

# Nutrition

## Nutrient Supply

### raw vegan

Proteins

Fats

Calcium

Iodine

Vitamin D  
und B<sub>12</sub>

Zinc

Iron

Selenium

The raw vegan diet is the most consistent way for sustainable health. It is extremely rich in nutrients and provides the least amount of substances that cannot be metabolized and therefore burden our bodies.

Fresh plant foods contain many vitamins, minerals, phytonutrients, enzymes, fiber, and biophotons in a natural complex of active ingredients!

Especially good is the supply of vitamins B9 (folic acid), C and E, beta carotene, and magnesium.

However, the German Nutrition Society classifies the supply of the nutrients calcium, iron, iodine, selenium, zinc, omega-3 fatty acids, proteins, vitamin D, and vitamin B12 as potentially critical in the course of a purely plant-based diet.

### **Potentially critical nutrients in vegan diets**

All these nutrients can be balanced very well with the right background knowledge, taking into account a high level of freshness and suitable food combinations. Except for vitamin B12 and vitamin D.

In the following, we will look in detail at the nutrients classified as potentially critical in the vegan diet.

# Calcium

Calcium is the most important mineral for our musculoskeletal system. In combination with phosphorus, it continuously forms and renews our bones and teeth. It determines their strength and bone density.

For optimal bone health, vitamin D and K2 must also be available in the body in addition to calcium.

Calcium supply can be well implemented through a purely plant-based diet. The bioavailability of calcium in nuts and seeds can be significantly improved by activating and sprouting, as this breaks down enzyme inhibitors and phytic acids.

<b>Demand per day</b>	<b>1000 mg</b>																										
Tasks	<ul style="list-style-type: none"><li>- Bone and tooth structure</li><li>- Blood coagulation and iron metabolism</li><li>- Muscle, nerve, and heart function</li></ul>																										
Sources mg/100g	<table><tr><td>Poppy seeds</td><td>1460</td></tr><tr><td>Sesame black</td><td>1160</td></tr><tr><td>Sesame light</td><td>780</td></tr><tr><td>Nettle</td><td>720</td></tr><tr><td>Spirulina powder</td><td>600</td></tr><tr><td>Almonds</td><td>250</td></tr><tr><td>Parsley</td><td>240</td></tr><tr><td>Flaxseed</td><td>230</td></tr><tr><td>Kale</td><td>200</td></tr><tr><td>Spinach</td><td>117</td></tr><tr><td>Sunflower seeds</td><td>100</td></tr><tr><td>Oats</td><td>43</td></tr><tr><td>Lamb's lettuce</td><td>35</td></tr></table>	Poppy seeds	1460	Sesame black	1160	Sesame light	780	Nettle	720	Spirulina powder	600	Almonds	250	Parsley	240	Flaxseed	230	Kale	200	Spinach	117	Sunflower seeds	100	Oats	43	Lamb's lettuce	35
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# Iron

As a component of hemoglobin, iron plays an important role in the transport of oxygen in the blood and is an essential element for oxidation processes in the cell and immune defense.

The absorption of plant iron can be increased up to 3 - 4 times by organic acids (especially vitamin C). Thus, with a clever combination (leafy greens with lemon), the low bioavailability of iron in a plant-based diet can be significantly improved.

<b>Demand per day</b>	<b>1 - 2 mg</b>
Supply per day	10 - 15 mg
Tasks	Oxygen supply, performance
Sources mg/100g	Chlorella powder 75 Pumpkin seeds 12,5 Hemp seeds peeled 10,5 Sesame 10 Poppy seeds 9,5 Flaxseeds 8,2 Sunflower seeds 6,3 Oats 5,8 Parsley 4,4 Nettle 4,2 Spinach 3,4 Buckwheat 3,2 Lamb's lettuce 2,0 Kale 1,9 Currants black 1,2

# Iodine

Iodine is needed in the human body mainly for the production of thyroid hormones and thus has a great influence on energy metabolism.

It is also important for a healthy nervous system and plays a role in cell division, growth processes, and cognitive development. In addition, iodine has antioxidant, immunostimulant, and detoxifying effects.

„The Health Importance of Optimal Iodine Supply“ see [HERE](#).

Although the bioavailability of iodine is very high at up to 90 percent, regional supply is limited in all those countries where soils are considered low in iodine. Fish and seafood are considered to be contaminated with heavy metals.

Seaweed is an important source of iodine.

Demand per day	<b>0,2 mg</b> <b>Pregnant and lactating 0,23 - 0,26 mg</b>
Tasks	Component of thyroid hormones, important for the nervous system and growth processes. Has antioxidant, immunostimulant, and detoxifying effects.
Sources mg/100g*	Arame 98 - 500 Kombu 170 - 420 Nori 0,4 - 6 Lamb's lettuce 0,03

\* the iodine content varies greatly depending on soil occurrence

# Selenium

The trace element selenium plays an important role as a component of enzymes in some metabolic processes. It has a strong antioxidant effect and the ability to bind heavy metals. Through these properties, it protects body cells from the attacks of free radicals and strengthens the immune system.

Brazil nuts are considered to be particularly rich in selenium. Already the consumption of 2 Brazil nuts covers the daily requirement of selenium.

<b>Demand per day</b>	<b>0,03 – 0,07 mg</b>	
<b>Tasks</b>	Important antioxidant	
<b>Sources µg/100g</b>	Brazil nuts	640
	Porcini mushrooms	180
	Spirulina powder	100 - 300
	Lentils	45
	Sesame	35
	White cabbage	1,2

# Zinc

As a cofactor of over 200 enzymes, zinc has an enzyme- and metabolism-activating effect. The trace element contributes to the stability of membranes, keeps skin and mucous membranes healthy, and is essential for a powerful immune system. White spots or grooves on the fingernails can indicate a zinc deficiency.

The bioavailability of zinc is similar to that of iron. It can be improved in combination with vitamin C.

<b>Demand per day</b>	<b>7 - 10 mg</b>																						
<b>Tasks</b>	Enzyme and metabolism activating																						
<b>Sources mg/100g</b>	<table><tr><td>Nettle</td><td>10</td></tr><tr><td>Poppy seeds</td><td>10</td></tr><tr><td>Parsley</td><td>9</td></tr><tr><td>Sesame</td><td>7,8</td></tr><tr><td>Hemp seeses peelde</td><td>7,5</td></tr><tr><td>Pumpkin seeds</td><td>7</td></tr><tr><td>Oats</td><td>4,6</td></tr><tr><td>Buckwheat</td><td>3,8</td></tr><tr><td>Brazil nuts</td><td>3,9</td></tr><tr><td>Lentils</td><td>3,6</td></tr><tr><td>Lamb's lettuce</td><td>0,3</td></tr></table>	Nettle	10	Poppy seeds	10	Parsley	9	Sesame	7,8	Hemp seeses peelde	7,5	Pumpkin seeds	7	Oats	4,6	Buckwheat	3,8	Brazil nuts	3,9	Lentils	3,6	Lamb's lettuce	0,3
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# Omega-3-fatty acids

We distinguish between saturated and unsaturated fatty acids:

FATS			
Saturated fatty acids (not essential)	Unsaturated fatty acids (essential)		
	Monounsaturated	Polyunsaturated	
Coconut oil	<b>Omega 9</b> Olive oil, avocado	<b>Omega 3</b> Flaxseed oil	<b>Omega 6</b> Safflower oil

Since omega-6 fatty acids are overrepresented and omega-3 underrepresented in our daily diet, most people consume on average 15-20 times more omega-6 than omega-3 fatty acids. Both fatty acids are precursors of messenger substances in the body, which are responsible for regulating blood pressure or inflammatory reactions, for example.

**While the messenger substances from omega-6 fatty acids promote inflammation, those from omega-3 fatty acids have an anti-inflammatory effect.**

**The ideal omega-6 : omega-3 fatty acid ratio is 3 : 1.**

Omega-3 fatty acids are of immense importance for our cell walls and healthy cell metabolism. In particular, our brain and nerve cells consist of a high proportion of the omega-3 fatty acids DHA and EPA.

Very good sources of omega-3 fatty acids are flax, hemp, and chia seeds or walnuts. However, the omega-3 fatty acids (alpha-linoleic acids) they contain are only the precursor of DHA and EPA. They must first be converted in the body. To



cover DHA and EPA, it is recommended to consume microalgae or vegetable oil enriched with microalgae.

Omega-6 fatty acids are abundant in sunflower and safflower oil.

### Fatty acid composition of individual fats and oils:

Data in g per 100g	saturated fatty acids	Omega 9	Omega 6	Omega 3	Omega : Omega 6 : 3
Cocnut oil	90	7	1,4	-	-
Butter	71	24	4,7	0,3	-
Safflower oil	9	11,4	73,9	0,5	148 : 1
Sunflower oil	12	21,9	61	0,5	122 : 1
Pumkinseed oil	19,2	28	49,4	0,5	100 : 1
Sesame oil	13,3	39,5	41,4	0,7	59 : 1
Peanut oil	-	46,8	25,8	0,8	32 : 1
Olive oil	15,3	70	8,6	0,8	11 : 1
Avocado	2,6	7,6	1,3	0,16	8 : 1
Wheat germ oil	15	16,6	54,2	7,1	8 : 1
Soybean oil	15	23,4	49,5	7	7 : 1
Walnuts	6,5	11,7	41,6	10,1	4 : 1
Hemp seeds	-	5,8	20	7,4	3 : 1
Rapeseed oil	13	60,2	20,4	9,3	2 : 1
Flax oil	-	16,2	15,1	61,5	1 : 4
Flaxseeds	-	5,6	5,2	20	1 : 4

Source: Average values, research Your Nutrition

# Protein

Proteins are made up of amino acids and are considered the building blocks of all life. These complex compounds perform numerous tasks: They strengthen our body cells and are building materials for muscles, hormones, and enzymes.

According to the German Nutrition Society, the protein requirement is 0.8 g/kg. This value is richly calculated and depends on the individual metabolic activity. For example, the need for protein is lower in people who pay attention to longer meal breaks and allow cell recycling process (for more details see >> [HERE](#)).

Plant foods contain all the amino acids needed by our bodies, but rarely in one plant. A balanced amino acid profile can be achieved by varying the foods.

Demand per day	0,8 g per kilogram body weight	
Tasks	Building materials for muscles, hormones, and enzymes	
Sources g/100g	Chlorella powder	60 g
	Pumpkin seeds	35
	Hempseeds peeled	31
	Chia seeds	17
	Legumes	20 - 25
	Almonds	24
	Oats	12
	Buckwheat	10
	Nettle fresh / powder	7,4/50
	Sprouts	4-12

# Vitamin B<sub>12</sub>

Vitamin B12 is a water-soluble storage vitamin. Our body stores a supply of adenosylcobalamin in the liver. Assuming a full store, these stores can last two to eight years on a diet low in vitamin B12.

As an important coenzyme, it's required by all cells in the body and is essentially involved in:

- Cell division and formation of genetic material (DNA)
- Formation of red blood cells
- Formation of the sheath of the nerve fibers (myelin sheath)
- Absorption of folic acid into the cells

Vitamin B12 is produced by bacteria. It is believed that bacteria can produce some of the necessary vitamin B12 if the intestinal flora is healthy.

Partly, wild plants and vegetables contain small amounts of vitamin B12 due to microorganisms present on the leaves. Therefore, it is recommended to avoid scrupulous hygiene.

Currently, the freshwater alga *Chlorella* is believed to contain genuine plant vitamin B12. With other plants, no constant B12 content could be determined so far.

Purely vegan people should keep an eye on their vitamin B12 levels in any case and substitute methylcobalamin if necessary. This can be done in the form of a lozenge, as a pot, or, in the case of a major deficiency, intramuscularly.

# Vitamin D

Vitamin D is called a hormone based on its action. It has significant influence on:

- Control of the immune system
- Stimulation of bone formation
- Absorption of calcium in the intestine

The vitamin D requirement can hardly be met through diet. Notable vitamin D concentrations can only be found in fatty fish.

The most important source of vitamin D is sunlight. Through direct sunlight on the skin, the body produces its vitamin D as a result of the sun's UV-B radiation. More precisely, a precursor is formed in the skin and converted into the „active form“ of vitamin D3 in the liver and kidneys. Thus, one should stock up on sufficient vitamin D over the summer, as well as a store for the winter months when the sun is scarce.

## **The right dose of vitamin D**

For verification, the 25(OH)D blood test is considered the best option at this time. Good vitamin D levels are considered to be 40 to 60 ng/ml.

A medium dosage is 400 - 2000 IU vitamin D in combination with 150 - 200 µg vitamin K per day.

## Literature sources:

- Inc. BarCharts. Vitamins and Minerals Guide (1. Edition) QuickStudy 2011
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- Switzer, John. Dr. Switzer's Wild Plant Primal Diet. (1. Edition)) Ayurveda Healthy & Beauty Verlag 2015

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