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# Vitamins: An Introduction

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## Introduction

Vitamins are essential for optimum health, although they are required in considerably smaller quantities than macronutrients such as carbohydrates and lipids. They're essential for a variety of body processes, including cell reproduction and growth, but most critically, energy processing in cells.

Vitamins are classified as "essential" since they are obtained through food. Vitamins are team players in that they aid in the absorption of other nutrients. For example, vitamin D improves calcium absorption, vitamin C is required for iron absorption, and B vitamins function together in cells.

Because only vitamins A, E, and B12 are stored in any considerable amount in your body, it's critical to get your vitamins on a regular basis. By consuming a variety of foods from the four major food groups, you can easily achieve your daily vitamin requirements by consuming fruits and veggies, grain-based foods Legumes, nuts, seeds, fish and other seafood, eggs, poultry, and/or red meat with the fat removed makeup milk and milk products.

## Groups of Vitamins

### Fat soluble

Vitamins A, D, E, and K are fat-soluble vitamins. These can be stored in your fat cells to be broken down and used as needed in the future. As a result, if you consume more of these vitamins than your body requires, they can accumulate to hazardous levels. This can result in death in extreme circumstances. This means you should only take these vitamins if your healthcare physician recommends it.

**Vitamin D:** Vitamin D is necessary for strong bones, muscles, and overall health. It comes from the sun and the food you eat. If you don't receive enough of it, your muscles may experience aches, cramps, and soreness, and your bones may soften and break more easily. In New Zealand, about 5% of adults are vitamin D deficient. Another 27% have a vitamin D level in their blood that is below the recommended range. Vitamin D deficiency is more common in people with darker skin, who spend less time outside, or who have health issues that make it difficult to absorb nutrients. Vitamin D supplementation is only suggested for persons who are at risk of insufficiency in New Zealand.

**Vitamin E:** Vitamin E (-tocopherol) is an antioxidant that prevents oxidation of red blood cells, muscle cells, vitamin A, and unsaturated fatty acids. The vitamin E works in congregation with selenium, sea-foods etc. The vitamin E is highly susceptible to cooking temperatures as it got easily destroyed.

**Vitamin K:** Vitamin K (phylloquinone and menaquinon) is required for the production of prothrombin, which is essential for blood coagulation. Vitamin K and vitamin A work together to maintain bones and teeth healthy. It is present in sufficient amount in various food and food products like wholegrain cereals, leafy greens, vegetable oils etc. In neonates who lack the intestinal bacteria needed to make vitamin K, a deficiency can cause bleeding. For the time being, there is no RDI (recommended daily intake) for vitamin K.

### Water soluble

**Vitamin B:** It aids in the breakdown of carbohydrates for energy production, primarily in the muscles, brain, liver, and kidneys. They also play a major role in cells to transport energy and repair DNA. They also help cells utilize protein and carbohydrates by collaborating with other B vitamins. Iron, zinc, and calcium absorption are all aided by this supplement. It is a component of the body's coenzyme system, a vital molecule in glucose and fat metabolism, and is required for practically all forms of life.

**Vitamin C:** Vitamin A is necessary for the formation of bone, neurotransmitters, collagen, teeth, cartilage, and connective fibres. Maintains infection resistance and allows iron to be used to create haemoglobin. Antioxidant that has been linked to anti-cancer and anti-aging properties. Iron and copper absorption are aided.