



The Best Multivitamins:

Your Concise Guide
to What to Look for,
What to Avoid

Organix[®]

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The Best Multivitamins:

Introduction

Vitamins are “natural organic substances that originate primarily in plants” and are essential for the normal function, growth, and development of your body. Vitamins act as coenzymes – in other words, they activate enzymes, which are proteins that act as catalysts to tremendously speed up thousands of biological reactions in your body that are essential for life.¹

Vitamins are fragile and easily destroyed by heat, light, and exposure to air. Usually, they cannot be made in our bodies at all or in sufficient quantities and therefore must be consumed through diet or supplements.²

The way that most people have been advised to get necessary vitamins has been to eat a balanced diet that contains a variety of fresh, locally grown, non-irradiated fruits and vegetables, beans, legumes, lentils, whole grains, lean meats (including organ meats), eggs, poultry, and milk and other dairy foods.

Unfortunately, data from the U.S. Department of Agriculture (USDA) clearly shows that average nutrient levels in U.S. crops have been declining steadily since they were first documented just over 80 years ago. Also, the use of pesticides and herbicides in agriculture has risen dramatically, while genetically modified foods are also known to be detrimental to good health.

According to many experts, not only are most people NOT getting the vitamins they need from their food, the poor nutritional quality of typical grocery-store and restaurant foods may actually be damaging to your health.



Are Multivitamins the Answer?

Traditionally, a vitamin supplement is meant to prevent nutritional deficiency. In fact, the combination of essential vitamins and minerals in multivitamin supplements is designed to resemble healthy dietary patterns that include regular fruit and vegetable consumption.

Multivitamins are the most common dietary supplement consumed in the U.S., regularly taken by a third to half of all American adults – but do they really provide you with the nutrition your body needs?

Before we consider this important question, let's first take a detailed look at the 13 essential vitamins your body needs for optimal health, and common sources of these vitamins.

The 13 Essential Vitamins

There are 13 essential vitamins – “essential” means that each vitamin has an important role and is both required and necessary for your body to function optimally.

Vitamins are grouped into two categories:³

- ▶ **4 fat-soluble vitamins** – typically stored in fatty tissue, these include vitamins A, D, E, and K.
- ▶ **9 water-soluble vitamins** – water-soluble vitamins are needed by the body in frequent, small doses and must be used by your body right away, because any extra gets thrown out via the urine. Vitamin B12 is the only water-soluble vitamin that can be stored in the liver for many years.



In general, the Recommended Dietary Allowances (RDAs) for vitamins reflect how much of each vitamin most people should get each day. How much of each vitamin you need depends on your age, gender, emotional and physical health status, as well as your food choices, food sources, and eating habits.⁴ Other factors, such as pregnancy, are also important.



Vitamin A

Vitamin A is a fat-soluble vitamin that is best obtained from a well-balanced diet. Obtaining the recommended daily value of this vitamin is important because it is essential for normal vision, reproduction, embryonic development during pregnancy, growth, and proper activation of the immune system.⁵⁻⁸ It is also essential for the conversion of cholesterol into male hormones.⁹

Many fruits and vegetables, especially dark-colored fruits and dark leafy vegetables, as well as red palm oil, are rich in compounds known as vitamin A precursors that can be converted into vitamin A in the body.¹⁰⁻¹² These include beta-carotene and cryptoxanthin, which are converted into the active form retinol.

Egg yolk, liver, beef, and fish, as well as fortified milk and dairy products such as cheese, yogurt, butter, and cream contain vitamin A already preformed as retinol.^{13,14} However, it's important to be aware that excessive retinol supplementation can cause a number of side effects, including damage to the liver.¹⁵

Vitamin B

All B vitamins (also known as B-complex vitamins) are water soluble, which means that if they don't get used right away, they get eliminated via urine. In general, B vitamins help the body convert carbohydrates into fuel (glucose) and help the body use fats and protein. They are important for the health of your skin, hair, eyes, and liver and also help your brain and nervous system function at their optimum.



Vitamin B1 (Thiamin)

Thiamin (or Thiamine) plays a critical role in energy metabolism and in the growth, development, and proper functioning of your body's cells.¹⁶⁻¹⁸ Thiamin helps to change carbs into energy. Thiamin is also essential for optimal heart function and healthy nerve cells.¹⁹

Since we store thiamin in the liver in very small amounts, the body requires a continuous supply of it from our diet. Natural food sources include whole grains, legumes, nuts, seeds, eggs, lean meats including pork, organ meats, and fish.

Breads, cereals, and infant formulas in the U.S. and many other countries are fortified with thiamin.²⁰ Excessively heating foods containing thiamin can reduce their thiamin content.

Vitamin B2 (Riboflavin)

Riboflavin is an essential component of two major coenzymes in the body, known as flavin mononucleotide (FMN) and flavin adenine dinucleotide (FAD).²¹⁻²⁴ These coenzymes play major roles in energy production; cellular function, growth, and development; production of red blood cells; and metabolism of fats, drugs, and steroids. Most people get more than 90% of dietary riboflavin in the form of FAD or FMN.



Foods that are particularly rich in riboflavin include eggs, organ meats such as kidneys and liver, lean meats, and milk. Green vegetables also contain riboflavin. Grains and cereals are fortified with riboflavin in the U.S. and many other countries.

Bacteria in the large intestine also make small amounts of free riboflavin that can be absorbed and used.²⁵ Interestingly, more riboflavin is produced by our gut bacteria after we consume vegetable-based foods relative to meat-based foods.



Vitamin B3 (Niacin)

Niacin helps the digestive system, skin, and nerves to function properly and is also important for converting all three macronutrients in food – carbs, proteins, and fats – into energy.²⁶⁻²⁹ A form of niacin known as nicotinic acid is routinely used to treat the condition of having low HDL cholesterol (the so-called “good” cholesterol) and high LDL cholesterol (the so-called “bad” cholesterol) and triglyceride levels.³⁰

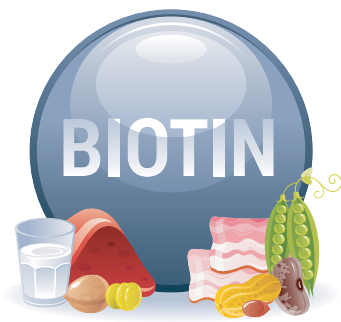
Niacin is present in milk, eggs, rice, tuna and salt-water fish, lean meats, avocados, eggs, legumes, nuts, poultry, as well as in enriched breads and cereals.

Vitamin B5 (Pantothenic Acid)

Pantothenic acid, like all B vitamins, helps the body convert carbohydrates into fuel (glucose). Pantothenic acid is also critically important to the body’s ability to make red blood cells, sex- and stress-related hormones, as well as cholesterol and fatty acids.³¹⁻³⁴ It is also necessary for maintaining a healthy gut, repair and maintenance of your body’s cells, and helping the body use other vitamins, especially riboflavin.^{35,36}



Vitamin B5 is found in a variety of foods, including fresh meat and organ meats, poultry, eggs, broccoli, kale and other vegetables in the cabbage family, avocados, mushrooms, legumes, lentils, and whole unprocessed cereal grains.



Biotin

Biotin is an important coenzyme that forms part of several of the body's enzyme systems that are involved in carbohydrate, protein, and fat metabolism.³⁷⁻⁴⁰ Like pantothenic acid, it is found in a variety of foods including chocolate, legumes, nuts, organ meats such as liver and kidney, pork, yeast, as well as in fortified cereals and milk.

Vitamin B6 (Pyridoxine)

Vitamin B6 is necessary for many physiological processes to work properly in the body. For instance, in various coenzyme forms, it is involved in more than 100 enzyme reactions that are mainly concerned with protein metabolism.⁴¹⁻⁴⁴ Vitamin B6 also plays a role in making antibodies and the very important brain signaling molecules known as neurotransmitters.



Vitamin B6 is involved in maintaining glucose metabolism, immune function, and in the formation of the protein hemoglobin in red blood cells that carries oxygen from the lungs to the body's tissues and returns carbon dioxide back to the lungs.

The richest sources of vitamin B6 include fish, meat, beef liver and other organ meats, poultry, nuts, potatoes and other starchy vegetables, avocados, bananas, and whole, unrefined grains.

Vitamin B9 (Folate / Folic Acid)



Folate works with vitamin B12 to help form red blood cells. It is also needed for making DNA.⁴⁵⁻⁴⁹

The main food sources of folate include liver, asparagus, broccoli, beets, Brussels sprouts, potatoes, spinach, romaine lettuce, dried beans (cooked pinto, navy, kidney, and lima), lentils, chickpeas, wheat germ, brewer's yeast, as well as fortified breakfast cereals and breads.

Folate deficiency can lead to improper growth of the body's cells and result in anemia. This vitamin has been shown to reduce the risk of neural tube defects and is considered vital for pregnant women, which is why many foods are now fortified with folic acid.⁵⁰⁻⁵² [Note: Folic acid is the synthetic form of vitamin B9, while folate is naturally occurring.]

Vitamin B12

Vitamin B12 is necessary for making important molecules such as phospholipids and neurotransmitters in your body. This vitamin keeps nerve and blood cells healthy and also helps to make DNA, our genetic material.⁵³⁻⁵⁶

Vitamin B12 is found in meat, organ meats such as liver and kidney, beef liver, clams and other shellfish, fish, poultry, eggs, milk, dairy products, as well as in some fortified cereals.

Deficiency of this vitamin is more common in the elderly, in strict vegetarians and vegans, and those who take oral contraceptives or medications for gastric disorders or insulin resistance.⁵⁷



Vitamin C

Vitamin C is a water-soluble vitamin and known antioxidant. Since we cannot make any vitamin C at all in our bodies, we must get all that we need from the foods we consume. If you smoke, be aware that smokers suffer increased oxidative stress and metabolic turnover of vitamin C – therefore, their requirement of vitamin C is higher than normal.⁵⁸

Vitamin C acts as an essential cofactor in at least eight enzymatic reactions. [Note: A cofactor is a compound needed for an enzyme to function optimally, and “essential” means that many enzymes simply cannot do their job without vitamin C. Enzymes are biological proteins that greatly increase the speed and efficiency of hundreds of chemical reactions in the cells in the body.]

For instance, vitamin C is an essential cofactor for the enzymatic reaction by which collagen – a fibrous protein that is the structural basis of skin, tendon, bone, cartilage, and all other connective tissue – is made in the body.^{59,60} Similarly, vitamin C is also required for making other biologically important compounds, such as neurotransmitters, which are chemicals made in your body that play a critical role in signaling between various nerve cells in the brain and nervous system.

Along with being a cofactor, vitamin C is also a powerful antioxidant that protects the body against oxidative stress by countering the actions of harmful free radicals known as reactive oxygen species (ROS) and reactive nitrogen species (RNS).⁶¹⁻⁶⁴ Free radicals are known to react chemically with cellular structures in the body, damaging them.^{65,66}

Indeed, vitamin C acts to protect proteins, fats, carbohydrates, DNA, and RNA in the body from free radicals generated both by the normal daily workings of your body, as well as a result of exposure to

toxins and pollutants. Importantly, vitamin C also helps to re-activate other important antioxidants such as vitamin E from its inactive to active form.

As mentioned above, since we cannot make vitamin C ourselves, we must get it from our diet. Vitamin C is found naturally in broccoli, Brussels sprouts, cabbage, cauliflower, citrus fruits, potatoes, spinach, strawberries, tomatoes, and avocados.

Vitamin D

Vitamin D, also known as the “sunshine vitamin,” is the name given to a group of fat-soluble vitamins found in liver and fish oils that is essential for the absorption of calcium, iron, phosphate, magnesium, and zinc.⁶⁷⁻⁷⁰



Cholecalciferol – also known as vitamin D3 – is made by skin cells when ultraviolet (UV) rays from sunlight fall on our skin. All forms of vitamin D obtained from sun exposure, food, and supplements are not active and must undergo two chemical reactions within the body to become activated.⁷¹⁻⁷³

The two main relevant forms of vitamin D are vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol). This vitamin’s major function in the body is to maintain blood calcium and phosphorus levels within the normal range by enhancing the efficiency of the small intestine to absorb these minerals from your diet.⁷⁴

Vitamin D is also required for bone health and many other functions in the body. When dietary calcium intake becomes too low, vitamin D helps to move calcium stores from the bones into your blood. In the liver, vitamin D undergoes hydroxylation and appears in your blood as 25-hydroxyvitamin D, which is measured to estimate levels of vitamin D in the body.



Vitamin D is found naturally in fatty fish such as tuna, salmon, mackerel, herring, and orange roughy, fish liver oils, egg yolks, fortified cereals, and in fortified milk and dairy products such as cheese, yogurt, butter, and cream.





Vitamin E

The active form of vitamin E, known as alpha-tocopherol, is a natural antioxidant.

Like vitamin C, its main function is to neutralize free radicals and protect the body's cellular components from their damaging effects.⁷⁵⁻⁷⁸

Vitamin E also lessens blood's ability to clot, which may be helpful in patients who are either at risk or suffering from coronary artery disease – in which blood clots can form around atherosclerotic plaques and can lead to heart disease.⁷⁹

Vitamin E is found in foods such as avocados, wheat germ and wheat germ oil, eggs, seeds and nuts, green leafy vegetables, dark green vegetables (spinach, broccoli, asparagus, turnip greens), papaya, mango, and whole grains.

Vitamin K

Vitamin K is the name given to a family of fat-soluble compounds that are naturally present in some foods and are also available as dietary supplements.⁸⁰⁻⁸³ Of these, phylloquinone (vitamin K1) – found mainly in green leafy vegetables – is the main dietary form of vitamin K. Other forms of vitamin K are made by bacteria in our gut.



Vitamin K functions as a coenzyme during the synthesis of a number of proteins that are involved in blood coagulation and bone metabolism.⁸⁴⁻⁸⁶ For instance, prothrombin (also known as clotting factor II) is a vitamin K-dependent protein that is directly involved in and necessary for blood clotting.⁸⁷ Vitamin K status is important in individuals who take anticoagulants or have bleeding disorders. In fact, the only clinically significant indicator of vitamin K status is the time it takes for blood to clot.⁸⁸



Food sources of phylloquinone include dark green leafy vegetables, spinach, kale, collards, turnip greens, watercress, broccoli, cabbage, cauliflower, Brussels sprouts, asparagus, fish, liver, beef, eggs, vegetable oils, and some fruits.^{89,90} Natto (a traditional Japanese food made from fermented soybeans) and cheese also contain high levels of vitamin K.⁹¹ Breakfast cereals in the U.S. are not typically fortified with vitamin K, although some meal replacement shakes and bars can be.

Vitamin Value Abbreviations: What do those terms on a vitamin bottle mean?

Reading nutrition labels and recommendations today can be quite complicated, so here's a brief primer on what all those abbreviations mean:

Recommended Dietary Allowance (RDA)

This value refers to the average minimum amount of a specific nutrient needed to prevent clinical nutrient deficiency in almost all healthy people in a particular life stage and gender group.

Dietary Reference Intake (DRI)

DRI values were created to allow guidelines for a broader range of nutrients and minerals, not only to prevent nutrient deficiencies, but also to enhance health and reduce the risk of chronic diseases.

Tolerable Upper Intake Level (UL)

This is the recommended maximum amount of a nutrient that is considered safe to consume for an extended period by the population, including sensitive subgroups. Exceeding the UL does not mean that harmful effects will always occur; rather, the more a person exceeds the UL, the greater the potential risk of adverse effects.

Daily Value (DV)

This reference number, developed by the FDA, is designed to help consumers determine if a food contains a lot or a little of a specific nutrient, based on the DRI for that nutrient. DVs don't take your age, sex, or various other factors into account. They're based on the highest average daily allowance value and are presented as percentages of total daily intake, calculated for a person eating 2,000 calories a day.



Can We Get Sufficient Nutrients From Diet Alone?

Fruits and vegetables are known to contain many biologically active ingredients that benefit our overall health and well-being in ways that vitamins and minerals on their own do not.

According to some healthcare experts, such as Dr. William Kormos, former editor in chief of *Harvard Men's Health Watch* and a primary care physician at Harvard-affiliated Massachusetts General Hospital, "A multivitamin is not going to replace the things missing from your diet. Whatever money you are spending on your multivitamin, it's probably better to spend it at the farmer's market or the grocery store on healthy foods."

Indeed, in a perfect world, none of us would need to take any supplements. For instance, the U.S. Federal Dietary Guidelines for Americans state that: "A fundamental premise of the Dietary Guidelines is that nutrients should come primarily from foods. Foods in nutrient-dense, mostly intact forms contain not only the essential vitamins and minerals that are often contained in nutrient supplements, but also dietary fiber and other naturally occurring substances that may have positive health effects."⁹³

While this certainly sounds good in theory, the reality for most people tends to be very different from this idealized scenario. The poor nutritional quality of our food today means that most of us do need to replenish our body's supply of vitamins and minerals with dietary supplements, so that our biochemistry can operate as intended.⁹⁴

Robert Post, the former deputy director of the U.S. Department of Agriculture's Center for Nutrition Policy and Promotion, agrees. According to Post, too few Americans are currently meeting all their nutritional requirements. In his view, dietary supplements, used sensibly, can help to fill gaps in our diet – although he does advocate getting as many of the nutrients needed from food and only using supplements for a few select dietary deficiencies related to your stage of life, lifestyle, and dietary preferences.⁹⁵



Nutrients such as vitamins and minerals work with our biology by supporting normal enzyme function and biochemical reactions in the body.⁹⁶ Nutrients can also help to restore specific imbalances or provide additional support at certain times when our need for them is higher than normal, for example during illness or pregnancy.

Unfortunately, the nutritional content of the present-day standard American diet (SAD) is very poor. Even with easy access to “enriched food,” over 92 percent of Americans are currently estimated to be deficient in one or more vitamins including vitamins A, C, E, and D, along with the minerals calcium, potassium, and magnesium. According to a USDA survey, 37 percent of Americans don’t get enough vitamin C, 70 percent don’t get enough vitamin E, almost 75 percent don’t get enough zinc, and 40 percent don’t get enough iron. In other words, these people consume less than the minimum amounts necessary to prevent deficiency diseases.⁹⁷

You may be surprised to discover that this is not a new problem. In fact, U.S. Senate Document #264, published by the 2nd session of the 74th Congress had this to say on the topic way back in 1936:



“Most of us today are suffering from certain dangerous diet deficiencies which cannot be remedied until the depleted soils from which our foods come are brought [back] into proper mineral balance. Foods, fruits, vegetables and grains that are now being raised on millions of acres of land that no longer contain enough of certain needed minerals, are starving us – no matter how much of these foods we eat. Leading authorities state that 99 percent of the American people are deficient in these minerals, and that a marked deficiency in any one of the more important minerals actually results in disease. Any upset of the balance or any considerable lack of one or another element, however microscopic, causes problems and we sicken, suffer, and shorten our lives. Lacking vitamins, the system can make some use of minerals; but lacking minerals, vitamins are useless.”⁹⁸

If these government officials thought the American diet was lacking back in 1936 due to soil deficiencies, imagine the state that it’s in today – over 80 years later!

Not surprisingly, one in every two Americans now turns to dietary supplements to get the nutrition they need – not just to make up for what they are missing, but also as a preventive buffer to ward off disease... spending millions of dollars in the process.⁹⁹

What's Going On With Our Food Supply?

Health experts agree that the poor nutritional quality of our diet is at the root of many of our health problems. There are a number of factors that determine the extent of nutrition we can extract from plant and animal foods.

Let's take a look at some of the possible reasons why most people are not getting sufficient nutrients from their food:

Condition of the Topsoil

Unfortunately, 85 percent of the topsoil in the U.S. is now believed to be depleted of essential minerals.¹⁰⁰ If these minerals are not present in the soil to begin with, then plants cannot draw in the nutrients as they grow and deliver them to us when we eat them, or to other animals that also consume them.

Modern farming practices also have the animals we eat cooped up in pens or giant feedlots instead of roaming free, eating the nutrient-rich wild grains and grasses they once consumed. The end result is that sitting on top of this food chain, we don't get the vitamins and minerals we should from our natural diet of either plants or animals.

To give just one example, you may have been taught that spinach is a good source of iron. Therefore you tend to assume that the spinach you buy has a certain amount of beneficial iron in it. However, unless the soil the spinach was grown in had enough iron to begin with, this is not necessarily true. Just because spinach had iron in it when it was measured way back in the 60s doesn't mean that the spinach you're buying today has the same levels of iron.

Another issue is that because plants are commonly treated with pesticides and other chemicals, they no longer have to fight to live. This further reduces their nutrient levels and their phytonutrient (beneficial plant chemical) content. Not to mention the toxic exposure we get from the chemicals when we consume plants that have been sprayed with various poisons.¹⁰¹



Diminishing Nutrients in Our Food Supply

According to a U.K. report on historical nutrient content changes which compared data on 27 varieties of vegetables, 17 varieties of fruit, 10 cuts of meat, and some milk and cheese products, there has been a significant loss of mineral nutrients and trace elements in these foods between 1940 and 1991.¹⁰² This report concluded with the dramatic loss of copper content in vegetables, which declined by 76 percent during this period, and zinc, which was reduced by 59 percent between 1978 and 1991.

This study suggested that these results were linked to recent dietary, environmental, and disease trends, including contamination of vegetables, fruits, and meat with pesticides, hormones, heavy metals, antibiotics and food additives, trace mineral depletion of the soil, excessive use of fertilizers, changes in crop varieties, loss of beneficial bacteria and plants within the soil, and other factors.¹⁰³ Considering current farming practices in most of the industrialized world, it seems likely that quantities of minerals and trace elements have not improved in the food supply over the past 30 years since this study was done.

Transporting and Storage of Foods

The nutrients retained in the produce we eat can vary widely depending on when the vegetables or fruits were picked in their ripening stage, how quickly and safely they were transported to market, and how securely they were stored. Air, light, and heat are all common factors that contribute to nutrient loss.

Food Preparation and Cooking

How fruits and vegetables are cut and prepared determines how accessible their nutrients are to us when we eat them. Raw foods contain many essential enzymes and minerals that support the immune system and help to fight disease.¹⁰⁴ Also, plant-based raw foods are loaded with antioxidants that reverse free radical damage to our body's cells. Cooking with moderate heat helps break down some foods so that more nutrients in them are available for absorption without damaging them, while microwave cooking damages the molecular structure of food and makes it less healthy to consume.



Depleted Minerals in Water

The mineral content of bottled water is generally poor, because most water filters remove important minerals such as magnesium, which is essential for more than 300 biochemical reactions in our body. Up until recently, clean, unfiltered fresh water was one of our main sources of magnesium, sodium, and calcium, but not anymore.¹⁰⁵

Low-calorie Diets

Starving ourselves by consuming a low-calorie diet usually also means that we are consuming fewer total nutrients. As original hunter-gatherers, our bodies were designed to consume sufficient quantities of nutrient-dense calories to meet its biochemical needs as we led reasonably active lives.

The nutritional content of the foods we eat has a direct impact on our health and well-being. As Hippocrates of Kos, the Greek physician known as the “Father of Modern Medicine” is reputed to have said: “Let food be thy medicine and let medicine be thy food.”

Unfortunately, today we can no longer be sure that we will get all the nutrients we need from our food alone. Even if we have access to a variety of fresh, whole, natural foods, we may still not get the minerals and vitamins our bodies need to function optimally.

This ongoing lack of proper nutrition weakens our body and immune system, increasing our susceptibility to various infections and diseases and potentially shortening our lifespan.



Most Popular Ready-to-Eat Foods Are Nutrition-Poor

Compounding the poor nutrition issue is the fact that many people nowadays buy their food from ready-to-eat stores and supermarkets, instead of growing and preparing their own. This has spawned a massive food industry where the health and well-being of the end consumer are considered secondary to profits. This makes no sense at all, since our health is intricately tied to our diet.

The sad truth is that Americans today consume more packaged and processed foods per person than people in any other country.¹⁰⁶ Laden with sugar, preservatives, salt, and fat, and lacking in vitamins and fiber, these processed and refined foods are on the whole extremely unhealthy and increase the risk for a whole slew of chronic diseases.

Some examples of popular but nutritionally poor foods include:



Chicken Nuggets

These ubiquitous finger foods are made with heavy breading and usually contain copious amounts of salt, fat, preservatives, and other additives. All processed foods typically contain dozens of artificial chemicals including preservatives, artificial colors, artificial flavors, chemicals that add texture and structure to food, and so on.¹⁰⁷ While food manufacturers claim that food additives are safe, they have been associated with many health problems.



White Bread and Sugary Cereals

All processed foods made with refined flour offer very little nutrition in return for raising blood sugar to unhealthy levels. Refined carbohydrates such as breakfast cereals, bagels, waffles, and pretzels quickly break down to sugar in the body (especially sugary foods like cereals, muffins, and doughnuts). This increases insulin and leptin levels and contributes to insulin resistance, which is the main underlying contributor to nearly every chronic disease condition, including unhealthy weight gain and diabetes.¹⁰⁸ Processed foods are also usually high in unhealthy trans fats and processed vegetable oils.



French Fries

These fast food favorites contain so many calories and so little nutrition that weight management becomes difficult, increasing the risk for various chronic diseases. Not to mention the oils used to deep fry the fries are usually of poor quality and contain excessive quantities of omega-6 fats.



Canned Fruit in Heavy Syrup

Canned produce is relatively cheap and tastes good. Unfortunately, fruit canned in heavy, sugary syrup quickly spikes blood sugar to unhealthy levels. It's much better to buy fruit canned in its own juice, or better yet, consume fresh organic fruit.



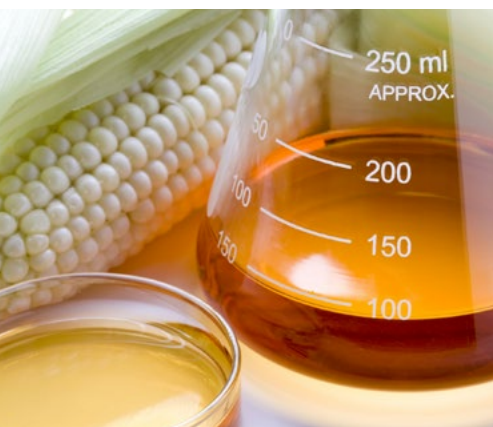
Potato Chips

It's almost impossible to eat just one and these addictive snacks contain high amounts of calories, salt, unhealthy fat, and preservatives without providing much, if any, nutrition or fiber in return. Most processed foods have been shown to stimulate strong reward responses in our brains, so that it becomes very easy to overeat.¹⁰⁹



Sodas and Fruit Juices

Regular consumption of sodas and fruit juices, even those with no added sugar, has been shown to greatly increase diabetes risk. Diet sodas made with artificial sweeteners present their own unique set of health risks.



High-fructose Corn Syrup (HFCS)

This is a common ingredient in many packaged foods, including soda, cookies, cakes, sweet pickle relish, ketchup, jams and jellies, and salad dressings. Fructose is primarily metabolized by the liver – and if we consume high amounts, it ends up damaging the liver in the same way alcohol and other toxins do.¹¹⁰ Not only that, fructose is metabolized directly into fat and gets stored in fat cells. All in all, HFCS is known to have very unhealthy consequences for weight, insulin and sugar levels, and overall health.



Processed Meats

Lunch meats, deli meats, hot dogs, sausages, and other processed meats usually contain harmful chemicals not found in fresh meat.



Fast-food Hamburgers

This fast food staple – specifically, the oversized patties, buns, and toppings – is known to increase obesity risk, along with risk for developing associated health conditions.

Our Toxic Environment

Compounding the problem of our poor diets is the environment that we find ourselves living in. Think of all the unnatural chemicals we have carelessly dispersed into our ecosystem we call Earth. There are literally thousands of them, including, but not limited to pesticides, heavy metals, antibiotics, food additives, fertilizers, shampoos, sunscreen, household cleaners, detergents, plastics, and much more.

These pollutants now enter our bodies through the food we eat, the water we drink, and the air we breathe. Did you know that of the more than 80,000 chemicals currently in use in the U.S., most haven't been adequately tested for their effects on human health?¹¹¹

The grim truth is that our air, water, and food, far from sustaining our health as they are intended to, have instead become a source of harmful toxins that damage our health.

So, on the one hand, we have fewer nutrients in much lesser quantities in our diet – and on the other, our ability to properly use even the limited nutrients available to us is also reduced, adversely affecting our health and increasing our susceptibility to diseases.

Now that you understand the gigantic scale of the problem – are multivitamins the answer? As you shall see... the answer depends largely on which type of multivitamin you choose.



Synthetic vs. Natural Vitamins

For decades, the “natural” health industry has been talking up vitamin supplements as being essential for a healthy and long life. Scientifically speaking (as stated at the start of this report), vitamins were originally defined as “natural organic substances that originate primarily in plants” and that are essential in small amounts for our health, growth, reproduction, and maintenance.¹¹²

However, the fact is that the vast majority of the vitamin and multivitamin supplements that are commercially available today have never been a natural part of our diet and do not originate primarily in plant tissues. In fact, most commercially available “natural” or “organic” vitamins are neither natural nor organic, but synthetic chemicals derived from petroleum extracts, coal tar derivatives, chemically processed sugar, and industrially processed fish oils. These non-food synthetic vitamins are being manufactured and sold because they are easier to mass produce and cost less relative to carefully preparing real, healthful vitamins from natural food sources.¹¹³

Many of these non-food synthetic vitamins are also much less effective than food-sourced vitamin supplements. Assuming, of course, that the latter are derived from naturally occurring, full-spectrum food extracts by taking a nutrient-rich plant, removing the water and the fiber in a chemical-free vacuum process, and packaging it for stability. In this way, the entire vitamin complex is captured intact, retaining its functional and nutritional integrity as well as its full spectrum of nutritional values.¹¹⁴



Let's examine how well non-food synthetic vitamins stack up against food-sourced vitamins.

Are Non-Food Synthetic Vitamins the Same as Food-Sourced Vitamins?

Most people – and even some mainstream health professionals – still believe that the body cannot tell the difference between a vitamin prepared from an organically grown fruit or vegetable and one that was synthesized artificially in a chemist's laboratory. However, this belief is misleading, for several reasons.¹¹⁵

First, it assumes that a non-food synthetic vitamin can be absorbed by your body just as easily as a food-sourced vitamin, which is not true. Vitamins manufactured in the laboratory come without the naturally occurring variants and derivatives of the food-sourced vitamin. Not to mention they're lacking trace minerals and so-called "cofactors" that together ensure the vitamin's proper absorption into the blood and eventually the body's cells. [Note: A cofactor is a "helper molecule", a chemical compound or metallic ion that is required for a protein or vitamin's biological activity to happen.]

Tests have also shown that **synthetic vitamins are less "available" to the body and less biologically active than natural vitamins**, likely because food-sourced vitamins exist in physiochemical forms which the body has evolved over thousands of years to recognize.^{116,117}

Particle size is also an important factor in nutrient absorption. Here too, since food-derived vitamins have smaller particle sizes, they ensure better absorption and availability for the body.

Published scientific research also clearly shows that food-derived natural vitamins are nutritionally superior relative to their synthetic versions.¹¹⁸ Some experts believe that this is because real vitamins contain the essential trace minerals necessary for optimal activity in our body. On the other hand, synthetic vitamins contain no such trace minerals and must draw on our body's mineral reserves to be able to exert their actions.¹¹⁹

There are clear structural differences between food-sourced and synthetic vitamins. Most non-food vitamins are isolated and crystalline in structure, unlike vitamins that occur naturally in food – which are not crystalline and never isolated, but are always accompanied by multiple variants, derivatives, trace minerals, and cofactors.¹²⁰

Functional vitamin activity can only happen in the body when all the cofactors and components of the vitamin complex are present in the right proportions and working together synergistically. Individual components of these complexes cannot be isolated and still be expected to perform the full range of their vitamin-like functions within the body.

Indeed, there's a strong case to be made that purified, crystalline synthetic compounds are not real vitamins, but are inferior imitations relative to real, food-sourced biological vitamin complexes.¹²¹

For instance, vitamin A is present naturally in foods in the form of retinyl esters, while beta-carotene in natural foods is always accompanied by mixed carotenoids with chlorophyll.¹²² However, synthetic vitamin A versions are usually vitamin A acetate and palmitate, along with isolated beta-carotene.¹²³

Similarly, the natural food forms of vitamin C include two variants of ascorbic acid along with their salts and many other derivatives. However, the synthetic version of vitamin C is solely made up of isolated, crystalline ascorbic acid.

This explains another point of controversy when it comes to the effectiveness of multivitamins. Many studies have shown that diets rich in fruits and vegetables are associated with lower risk of cardiovascular disease, stroke, and cancer, and confers increased longevity. However, while some beneficial effects of supplemental synthetic vitamin C have been observed in small studies, large, well-controlled studies don't show any change in markers of oxidation or any obvious health benefits. One likely reason could be that isolated vitamin C supplements used in these studies lack the other components that help it to carry out its functions in our body.

What's in Your Multivitamin?

Most commercially available multivitamin supplements are made up of artificially synthesized, isolated chemicals that are unable to achieve the full range of vitamin-like activities in our bodies relative to the originals. Sometimes they may be completely inactive. Some can even be toxic at higher levels.

Many consumers have been brainwashed into thinking that these synthetic versions are the same as or sometimes even superior to naturally occurring, food-sourced vitamins. This false idea has been propagated mainly by the supplement industry, whose sole overriding interest is profit.





3 Essential Tips When Buying a Multivitamin Supplement

An ideal multivitamin supplement should ideally contain entire intact vitamin complexes with all the other components necessary for each given vitamin to function optimally in the body in terms of its bioavailability, efficacy, and safety. So, what should you look for in an ideal multivitamin supplement?¹²⁴

Here are 3 questions to ask yourself about any multivitamin you're considering:

1 Are the multivitamin's components made from plants?

Multivitamins should ideally be made from naturally occurring food extracts obtained from nutrient-rich plants in such a way that the entire vitamin complex is captured intact, retaining its functional and nutritional integrity as well as its full spectrum of nutritional values.¹²⁵ In this way, the plant's beneficial phytonutrients are also available to your body.

2 Is the multivitamin suspiciously cheap?

Plant-derived full-spectrum multivitamins are typically on the more expensive side because they are derived from whole food sources, while artificially synthesized chemicals are cheaper. Multivitamins manufactured from whole foods will usually indicate this on the label and packaging, along with the list of ingredients indicating the names of the natural foods they are derived from.

3 Is the multivitamin right for you?

Choose a multivitamin supplement that is right for your age and gender, so that the nutrients included in it will be right for you.

When it comes to vitamin and multivitamin supplements, some people seem to think that if a little is good, then more is better. But even normally beneficial nutrients can be harmful to the body when taken in amounts higher than what's considered beneficial.

Each nutrient has a range that starts with the minimum daily intake level necessary to meet the needs of most healthy people, called the recommended dietary allowance (RDA). The top of the range is given as the tolerable upper intake level (UL) of the nutrient. The amount right for each one of us is based on our needs, so it is advisable to consult with a qualified healthcare practitioner before starting to take new vitamin supplement.



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