimately lead to an irregular or quick heart rate.

- Emotional Disturbances

  When a person is physical weak and does not have the fuel or energy to carry out his daily activities, he becomes prone to emotional disturbances too. Prolonged vitamin B1 deficiency can instigate night terrors, frequent panic attacks, anxiety and other emotional stress on the patient.

- Wernicke Encephalopathy

This is a condition that impacts the wellbeing of the mind. Vitamin B1 deficiency is known to cause memory loss, mental disorders and frequent mood swings in patients. In some cases, the deficiency affects the gastrointestinal system of the patient, making them susceptible to other gastro-diseases and IBD ailments.

Daily requirements

Similar to all other vitamins and nutrients, vitamin B1 too should be had in specific quantities that depend on the age and gender of an individual. The below list illustrates the daily recommended levels of B12 consumption across people of all ages and genders.

According to the recommended dietary allowances (RDA), vitamin B12 should be had in the following dosage:

Age	Male	Female	Pregnancy
0 to 6 months	0.4 mcg	0.4 mcg	
7 to12 months*	0.5 mcg	0.5 mcg	
1 to 3 years	0.9 mcg	0.9 mcg	
4 to 8 years	1.2 mcg	1.2 mcg	
9 to13 years	1.8 mcg	1.8 mcg	
14+ years	2.4 mcg	2.4 mcg	2.6 mcg

Treatment for vitamin B1 deficiency

The only known treatment for Thiamine or vitamin B1 deficiency comes from changes in dietary intake and thiamine supplements. While it becomes imperative for one to indulge in a high-thiamine rich diet, the

deficiency can also be cured by administering supplements. In most cases, doctors suggest a combination of the two treatments. The supplements can be administered both orally and by injecting it into the patient's body. Patients suffering from thiamine deficiency should be monitored for a long duration of time as there is always a risk of dipping below the required levels.

Diseases caused due to Vitamin B1 deficiency

The common symptoms of thiamine deficiency are fatigue, frantic mood swings, loss of memory, insomnia, anorexia, anxiety, abdominal discomfort and frequent irritability. If the condition is left untreated for prolonged periods of time, thiamine deficiency can result in diseases such as:

Dry Beriberi:

Prolonged periods of thiamine deficiency can lead to Dry beriberi, a condition which causes a neurologic deficit. The condition occurs in a systematic pattern, affecting the lower part of the body first. The symptoms could begin with a burning, numbing or an itching feeling in the toes (particularly at night), followed by muscle cramps and tenderness moving from the lower body to the upper body. This condition is also called **Paraesthesia**.

Wernicke-Korsakoff syndrome:

Wernicke-Korsakoff syndrome is a disease that predominantly affects alcoholics who do not consume the required levels of thiamine. This

condition impairs consciousness; and if left untreated can result in serious problems such as coma and death.

Cardiovascular (wet) beriberi:

Cardiovascular (wet) beriberi is a disease that leads to high pulse pressure, excessive sweating, and wet skin. If left untreated, this condition can result in serious problems such as heart failure and sudden shock.

Infantile beriberi

Infantile beriberi is a type of beriberi disease that affects infants as young as 3 to 4 weeks old. These children are prone to catch the disease from their mothers who might be thiamine deficient. If left untreated, this too can result in heart failure and sudden shock.

Note: Considering Thiamine is responsible for glucose metabolism, administering glucose infusions can worsen the symptoms of thiamine deficiency in patients.

Vitamin B1 deficiency and Gastric bypass

Experts believe that patients who have undergone bariatric surgery suffer from an increased risk of thiamine deficiency. These risks include:

- Patients who have undergone a bariatric surgery are prone to prolonged bouts of vomiting for some time after the surgery. This can lead to a decrease in appetite, eventually causing the body to become thiamine deficient.
- Bariatric patients are stringently monitored on their energy intake. Therefore, if not administered with a multi-vitamin to counteract

the lack of nutrition, patients could become susceptible to the deficiency.

Vitamin B1 deficiency and alcoholism

Alcohol dependency can have a detrimental impact on the health of a person. One such impact makes them susceptible to thiamine deficiency. Continuous alcohol dependency can damage the liver and cardiovascular tissues of a person, making it difficult for him to absorb the required levels of nutrition. According to the National Institute on Alcohol Abuse and Alcoholism, 80% of alcoholics end up with thiamine deficiency. What's more, results have also revealed that prolonged periods of thiamine deficiency can result in alcohol-induced brain damage.

Vitamin B1 deficiency and Parkinson

Studies reveal that there is a connection between vitamin B1 deficiency and Parkinson disease. Experts studied that patients with low levels of thiamine in their serum showed a higher risk of catching the disease as opposed to people with normal or elevated levels of the vitamin. In fact, thiamine supplementation is one of the earliest treatments administered to a patient suffering from the initial symptoms of Parkinson is disease. The vitamin is known to rebuild the neurodegeneration disease during its initial and early phase.

Vitamin B2 (Riboflavin)

Vitamin B2, also known as Riboflavin gets its name from the Latin word '*Flavin*' which refers to the yellow color of the vitamin. This vitamin is

easily the most distributed vitamin in the body. Consuming the required levels of vitamin B2 or Riboflavin can:

- Provide for better conversion of food or carbohydrates into glucose. This automatically provides for higher metabolism and energy levels in the body.
- Help neutralize free radicals that cause detrimental damage to cells and DNA. It is also known to slow down the ageing process while protecting the body from a number of health related problems such as heart failure and certain types of cancer.
- Aid in the conversion of vitamins such as B6 and B9 into energy giving forms.
- Increase the metabolism of iron
- Promote the vitality of red blood cells, skin and mucous membranes
- Improve vision
- Help maintain the neural functionality of the body

Foods high in Vitamin B2

In order to enjoy a healthy body and mind, it is important you consume a diet that is rich in Vitamin B1 or Riboflavin. Here is a list of foods rich in this vitamin.

Sources of Vitamin B2 or Riboflavin	Thiamine in 100 grams of serving
Cheese	1.38mg (81% DV)
Almonds	1.10mg (60% DV)
Lean beef and lamb	0.86mg (51% DV)
Oily fish	0.58mg (34% DV)
Boiled egg	0.51mg (30% DV)
Pork	0.51mg (30% DV)
Mushrooms	0.49mg (29% DV)
Sesame seeds	0.47mg (27% DV)
Sea food	0.46mg (27% DV
Greens	0.24mg (14% DV)

Daily recommendations

The Dietary Reference Intake (DRI) or required levels of daily consumption for Vitamin B2 (Riboflavin) is as follows:

Age	Male	Female	Pregnancy
0 to 6 months	0.3 mcg	0.2 mcg	
7 to12 months*	0.4 mcg	0.3 mcg	
1 to 3 years	0.5 mcg	0.5 mcg	
4 to 8 years	0.6 mcg	0.6 mcg	
9 to13 years	0.9 mcg	0.9 mcg	
14+ years	1.1 mcg	1.1mcg	1.4 mcg

Causes and symptoms of vitamin B2 deficiency

As discussed earlier, vitamin B2 is essential for metabolic and cellular growth in the body. Therefore, a deficiency in vitamin B2 can impact the entire cellular development in the body. It can affect the metabolic rate of the body, in the end making it difficult for the body to convert carbohydrates into essential energy giving fuels.

While the causes can range from malnutrition, lack of vitamin B2 enriched foods, and ailments that prevent the absorption of the nutrient; the symptoms are relatively easier to detect. The distinct yellow colour of the vitamin makes it easy to detect in urine excretion; alarming a person of a potential vitamin B2 deficiency quite early into the condition. Some of the symptoms include:

- Red eyes
- Sore tongue and chapped lips
- Dry and painful throat indicating there could be an infection
- Visual sensitivity to bright light
- Itching and irritable eyes
- Dry eyes

Treatment for vitamin B2 deficiency

In most cases, vitamin B2 or Riboflavin deficiency is always accompanied with other vitamin B deficiencies. Therefore, it is important you visit your doctor the moment you notice any of the symptoms mentioned before. Typically, doctors and diagnostics measure the levels of riboflavin in your urine to undermine if it is within the required range or not.

In most cases, doctors administer riboflavin supplements in dosages of 2 to 10 mg to be had over the course of a day. For patients suffering from specific conditions that make it difficult for their body to absorb the vitamin orally, riboflavin injections can be administered.

Note: While these are general guidelines prescribed by doctors worldwide, it is imperative you visit the doctor and follow as advised only.

Skin related symptoms due to vitamin B2 deficiency

Like most vitamins, vitamin B2 too promotes and helps in maintaining healthy skin. Riboflavin is known to clear the condition of **rosacea** by improving the secretion levels of mucus in the skin. In addition to this, it is known to prevent the occurrence of **dermatitis and eczema.**

Therefore, a deficiency in the vitamin can immediately show up in the form of various skin problems. Some of the skin conditions caused due to vitamin B2 deficiency include:

- Dry and cracked skin
- Scaly and thin skin
- Oily skin (depending on the levels of mucus secretion)
- Split nails
- Flaky of skin
- Itching and irritable skin caused due to excessive dryness
- Acne and skin blemishes caused due to excessive oil secretion

Vitamin B2 deficiency and dizziness

How many times have you woken up feeling faint and dizzy?

Well, we are guessing it is quite often!

Dizziness is a condition of feeling faint and unbalanced. This condition can occur due to a number of reasons ranging from tiredness, vertigo and in some cases vitamin B2 deficiency.

Patients suffering vitamin B2 deficiency often complain of feeling dizzy and disoriented. This is usually accompanied with prolonged migraines and tiredness. It has been proved that administering vitamin B2 supplements to such patients has in fact helped restore their vitamin deficiency while stabilizing any problems they might have had with orientation.

Vitamin B2 deficiency and dental health

Vitamin B2 deficiency causes a condition called **ariboflavinosis**; that primarily shows up with cracks and sores on the corner of the mouth and lips. Other symptoms of the mouth include:

- Red and swollen mouth and lips
- Severely cracked lips, also known as **cheliosis.**
- Swelling and cracks on the corners of the mouth, also known as **angular stomatitis**
- Inflammation around the sides of the tongue

Diseases caused due to vitamin B2 deficiency

Vitamin B2 deficiency can impact a person's health in a number of ways. Prolonged and severe conditions of the deficiency can impact the overall metabolism and cellular development of the body. Some of the diseases it is directly responsible for are:

- Cheilosis (chapping of the lips)
- Angular Stomatitis (cracking in the corners of the lips)
- Photophobia (sensitivity to light)
- Dry itchy eyes
- Depression
- Anxiety
- Memory loss
- Neuropathy
- Fatigue

Vitamin B2 deficiency and reading problems

We have already discussed the impact of vitamins have on mental health and wellbeing. Vitamin B2 in particular, is responsible for essential cognitive functionalities such as reading, remembering and learning.

Most people suffering from prolonged deficiency of vitamin B2 complain of memory loss, moodiness, lack of alertness, and confusion. In some cases, they also complain about a lack of hand and mind coordination. Luckily though, administering supplement treatments of vitamin B2 show speedy signs of recovery.

Vitamin B3 (Niacin)

Vitamin B3, also called Niacin is responsible for the overall wellbeing of the body. In fact, studies reveal that maintaining higher levels of niacin can help regulate cholesterol levels in the body while reducing risks from cardiovascular diseases.

Foods high in Vitamin B3

There are several foods that are rich in niacin content. Some of them include:

Sources of Vitamin B3 or Niacin	Niacin in 100 grams of serving
Fish	22.1mg (110% DV
Chicken	14.8mg (74% DV
Peanuts	13.8mg (69% DV)
Mushrooms	6.3mg (31% DV)
Green Peas	2.1mg (10% DV)
Avocado	1.7mg (9% DV)

Daily requirements

The Daily requirements of Niacin are as follows:

Age	Male	Female	Pregnancy
0 to 6 months	2.0mcg	2.0 mcg	
7 to12 months*	4.0 mcg	4.0 mcg	
1 to 3 years	6.0 mcg	6.0 mcg	
4 to 8 years	9.0 mcg	9.0 mcg	
9 to13 years	12.0 mcg	12.0mcg	
14+ years	16.0 mcg	16.0mcg	18 mcg

Signs and symptoms of vitamin B3 deficiency

The symptoms of vitamin B3 deficiency can range from mild to severe. Some of the early and milder signs of vitamin B3 deficiency include:

- Indigestion
- Fatigue
- Canker sores
- Vomiting
- Depression

However, if the deficiency is left untreated for a prolonged duration of time, it can lead to a condition called **Pellagra.** This condition affects the skin, digestive and nervous system of the body with symptoms such as:

- Thick and scale like rashes on the skin when exposed to the sun
- Inflamed and red mouth
- Frequent vomiting and Diarrhea

- Migraines
- Tiredness
- Mood swings
- Depression
- Lack of orientation and dizziness
- Acute memory loss

Note: This is a fairly serious disease. Lack of treatment and proper care can eventually lead to death.

Causes of vitamin B3 deficiency

The most common cause of this deficiency points to poor health and malnutrition. In most cases, patients with poor nutrition and improper dietary intake are likely to suffer from the deficiency. In addition to this, patients with medical problems that adversely impact absorption of nutrients can eventually suffer from the deficiency. Other causes include:

- Alcoholism
- Tuberculosis
- Drug addiction

Treatment for vitamin B3 deficiency

As seen before, the recommended dosage of niacin amounts to 16 mcg per day. Therefore it is important you eat foods that are rick in niacin content. In addition to this, doctors prescribe the administration of niacin supplements such as **nicotinic acid or nicotinamide** for speedy recovery.

Note: While these are some of the generic guidelines prescribed by doctors worldwide, it is always suggested you visit a doctor and follow up as advised.

Diseases caused due to vitamin B3 deficiency

Pellagra is one of the most serious diseases caused due to niacin deficiency. In addition to Pellagra, other diseases include:

- Memory loss
- Diarrhea
- Insomnia
- Skin blemishes and conditions
- Anemia

Signs and symptoms of vitamin B3 deficiency

Vitamin B3 deficiency and depression

As mentioned earlier, niacin deficiency can cause problems of depression in patients. As the deficiency causes bouts of mood swings, memory loss, and confusion; it tends to impact the overall morale and confidence of a person. The fact that they have little or no control over their mind and its mood swings makes them vulnerable to depression and low esteem.

Vitamin B3 deficiency and dental health

One of the earliest signs of niacin deficiency shows up in and around the mouth and tongue region. Patients suffering from this deficiency are often affected with cracks and sore boils on their tongue, making it difficult for them swallow or consume food.

Vitamin B3 deficiency and hair loss

Skin and hair care go hand in hand and so does their health. Niacin deficiency can cause a number of hair related problems such as dandruff, hair loss, residing hairline, baldness and premature greying.

Vitamin B5 (Pantothenic Acid)

Vitamin B5, also called pantothenic acid aids in converting foods such as carbohydrate into energy giving fuel such as glucose. In addition to this, they play a pivotal role in the development and creation of red blood cells. What's more, they help regulate hormones, aid healthy digestion, reduce stress levels and synthesise cholesterol.

Foods rich in vitamin B5

Pantothenic acid is available in a number of food sources such as meat, vegetables and whole grains. Some of the foods rich in Pantothenic acid or vitamin B5 include:

Sources of Vitamin B5 or Pantothenic acid	Pantothenic acid in 100 grams of serving
Mushrooms	3.59mg (36% DV)
Cheese	3.35mg (34% DV)
Eggs	1.53mg (15% DV)
Lean meat	1.65mg (17% DV)
Sweet Potato	0.88mg (9% DV)

Daily requirements

The daily requirements of Pantothenic acid are as follows:

Age	Male	Female	Pregnancy
0 to 6 months	1.7 mcg	1.7 mcg	
7 to12 months*	1.8 mcg	1.8 mcg	
1 to 3 years	2 .0 mcg	2 .0 mcg	
4 to 8 years	3.0 mcg	3.0 mcg	
9 to13 years	4.0 mcg	4.0mcg	
14+ years	5.0 mcg	5.0mcg	7.0 mcg

Signs and symptoms of vitamin B5 deficiency

Considering this vitamin is made inside the body by a type of bacteria that resides inside the small intestine, people seldom suffer from a deficiency of it. However, people who suffer from acute malnutrition and mal-absorption might find themselves prone to this type of deficiency. Some if its early signs and symptoms are:

- A burning feeling in the hands and feet
- Poor mind and body coordination. Lack of balanced orientation
- Muscle tenderness and numbness: The fact that the vitamin aids acetylcholine synthesis, a process that aids muscle contractions and functioning infers its deficiency causes muscle tenderness, pain and numbness
- Fatigue and prolonged tiredness: The vitamin also helps the body produce the energy it requires, therefore its deficiency immediately

affects the energy of the individual; resulting in them feeling tired and weak.

- Low sugar levels: Vitamin B5 regulates the sugar levels in the body. Therefore, its deficiency causes an imbalance in sugar metabolism; resulting in a condition that decreases sugar levels called **Hypoglycaemia.** In addition to this, patients suffer from insomnia, restlessness and mood swings.

Causes of vitamin B5 deficiency

As mentioned earlier, it is very rare for people to suffer from this deficiency as your body is constantly making the vitamin by itself. However, people who suffer from malnutrition might not be able to produce this vitamin by themselves due to their poor health and problems of mal-absorption. When a body is unable to produce and store the requirement nutrients, it tends to result in a deficiency of it. Some of the causes for vitamin B5 deficiency are:

- Malnutrition
- Mal-absorption
- Health conditions that impair the process of producing the vitamin
- Alcoholism
- Complications during pregnancy
- Anxiety or high levels of stress

Treatment for vitamin B5 deficiency

The fact that the vitamin is available in plenty from fresh fruits and vegetables infers that it can be easily administered into the body. Consuming a diet that is rich in pantothenic acid will help restore the required levels of the vitamin inside your body. However for patients who cannot store or produce the vitamin, doctors prescribe an oral dose of the vitamin in the form of **calcium pantothenate**. This compound is then is converted into pantothenic acid inside the body.

Diseases caused due to vitamin B5 deficiency

Vitamin B5 deficiency can cause a number of conditions ranging from:

- Fatigue
- Increased cholesterol
- Burning and pain in hands and feet
- Vomiting sensation
- Lack of appetite
- Indigestion
- Intestinal problems
- Hair loss
- High palpitations
- Premature greying
- Weakened immune system
- Celiac disease or intolerance to gluten

Symptoms of vitamin B5 deficiency in adults

In addition to the symptoms mentioned before, vitamin B5 deficiency can cause severe tiredness and acne related problems in patients suffering from it. This section addresses two conditions in particular.

Vitamin B5 deficiency and adrenal fatigue

Adrenal fatigue or Hypoadrenia is one symptom of vitamin B5 deficiency that doctors seldom take notice of as a persistent problem. This condition leads to a series of symptoms in which the patient feels a sense of extreme tiredness and uneasiness at all times. The fact that the problem stays persistent unless specifically treated infers that a patient can suffer from the condition for years without knowing it as adrenal fatigue. As this condition worsens, patients can suffer from respiratory infections, allergies, migraines, sinus, and asthma. In addition to this, the condition can actually instigate the onset of diabetes and auto-immune disorders such as Crohn's disease.

Vitamin B5 deficiency and acne

Patients suffering from vitamin B5 deficiency often complain of skin disorders and ailments; acne being the most common one. Considering vitamin B5 aids healthy skin and fights bacteria causing acne, it makes sense to accept that its deficiency does exactly the opposite.

Vitamin B6 or Pyridoxine

Vitamin B6 or Pyridoxine plays a vital role in making several neurotransmitters that help in transmitting signals to the various nerve cells in the body. This vitamin is essential for brain health and development. It is also responsible for generating hormones such as serotonin and norepinephrine which in turn aids mental stability.

Foods high in Vitamin B6

Vitamin B5 is found plenty in fruits, vegetables, whole grains and meat. Some of their sources include:

Sources of Vitamin B6 or Pyridoxine	Pyridoxine in 100 grams of serving
Sunflower seeds	1.35mg (67% DV)
Pistachio nuts	1.12mg (56% DV)
Fish and sea food	1.04mg (52% DV)
Lean meat	0.81mg (40% DV)
Plantains	0.37mg (18% DV)

Daily requirements

The daily requirements of Pyridoxine are as follows:

Age	Male	Female	Pregnancy
0 to 6 months	0.1 mcg	0.1 mcg	
7 to12 months*	0.3 mcg	0.3 mcg	
1 to 3 years	0.5 mcg	0.5 mcg	
4 to 8 years	3.0 mcg	0.6 mcg	
9 to13 years	1.3 mcg	1.3 mcg	
14+ years	1.5 mcg	1.5 mcg	1.9 mcg

Signs and symptoms of vitamin B6 deficiency

Vitamin B6 Deficiency triggers peripheral neuropathy and in some cases cause pellagra-like syndrome. In addition to this, it has been known to instigate conditions such as **seborrheic dermatitis, glossitis, and cheilosis**. What's more, the deficiency also causes **depression, confusion, EEG abnormalities, and seizures** in adults.

Causes of vitamin B6 deficiency

The main cause for this deficiency is malnutrition and mal-absorption again. Other causes include:

- Ailments that impair the absorption of vital nutrients such as vitamin B6
- Pyridoxine-inactivating drugs that stimulate the onset of the deficiency
- Alcoholism or sudden weight loss
- Vitamin B6 deficiency transferred from mother to child at the time of birth or feeding

Treatment for vitamin B6 deficiency

Considering the deficiency can also be caused by pyridoxine-inactivating drugs; it is imperative that one goes through detailed clinical tests to undermine the root cause. Sometimes, the deficiency might be the result of another impending problem such as an undiagnosed disease or the side effect from a drug. Most common treatments include both oral and injected infusions of the vitamin.

Diseases caused due to vitamin B6 deficiency

Vitamin B6 deficiency causes a number of conditions and diseases such as:

- Neurologic symptoms such as carpel tunnel, a condition that cause numbness in the feet and hands
- Seborrhoeic dermatitis
- Ulceration
- Conjunctivitis

Vitamin B6 deficiency and carpal tunnel syndrome

Recent research reveals that Carpel tunnel, a disease that causes numbness in the feet and hands is in fact triggered by a pinched nerve caused by a deficiency in vitamin B6. Patients suffering from the deficiency tend to be prone to the disease, causing them to lose control and coordination of their hands and feet. Luckily though, most patients

have recovered quickly when administered with vitamin B6 supplements and other treatments.

Vitamin B6 deficiency in elderly

Vitamin B6 deficiency has been a growing concern for elderly people. The deficiency is known to affect the aged; in the process causing them several related and linked diseases.

A most elders are unable to store and retain the vitamin; they become susceptible to conditions such as gastrointestinal disorders, epilepsy and carpel tunnel disease.

Vitamin B6 deficiency and seizures

Epilepsy that is caused due to a deficiency in vitamin B6 triggers seizures in little children as young as a few days old. If left untreated, this condition could start at infancy and continue to trouble the person until their death. The seizure causes sudden restricted muscle immobility, resulting in convulsions and unconsciousness. In case of children, the patient suffers from frequent moments of muscle strain, low body temperature and migraines as a result of suffering from the condition.

Vitamin B6 deficiency during pregnancy

Vitamin B6 or Pyridoxine plays a vital role in making several neurotransmitters that help in transmitting signals to the various nerve cells in the body. In addition to this, it is responsible for generating hormones such as serotonin and norepinephrine that in turn aid mental stability. What's more, it also helps prevent vitamin B6 dependent epilepsy that mostly affects children inside the mother's womb. Therefore, pregnant mothers should make it a point to consume 1.9 mg of vitamin B6 every day. In addition to this, they should consume a dosage of 2.0 mg of the vitamin when feeding their child.

Vitamin B6 deficiency and Anemia

Anemia is a condition that impairs and reduces the haemoglobin levels in your body to below normal. This condition can be temporary or a consequence of eating disorders, chronic disease and Vitamin B6 deficiency. People suffering from this condition find it difficult to carry on daily activities. However, in most cases; administering a dose of vitamin B6 supplements helps them regain their lost strength in quick time.

Vitamin B7 (Biotin)

Vitamin B7 or Biotin is also known by another name; vitamin H. This water soluble vitamin helps the body break down proteins while absorbing the necessary glucose. The fact that the vitamin travels through your bloodstream while excreting any excess through urine infers that your body does not store it as reserve. Therefore, it becomes imperative that you consume the recommended dosage of vitamin on a daily basis.

Foods high in Vitamin B7

Biotin is found in a number of fruits, grains meat and vegetables. Some of them include:

Sources of Vitamin B7 or Biotin	Biotin in 100 grams of serving
Peanuts	1.20mg (67% DV)
Almonds	1.09mg (56% DV)
Sweet Potato	1.8 mg (52% DV)
Oats	0.9mg (40% DV)
Tomatoes	1.2mg (18% DV)

Daily requirements

The daily requirements of Biotin are as follows:

Age	Male	Female	Pregnancy
0-6 months	5 micrograms/day	5 micrograms/day	
7-12 months	6 mcg/day	6 mcg/day	
1-3 years	8 mcg/day	8 mcg/day	
4-8 years	12 mcg/day	12 mcg/day	
9-13 years	20 mcg/day	20 mcg/day	
14-18 years	25 mcg/day	25 mcg/day	30.0 mcg

Causes of vitamin B7 deficiency

Considering that the vitamin is available in plenty of fruits, vegetables, grains and meats; it is very rare for people to suffer from a deficiency of vitamin B7. However, recent research reveals that a few situations can instigate the depletion of the vitamin from your body. They are:

- Consuming a large number of eggs or foods rich in protein over a long duration of time. Egg whites are rich in protein. Excessive intake of protein found in egg white can impair the absorption of biotin in your body.
- Antibiotics and health conditions that deplete the levels of biotin or fail to absorb the required levels of the vitamin in your body.

Treatment for vitamin B7 deficiency

In most cases, biotin deficiency is treated with an oral supplement. However in cases where the patient is suffering from a health condition that impairs the absorption of the vitamin, it is important to clinical test the root cause first.

Diseases caused due to vitamin B7 deficiency

Vitamin B7 deficiency can impact a number of health conditions and complications. Some of them are:

- Seizures
- Hair loss
- Brittle and split nails
- Scaly and dry Skin
- Immune system disorders
- Depression
- Fatigue
- Hallucination
- Anemia

Vitamin B7 deficiency in babies

Biotinidase deficiency is a deficiency in which the body is incapable of retaining and recycling the vitamin B7. This condition is also known by terms such as **BIOT and BTD deficiency**. The fact that individuals require a certain level of biotin to process fats and carbohydrates into energy giving fuels makes it difficult for patients suffering from BIOT to retain energy and process nutrients. They therefore become extremely weak and prone to a number of diseases. In most cases; this deficiency affects new born babies due to a possible inherent and untreated deficiency from the mother. It is therefore important to screen new born infants and young babies for this deficiency as soon as possible. Treating them with a course of biotin supplement can prevent the onset of further complications.

Signs and symptoms of vitamin B7 deficiency

Biotin deficiency can show up in a number of forms and symptoms. Recognizing these signs as early as possible can help address the issue effectively.

Some of the symptoms are:

Hyperesthesia and Paraesthesia

This usually affects children suffering from a biotin deficiency. **Hyperesthesia** causes the sense organs to stimulate at an abnormal rate. **Paraesthesia** is a skin condition that causes the skin to first feel irritable and tingling. This is followed by total numbers in the area.

Keratoconjunctivitis

Biotin deficiency might also cause a condition called **Keratoconjunctivitis**, causing conjunctiva of the eyes. This condition reduces the immunity of the person, making them prone to harmful bacteria and diseases.

Anemia

Biotin deficiency might also result in mild **Anemia,** reducing the levels of haemoglobin and causing it to lose its ability to bind with oxygen. Patients suffering from this condition might feel weak and breathless at all times.

Vitamin B7 deficiency and fungal infection

Dermatitis

This is a condition in which the skin becomes inflamed, irritable, and flaky. Medically known as **Seborrhoeic dermatitis**, patients might suffer from fungal infections on their skin and hair; resulting in bald patches, itchy scalp, fungal growth, blemishes, residing hairline, brittle nails and muscle pain.

Symptoms of vitamin B7 deficiency in women

Women go through several physical and hormonal changes in their body during the course of their lifetime. This makes them susceptible to vitamin depletion and deficiencies. It is therefore important that women of all ages consume a prescribed multi-vitamin supplement while making up for any vitamin loss. Biotin is essential for good hair and healthy skin. Women with low biotin levels can suffer from various skin and hair abnormalities that can ultimately affect their mental health and morale. In addition to this, pregnant and newly delivered mothers should ensure they consume the required levels of the vitamin as they are likely to pass their deficiency to their infant or child.

Vitamin B9 (Folate)

Vitamin B9, also known as **Folate or Folic acid** helps in converting carbohydrates into energy giving fuels. In addition to this, it aids healthy neural and brain function, helps in producing DNA, RNA, red blood cells while regulating the levels of iron in the body.

This wonder vitamin is extremely important for women of all ages. In specific, pregnant and newly delivered mothers must consume a regular dose of the supplement for healthy growth and development of the baby.

Foods high in Vitamin B9

There are a number of foods rich in folic acid. Some of them include:

Sources of Vitamin B9 or (Folate)	(Folate)in 100 grams of serving
Beans	208µg (52% DV)
Cooked Lentils	181µg (45% DV)
Spinach	194µg (49% DV)
Asparagus	149µg (37% DV)
Lettuce	136µg (34% DV)

Daily requirements

The daily requirements of folic acid are as follows:

Age	Male	Female	Pregnancy
0-6 months	65 mcg	65 mcg	
7-12 months	80 mcg	80 mcg	
1-3 years	150 mcg/day	150 mcg/day	
4-8 years	200 mcg/day	200 mcg/day	
9-13 years	300 mcg/day	300 mcg/day	
14-18 years	400 mcg/day	400 mcg/day	600 mcg

Causes for vitamin B9 deficiency

Anemia remains the most common cause for vitamin B9 deficiency. Other causes include:

- Malnutrition
- Mal-absorption
- Complications or undernourishment in pregnancy
- Alcoholism
- Medical conditions that impair vitamin retention. Patients suffering from auto-immune diseases such as celiac and Crohn's are susceptible to this deficiency.

Treatment for vitamin B9 deficiency

The treatment is fairly simple and direct. Its primary aim is to increase the levels of folic acid in your body. Supplements of folic acid can be had on a daily basis in conjunction with foods that are rich in its content.

Diseases caused due to vitamin B9 deficiency

Folic acid is essential for overall health and wellbeing. A deficiency of the vitamin can lead to health problems such as:

- Megaloblastic Anemia, a condition where the red blood cells appear larger than normal, but are not fully developed
- Low white blood cells (white blood cells and platelets)
- Neural tube defects; birth defects affecting the spinal cord and brain in developing fetus.

Vitamin B9 deficiency and genetic mutation

Genetic study has revealed that a gene known as the ***methylenetetrahydrofolate reductase*** **(MTHFR)** is defective in most people. This gene is ideally supposed to produce the MTHFR *enzyme* while working with the Folate vitamins (B9, folic acid) such that they break them down break into MTHFR enzymes. The MTHFR enzymes in turn help in converting amino acids into proteins that assist in liver functionality.

In addition to this, MTHFR also activates folic acid by adding a methyl group to the compound. This activated Folate goes through a process called methylation in which it transfers its methyl group to other nutrients; aiding the creation and functionality of neurotransmitters and immune cells.

People suffering from this genetic disorder can be impacted by the slightest levels of folic acid. The defect in the gene prevents their body from using the body, inferring that it is largely accumulated and wasted. Therefore, people suffering from this condition should avoid consuming folic acids either through foods or supplements.

Signs and symptoms of vitamin B9 deficiency

The signs and symptoms of the deficiency are often subtle and go unnoticed for a long time. They include:

- Tiredness
- Premature greying
- Mouth ulcers
- Inflammation around the sides of the tongue
- Stunted growth

Vitamin B9 deficiency and Anemia

Anemia is the most common disease caused due to this deficiency. The early symptoms of this disease include:

- Prolonged tiredness
- Fatigue
- Pale or yellow looking skin
- Sensitive tongue
- Diarrhea

Vitamin B12 (Cobalamin)

Vitamin B12, also called Cobalamin, helps in converting carbohydrates into energy, and body fat into protein. Cobalamin is essential for health skin, hair growth, liver functionality and healthy eyesight. In addition to this, the vitamin aids in developing healthy new cells while regulating levels of iron with folic acid to produce **adenosylmethionine (SAMe),** a compound that aids immune functionality and metal health. What's more, it also helps in the production of DNA and RNA material that define the core structure of your body.

Foods high in Vitamin B12

There are a number of foods rich in Cobalamin content. Some of them include:

Sources of Vitamin B12 or Cobalamin	Cobalamin in 100 grams of serving
Shell fish	98.9µg (1648% DV)
Fish	19.0µg (317% DV)
Cereal	20.0µg (333% DV)
Soya products	2.4µg (40% DV)
Eggs	2.0µg (33% DV)

Daily requirements

The daily requirements of Cobalamin are as follows:

Age	Male	Female	Pregnancy
0-6 months	0.4 mcg	0.4 mcg	
7-12 months	0.5 mcg	0.5 mcg	
1-3 years	0.9 mcg/day	0.9 mcg/day	
4-8 years	1.2 mcg/day	1.2 mcg/day	
9-13 years	1.8 mcg/day	1.8 mcg/day	
14-18 years	2.4 mcg/day	2.4 mcg/day	2.6 mcg

Causes of vitamin B12 deficiency

There are several causes that impact vitamin B12 deficiency. Some of them are:

- Improper dietary intake
- Mal-absorption
- Diseases that impair absorption of vitamins and nutrients
- Removal of portions in the small bowel through surgeries. Such patients' cannot absorb Cobalamin on their own and hence need the external assistance of supplements and injections.
- Bacterial overgrowth
- MTHFR deficiency
- Alcoholism
- Drug abuse

Treatment for vitamin B12 deficiency

Treatment can be provided in the form of

- Oral supplements
- Intramuscular injections

Vitamin B12 deficiency in the elderly

Most elderly people find it difficult to absorb the protein-bound vitamin, resulting in its deficiency. The decrease in vitamin B12 results in **atrophic gastritis** which in turn can cause bacterial growth in the small intestine if not treated timely.

Signs and symptoms of vitamin B12 deficiency

The deficiency leads to a number of symptoms such as:

Vitamin B12 deficiency and dementia

Vitamin B12 aids memory formation and forms a protective layer around the brain cells. This is one of the primary reasons why elders are always suggested to take vitamin B12 supplements.

Low levels of vitamin B12 can lead to memory loss and cognitive decline in the aged. This deficiency, if left untreated for a prolonged period can lead to the shrinkage of the brain, causing problems such as dementia.

Vitamin B12 deficiency and Anemia

Vitamin B12 deficiency also reduces the levels of haemoglobin in the body; subjecting the person to Anemia. The patient then becomes frail and weak with very low energy levels at all times.

Vitamin B12 deficiency and depression

This vitamin is known to affect the mental health of the patient; making them susceptible to frequent mood swings, memory loss, anxiety and depression.

Vitamin B12 deficiency and hair loss

Hair loss is also one of the concerns patients face while suffering from this deficiency. Patients suffer from residing hairlines, bald patches when suffering from a vitamin B12 deficiency.

Vitamin B12 deficiency and neurological conditions

Vitamin B-12 deficiency can lead to a number of health manifestations. Considering the vitamin affects the brain functionality the most, let us look at some of the neurological problems it causes:

1. Dementia
2. Depression or anxiety
3. Acute psychosis
4. Schizophreniform
5. Cerebrovascular disease

Symptoms of vitamin B12 deficiency in women

Studies reveal that women are more prone to vitamin B12 deficiency than men. Some of the symptoms include:

- Anemia where patients complain of tiredness, breathlessness, high palpitations and lack of appetite
- Stomach or gut problems where a portion of the small intestine has been surgically removed. In addition to this, patients suffering with auto-immune diseases such as IBD and Crohn's suffer from a greater risk.

Chapter 3

Outlining the importance of Vitamin C (Ascorbic Acid)

Vitamin C is a water-soluble vitamin that maintains the growth and repair of all tissues present in your body. In addition to this, the vitamin helps in making collagen; an essential protein that creates skin, tendons, ligaments and blood vessels. What's more, it also helps heal wounds, maintain dental health and acts as an antioxidant; repairing the damage caused due to free radicals.

Foods high in Vitamin C

There are plenty of fruits, vegetables, grains and meat that are rich in vitamin C content. Some of them include:

Sources of Vitamin C or Ascorbic Acid	Ascorbic Acid in 100 grams of serving
Bell peppers	183.5mg (306% DV)
Guava	228.3mg (381% DV)
Green leafy vegetables	120mg (200% DV)
Broccoli	89.2mg (149% DV)
Berries	58.8mg (98% DV)

Daily requirements

The daily requirements of vitamin C are as follows:

Age	Male	Female	Pregnancy
0-6 months	40 mcg	0.4 mcg	
7-12 months	50 mcg	0.5 mcg	
1-3 years	15 mcg/day	0.9 mcg/day	
4-8 years	25 mcg/day	1.2 mcg/day	
9-13 years	45 mcg/day	1.8 mcg/day	
14-18 years	75 mcg/day	2.4 mcg/day	
18 years and above	115 mcg/day		85 mcg

Signs and symptoms of vitamin C deficiency

Some of the most obvious symptoms of vitamin C deficiency are:

- Fatigue: One of the earliest signs to detect is fatigue and prolonged tiredness.
- Mood swings: People suffering from this deficiency are prone to erratic and irritable mood swings
- Weight loss: Patients might also suffer from loss of appetite and sudden weight loss
- Joint and muscle pain: Chronic pain in the limbs or joints can be a clear indication of the deficiency
- Poor Dental Health: Acute deficiency of vitamin C can cause **scurvy**, a condition that affects the dental health of the patient.
- Poor hair and skin health: Sudden discoloration or change in texture and appearance of skin and hair can indicate a plausible onset of the deficiency.
- Prone to infections: When a patient is deficient of vitamin C, he lacks the good nutrients required to fight bacteria and harmful

foreign bodies, making him susceptible to several other diseases and ailments.

Causes of vitamin C deficiency

Vitamin C can be easily supplied to the body by consuming foods that are rich in it. Consume a good share of fresh and a raw food as cooking reduces the content of the vitamin. In addition to this, it is important you consume it on a daily basis as your body does not store levels of it for future use. Some of the causes of the deficiency include:

- Lack of proper nutrition
- Mal-absorption
- Bottle feeding infants as opposed to breast feeding them
- Alcoholism

Treatment for vitamin C deficiency

The treatment for vitamin C deficiency is quite general. The treatment is usually administered through oral supplements and injections.

Diseases caused due to vitamin C deficiency

Some of the diseases caused due to vitamin C deficiency include:

One of the classic cases of vitamin C deficiency is **Scurvy,** a condition where the patient suffers from:

- Painful ligaments and joints
- Lack of appetite
- Fever
- Bleeding gums
- Loosened teeth
- Bleeding in the eye
- Sicca syndrome (an autoimmune disease that affects the connecting tissues in the body)

Skin related symptoms due to vitamin C deficiency

We have already discussed that the anti-oxidant properties of vitamin C and its role in the synthesis of collagen promote healthy skin. A deficiency of the vitamin causes skin rashes and blemishes all over the body. Red patches and spots appear all over the skin, indicating a person might be deficient.

The symptoms include:

Skin changes range from a number of conditions such as **perifollicular hyperkeratotic papules, perifollicular haemorrhages, purpura, and ecchymoses.** The conditions usually visible as skin

rashes and red patches are visible on the skin hands and lower part of the body. If not treated properly, these wounds can leave behind long lasting scars.

Nails become brittle and pale in appearance. The deficiency can also cause them to split; sometimes resulting in splinter haemorrhages.

Signs and symptoms of vitamin C deficiency

Anemia

Deficiencies in vitamin C along with Vitamin B12 and iron can cause Anemia in individuals. Vitamin C deficiency impairs the levels of haemoglobin in your body, reducing to levels below the normal range. If left untreated for prolonged periods of time, this deficiency can lead to the onset of Anemia. Some of its early symptoms include:

- Extreme tiredness
- Pale and yellow looking skin and eyes
- Lack of strength and appetite
- Shortness of breath
- High pulse rate and palpitations
- Prone to frequent infections
- Migraines
- Disorientation

Vitamin C deficiency and chronic hives

Chronic hives is a skin condition that causes red or white itchy patches. These patches might vary in size and severity and tend to heal and reappear in different places until the condition is permanently cured. Vitamin C and vitamin D deficiencies are known to cause the condition. In some case, patients have recovered well after being administered with vitamin supplements and treatments. Their symptoms include;

- Patches of red or white abrasions all over the skin, causing itching, scaling and burning in the affected areas
- Swelling inside the throat and around the eyes, lips, hands and genitals
- Tendency for the patches and rashes to diminish and reappear in multiple places
- Dizziness
- Shortness of breath

Vitamin C deficiency symptoms in women

Women go through several hormonal and physical changes in their life, risking them to continuous depletion of essential vitamins and nutrients. Therefore it becomes imperative that women of all ages consume foods rich in vitamin C and other nutrients essential for healthy wellbeing.

Vitamin c deficiency in pregnancy

Vitamin C, also known as ascorbic acid plays an important role in repairing tissues, healing wounds and developing strong bones. In addition to this, it helps protect your body from cell damage. When pregnant, mothers require an extra dosage of the vitamin in order to make collagen. Collagen is a structural protein that helps create the building blocks of the fetus; including its cartilage, tendons, bones and skin. It is therefore advised that pregnant women and breast feeding mothers take extra care and consume a daily supplement of the vitamin.

Chapter 4

The importance of vitamin D (Calciferol)

Vitamin D belongs to a group of fat soluble vitamins that aids in the absorption of intestinal nutrients such as calcium, iron, magnesium, phosphate and zinc. Humans predominantly require two components from this group namely; **vitamin D_3 (cholecalciferol**) and **vitamin D_2 (ergocaliferol)**.

Foods high in Vitamin D

Vitamin D can be found in plenty of fruits, grains, vegetables and meat. Some of them include:

Sources of Vitamin D or Calciferol	Calciferol in 100 grams of serving
Cod liver oil	10,000IU (1667% DV)
Fish and sea food	759IU (127% DV)
Mushrooms	446IU (74% DV)
Fortified cereals	333IU (56% DV
Tofu	157IU (26% DV)
Dairy Products	110IU (18% DV)
Lean meat	93IU (16% DV)
Eggs	87IU (15% DV)
Soya	53IU (% DV)

Daily requirements

The daily requirements of vitamin D are as follows:

Age	Male	Female	Pregnancy
0–12 months*	400 IU (10 mcg)	400 IU (10 mcg)	
1–13 years	600 IU (15 mcg)	600 IU (15 mcg)	
14–18 years	600 IU (15 mcg)	600 IU (15 mcg)	
19–50 years	600 IU (15 mcg)	600 IU (15 mcg)	
51–70 years	600 IU (15 mcg)	600 IU (15 mcg)	
70 years	800 IU (20 mcg)	800 IU (20 mcg)	
0–12 months*	400 IU (10 mcg)	400 IU (10 mcg)	600 IU (15 mcg)

Conditions caused due to vitamin D deficiency

While the only sure way of telling if you suffer from a vitamin D deficiency is through a blood diagnosis testing your D1 levels; there are a few symptoms that point out as indicators to a plausible deficient condition. Some of the symptoms include:

Darker skin

People with darker skin need up to 10 times the sun exposure of their lighter counterparts. Experts believe that the pigment on your skin is what ideally protects it from conditions such as skin cancer. However, people with darker skin must also spend more time in the sun so as to substantiate it with adequate amounts of vitamin D.

Mood swings

Vitamin D deficiency causes mood swings and irritability. Serotonin, the brain hormone responsible for bright and cheerful moods is known to increase when your body is exposed to bright sun light. However, people suffering from vitamin D deficiency lack sun exposure and hence restrict the growth of the hormone; resulting in low moods.

Weight gain

Overweight and obese people need more vitamin D than slimmer people; causing them to suffer from a plausible deficiency even though they might have the exact levels of a slimmer person.

Aching bones and ligaments

Vitamin D deficiency is known to reduce bone density, causing aching bones and ligaments in the process.

Excessive sweating

People who have a tendency to sweat more might be vitamin D deficient. Now this does not necessarily have to be the case at all times. However,

people who suffer from the above symptoms along with excessive sweating have a higher risk of suffering from the deficiency.

Gastrointestinal problems

Vitamin D is a fat-soluble vitamin. Therefore, when you suffer from gastrointestinal conditions that affect your ability to absorb fat, your body might find it difficult to absorb fat-soluble vitamins like vitamin D; leaving room for a plausible vitamin D deficiency. People suffering from Crohn's disease and celiac disease should therefore monitor their vitamin D levels regularly.

Causes for vitamin D deficiency

Vitamin D gets its main source of vitamin from natural and direct sunlight. People who do not get the required exposure to direct sunlight should consume foods that are rich in the vitamin. Some of the causes for vitamin D deficiency are:

- Lack of exposure to sunlight
- Lack of proper nutrition
- Mal-absorption
- Bottle feeding infants as opposed to breast feeding them
- Alcoholism
- Specific ailments that impair the absorption of vitamins

Treatment for vitamin D deficiency

The treatment for vitamin D deficiency includes oral and injection based supplements. In addition to this, it is recommended you get as much sun exposure as possible. Joining an outdoor sport can help you automatically get the required levels of vitamin D.

Signs and symptoms of vitamin D deficiency

How difficult is it to get some sunshine?

Well apparently, it is a whole lot more difficult than you think it is.

Some people are unable to get the required levels of vitamin D for reasons such as lack of sun exposure, lack of proper diet, lack of vitamin absorption or a disease that restricts and impairs the retention of essential vitamins. If left unnoticed and untreated for a prolonged period of time; this deficiency can lead to conditions such as **rickets** in children and **osteomalacia** in adults. In addition to this, the deficiency results in skeletal diseases, disorders that affect the metabolic rate of your body, certain types of cancer, cardiovascular diseases, infections, cognitive and brain disorders, depression and autoimmune disorders.

Sometimes, correcting the deficiency takes a lot more than popping a pill. There are several people who stay irresponsive to supplements, injections and medical treatments. They need constant monitoring and persistent treatment in order to maintain the required levels of the vitamin. While there are no clear patterns or symptoms of the deficiency; there are a few symptoms that are linked to the conditions the deficiency can instigate. They are:

- Frequent tiredness
- Spasm muscle pain and weakness

- Muscle cramps and joint pain
- A feeling of perennial pain
- Sudden weight gain
- High blood pressure
- Insomnia or restless sleep patterns
- Lack of concentration
- Migraines
- Frequent urination
- Constipation or Diarrhea

In addition to this, some of the serious ailments linked to the deficiency are:

- Osteoporosis and Osteopenia
- Cancer of various types (including breast, prostate and colon)
- Heart disease
- High blood pressure
- Obesity
- Metabolic Syndrome and Diabetes
- Autoimmune diseases
- Multiple sclerosis
- Rheumatoid arthritis
- Osteoarthritis
- Bursitis
- Gout
- Infertility and PMS
- Parkinson's Disease
- Depression and Seasonal Affective Disorder
- Alzheimer's Disease
- Chronic fatigue syndrome

- Fibromyalgia
- Chronic Pain
- Periodontal disease
- Psoriasis

Note: while the deficiency adds to the woes of the problem, it does not singularly cause the condition or ailment.

Vitamin D deficiency and depression

Vitamin D deficiency can affect the psyche and mental health of an individual; leading to problems such as depression, anxiety and low morale

Vitamin D deficiency and anxiety

As mentioned earlier, when a person does not have the required levels of the vitamin, he becomes prone to mental illness and anxiety pangs. Supplements and exposure to direct sunlight can ease some of the stress and anxiety related problems.

Vitamin D deficiency and weight gain

Obesity and vitamin D deficiency are inter-related. An obese person will need high levels of vitamin D for normal body functionality when compared to a slimmer individual. The person might also lose out on an opportunity to sweat while staying exposed to the sun; leading them to become overweight and obese.

Vitamin D deficiency and fatigue

Fatigue is one of the earliest signs of vitamin D deficiency. People suffering from the deficiency complain of feeling perennially fatigued and tired.

Vitamin D deficiency and hair loss

Vitamin D aids healthy skin and hair. Therefore, its deficiency causes just the opposite. People with vitamin D deficiency suffer from hair loss, residing hairlines and bald patches; making it emotionally difficult for them to deal with the problem.

Chapter 5

Outlining the importance of vitamin E

Vitamin E is a fat-dissolvable vitamin that is predominantly found in foods such as vegetable oils, cereals, meat, poultry, eggs, fruits, vegetables, and wheat germ oil. While the deficiency is rare, it is often found in people suffering from autoimmune disorders, genetic disorders and premature birth.

Experts recommend the vitamin as a preventive treatment for cardiovascular conditions such as hardened or blocked arteries, heart attack and chest pain, and high blood pressure. In addition to this, the vitamin is also used to treat certain types of diabetes and helps prevent certain types of cancer such as lung, oral, colorectal, gastric, prostrate and pancreatic cancer. What's more, this highly useful vitamin aids brain and nerve vitality and is used to treat Alzheimer's, dementia, Parkinson, night cramps, epilepsy and insomnia. The vitamin is also used to treat nerve and muscle disorders such as **Huntington's disease.**

Foods high in Vitamin E

There are plenty of foods rich in vitamin E content. Some of them include**:**

Sources of Vitamin E	Vitamin E in 100 grams of serving
Tofu	5.3mg (25% DV)
Spinach	2.1mg (10% DV)
Nuts	26.2mg (127% DV)
Sunflower seeds	36.3mg (176% DV)
Avocado	2.1mg (10% DV)
Fish and sea food	2.8mg (13% DV)
Plant oils	14.4mg (69% DV)
Broccoli	1.5mg (7% DV)
Pumpkin	1.3mg (6% DV

Daily requirements

The daily requirements of vitamin E are as follows:

Age	Males	Females	Pregnancy
0–6 months*	4 mg (6 IU)	4 mg (6 IU)	
7–12 months*	5 mg (7.5 IU)	5 mg (7.5 IU)	
1–3 years	6 mg (9 IU)	6 mg (9 IU)	
4–8 years	7 mg (10.4 IU)	7 mg (10.4 IU)	
9–13 years	11 mg (16.4 IU)	11 mg (16.4 IU)	
14+ years	15 mg (22.4 IU)	15 mg (22.4 IU)	19 mg (22.4 IU)

Signs and symptoms of vitamin E deficiency

The main reason for vitamin E deficiency comes from fat mal-absorption. This in turn causes neurological problems that lead to poor nerve condition. Sometimes low birth weight too can eventually lead to the deficiency at a later point in the person's life.

Symptoms of the deficiency vary for children and adults. Some of the symptoms of vitamin E deficiency found in Infants are:

- An eye disease called **Retrolental fibroplasia** that affects prematurely born infants
- Loss of weight, stunted or delayed growth
- Improper eating habits and malnutrition
- Mal-absorption
- Perennial liver disease, resulting in neurological disorders
- Lack of muscle coordination

- Enhanced sensitivity
- Paralysis
- Muscle rigidity and weakness
- Ptosis, a condition that results in drooping eyelids
- Dysarthria or motor speech disorder

Some of the symptoms of vitamin E deficiency found in adults are:

- Low haemoglobin levels or Anemia
- Neurological disorders
- Reproduction and infertility problems in women
- Delicate and weakened red blood cells
- Freckles or age spots
- Cataracts problems
- Certain neurological damage
- Decrease in sexual drive
- Abnormalities in muscle, brain, liver and bone marrow functionalities
- Gastrointestinal diseases
- Brittle hair and hair loss
- Leg cramps and spasms

Causes of vitamin E deficiency

Sometimes following timely preventive care can help prevent the onset of a deficiency. Vitamin E deficiency is believed to be caused due to the following reasons:

- Premature and low weight at birth: Infants who are born prematurely and weigh lesser than 1500 grams or 3.5 pounds might lack the absorption capabilities to retain essential vitamins. They therefore become prone to vitamin E deficiency.
- Fat metabolic disorders: This is a rare genetic disorder that causes gene mutation. The mutated gene becomes incapable of absorbing vital vitamins required for healthy wellbeing. If left untreated, such patients are also prone to vitamin E deficiency and neurologic disorders at a later point in time.
- Fat mal-absorption: Ultimately, all the above causes lead to the mal-absorption of vitamins. However there are some medical conditions that impair nutrient absorption even in its initial days. They are
  - Cystic fibrosis
  - Crohn's disease
  - Liver disorders
  - Pancreatic disorders
  - Intestinal Bowel Disorders

Treatment for vitamin E deficiency

The treatment for vitamin E deficiency is common to other vitamin deficiency and involves oral and injectable supplements.

Vitamin E deficiency in infants

Vitamin E plays an important role in an infant's health. The vitamin boosts the immune system and helps it fight against bacteria and harmful foreign bodies. It also helps in developing blood cells such that they are wide enough to allow uniform distribution of blood to the body. Lastly, it aids convention and absorption of essential vitamins nutrients required for super health and vitality.

Vitamin E deficiency disorder in premature infants

Children who are born premature and with low birth weight inherently become susceptible to this type of deficiency; leaving them open to the various problems and symptoms listed under this deficiency. However, identifying the signs and warning signals early on in the deficiency can treat it effectively. Children suffering from the symptoms listed above should be taken to a paediatrician for consultation. Regular blood tests should be conducted to diagnose and treat any deficiency they might suffer from.

Vitamin E deficiency and Anemia

A deficiency in vitamin E infers that the body is unable to absorb the required vitamins and nutrients it needs. This can result in decreased levels of haemoglobin and body weakness. Patients suffering from vitamin E deficiency are often prone to Anemia. They therefore have to keep a constant check on their levels and consume supplements to balance any deficiency they might suffer from.

Vitamin E deficiency symptoms in women

Considering a women goes through several physical and hormonal changes in her lifetime, she becomes inherently prone to a list of deficiencies. It is therefore important that women in all age groups consume vitamin E supplements to overcome and prevent the onset of a deficiency**.**

Diseases caused due to vitamin E deficiency

While there are several symptoms and problems related to vitamin E deficiency, there most common diseases include:

- Ataxia; a condition that incapacitates your body to absorb and retain vitamins and nutrients
- Fat mal-absorption
- Anemia
- Neurological disorders
- Retrolental fibroplasia
- Liver disorders
- Dysarthria or motor speech disorder
- Gastrointestinal disorders and Intestinal bowel disorders

Chapter 6

Outlining the importance of Vitamin K

Vitamin K is an essential vitamin that helps heal blood clots while preventing excessive bleeding. In it true form, the vitamin belongs to a group of compounds; the most important compounds categorized as vitamin k1 and vitamin k2 respectively. While vitamin k1 is found in leafy vegetables and greens, vitamin k2 can be procured from meats, cheese, and eggs.

In recent times, experts in the field of medicine have propagated the use of vitamin k2 to treat osteoporosis and steroid-induced bone loss. However, this theory has not been accepted by all and is currently being debated upon.

Studies reveal that low levels of the vitamin increase the risk on excessive and uncontrollable bleeding. Although this deficiency is rare in grown-ups, it is quite common in new born babies. It is for this reason that doctors always administer a single shot of vitamin K as a standard and precautionary prerequisite. Other than new born infants, vitamin K deficiency is more likely to affect:

- People suffering from autoimmune disorders and mal-absorptive digestive tracks such as Crohn's disease or Celiac disease
- People who are on drugs that prevent vitamin K absorption
- People who are malnourished
- Chronic Alcoholics

Foods high in Vitamin K

There are plenty of foods that are rich in vitamin K. Some of them are:

Sources of Vitamin K	Vitamin K in 100 grams of serving
Dried herbs	1714.5µg (2143% DV)
Green and leafy vegetables	817µg (1021% DV)
Salad vegetables such as celery and spring onions	207µg (259% DV)
Cooked sprouts	140.3µg (175% DV)
Spicy herbs	105.7µg (132% DV)
Asparagus	50.6µg (63% DV)
Cucumber and carrots	76.7µg (96% DV)
Soya beans	70.6µg (88% DV)
Olive Oil	60.2µg (11% DV)

Daily requirements

The daily requirements of vitamin K are as follows:

Age	Males	Females	Pregnancy
0–6 months*	2 mcg	2 mcg	
7–12 months*	2.5 mcg	2.5 mcg	
1–3 years	30.0 mcg	30.0 mcg	
4–8 years	55.0 mcg	55.0 mcg	
9–13 years	60.0 mcg	60.0 mcg	
14+ years	75.0 mcg	90.0 mcg	115.0 mcg

Signs and symptoms of vitamin K deficiency

One seldom hears of patients suffering from vitamin K deficiency. The vitamin is available in several leafy green vegetables and is also made by your body on its own. Yes, bacteria residing in your intestines make the vitamin on their own. So, like we said; suffering from vitamin K deficiency is very rare. Nonetheless, it is important to take the precautionary actions to stay clear of any deficiencies.

Experts suggest we stay clear of antibiotics whenever possible as a preventive and precautionary care for vitamin K deficiency. Some of the antibiotics we consume are harsh enough to destroy the bacteria that make the vitamin in the place. So if you end up slipping on your diet and have been popping pills after pills to flush down a nasty cold; within no time your body would have exhausted all its reserves of vitamin K. This section highlights some of the symptoms that show up with the deficiency:

- Conditions that lead to excessive blood clotting or bleeding. This could include excessive bleeding within or inside the digestive tract, gums, heavy menstrual bleeding, or haemorrhaging.
- Tendency to bruise or bleed easily
- Calcification of cartilage.
- Uncontrollable bleeding when operated upon
- Bleeding in the brain; usually occurring in new infants

Causes for vitamin K deficiency

The deficiency can affect people:

- suffering from autoimmune disorders and mal-absorptive digestive tracks such as Crohn's disease or Celiac disease
- suffering from Drug abuse
- on prescription drugs that impair the absorption of vitamin when had over a long period of time
- who are malnourished
- who are chronic Alcoholics

Treatment for Vitamin K deficiency

The treatment for the deficiency includes injecting vitamin K supplements into the body.

Vitamin K deficiency bleeding

Vitamin K deficiency bleeding, also called **VKDB** is the common word used to describe a haemorrhagic disease. The disease is caused due to a deficiency that results in blood clots and excessive bleeding. Recent study has attributed this painful and life threatening disease to vitamin K deficiency. What is most unfortunate is that the disease is known to affect a majority of new born infants; a condition that is referred to as **HDN.**

Vitamin k deficiency bleeding in new born

Well, by now; you must know that vitamin K is essential for controlling blood clots and preventing excessive bleeding. This vitamin is present in some plants and is synthesised by the human intestine with the help of certain bacteria. Since almost all new born infants are born with a vitamin K deficiency, they become susceptible to the VKDB disease right from the time of birth.

Studies reveal that the earliest onset of the disease occurred within 24 hours of the child's birth. The latest being two to twelve weeks after birth. However in most cases; infants are likely to catch the deadly disease within a week after birth. . It has therefore become mandatory to administer a shot of vitamin K supplement soon after the infant is born; within the first hour or so.

High risk factors

- Infants who are entirely breast fed suffer from a high risk of developing the disease. This is so because breast milk contains very low levels of vitamin K. In addition to this it prevents the growth of bacteria that synthesis vitamin K in the gut or intestines of the child; leaving the infant with almost no levels of vitamin K content in its body.
- Mothers or pregnant women who have consumed drugs such as isoniazid, rifampicin, anticoagulants and anticonvulsant agents involuntarily end up putting the child at risk of developing VKDB.
- Tropical environments predispose babies to developing the disease later on in life.

- Certain liver disorders such as alpha-1-antitrypsin deficiency can increases the risk of developing the disease
- Conditions such as mal-absorption from birth or due to Diarrhea cam increase the risks. Coeliac and cystic fibrosis too influence the chances of attracting the disease.

Vitamin K deficiency in infants

Vitamin K Deficiency Bleeding (VKDB), also known as the Haemorrhagic disease attacks new-borns that are as young as a day's old. This disease causes excessive bleeding and blood clots in the infant. The staggering low levels of vitamin K in new infants put them at a high risk of developing the disease. In addition to this, infants who have been only breast fed end up with very little or no vitamin K content in their body. Breast milk contains very low levels of vitamin K and is almost negligible in number. What's more, infants who are only breast-fed lack the bacteria required to synthesis vitamin K on their own; immediately increasing their chances of developing the disease.

Diseases caused due to vitamin K deficiency

Vitamin K deficiency, if left untreated, wrongly treated or prolonged for a long time can result in:

- **Excessive anticoagulation**
- Liver disorders such as cirrhosis, malignancy, amyloidosis and Gaucher's disease. These diseases are known to decrease the synthesis of vitamin K bacteria.
- Diseases that result in mal-absorption such as coeliac disease, tropical sprue, Crohn's disease, ulcerative colitis, ascariasis, short

bowel syndromes caused due to several abdominal surgeries, bacterial overgrowth, and chronic pancreatitis disorders.

- Biliary tract disease: This disease results in an obstruction in the duct caused by unattended stones and strictures narrowing the pathway.
- Malnutrition: causing dietary deficiency in patients. Chronic alcoholics, patients with autoimmune disorders are highly susceptible to this condition.

Summary

Thank you for downloading this e-book. We hope you found the information useful and urge you to take the necessary steps to safeguard your health in the best possible way.

Remember that in the end; 'You are what you eat'; so eat wise and live long!

Thank you!