

## What are vitamins and minerals?

Vitamins are organic compounds (put simple, these are groups of molecules that contain carbon) that most animals and plants need to survive, as the organisms cannot create them; they're commonly found in food and other nutrients (vitamins themselves are nutrients too!), and they're so vast and complex that some are effective to some living beings, while others are effective only to other beings. Finally, and in a nutshell, vitamins also prevent several deficiencies that can lead to serious conditions. The direct opposite of vitamin deficiency is vitamin overload, which even though is rare it happens when you consume too much of a certain type of vitamins.

Even though vitamins were discovered, labeled and named during the early to mid 20<sup>th</sup> century, they were already renowned in antiquity and even in more recent times for their *miraculous* side effects. For instance, 250 years ago sailors discovered that by ingesting Vitamin C (present in lemons, oranges, strawberries and in many other fruits) they wouldn't contract scurvy, the most feared ailment of the seas. Curiously enough, only in very recent times did we humans figure out that the roles played by vitamins are paramount to our health.

Mineral nutrients, much like vitamins, are chemical elements that we need to survive and function properly too, like calcium (that reinforces bones and teeth) or potassium (that enhances brain and nerve functions). Human metabolism needs about 16 minerals, unlike vitamins that can all be used for a proper development and maintenance; as with minerals, the lack or overload of minerals can cause serious side effects. *Anemia* (which is iron deficiency) or *Hypercalcaemia* (that happens when there's a calcium overload) are two opposite examples of low and high dosages of minerals that can bring serious complications to humans. In the specific case of minerals, there are some that need to be more used (e.g., calcium) and others that only need to be consumed in very low amounts (like copper or selenium), and that are more usually called **trace-minerals** exactly for the trace amounts that need to be consumed.

Now that you know what both are, what they do in short terms and why are they essential to human life, let's delve a little further to know what can we do to better improve our everyday life.

## Free Radicals and Antioxidants

Our bodies produce noxious molecules called **free radicals**, and these are nasty as they degenerate our cells and DNA by attacking them and making the once healthy cell a new free radical. As you might imagine, this is an escalating process (like a snowball), and when it grows out of proportion, the cell will be tainted. What is even more preoccupying though is that free radicals are also created according to the environment we live in, our lifestyle and also our diet habits: pollution, bad diets, cigarettes etc. create them as well. The older we grow, the more free radicals are created and the more dosages of antioxidants are needed to fight them off. Antioxidants like Vitamins C and E (commonly found in vegetables and fruits), for instance, fight free radicals extremely well, preventing the array of diseases that free radicals create, so a simpler way to understand it is to compare antioxidants to the police and free radicals to criminals: without the “police”, our bodies are prone to “criminals” that will harm our well being.

As stated above, some vitamins and minerals are natural **antioxidants**, and these fight free radicals. Antioxidants are substances that, as the name clearly suggests, stop the oxidation or degenerative process of our cells and DNA, which is what makes us live longer and better. They are found in nutrients (as before, vitamins and minerals) and also in enzymes (these are proteins inside our body that facilitate chemical reactions), and the diseases that they prevent are of the highest importance: cancer, cataracts, strokes and Alzheimer, just to name a few. So how does oxidation occur?

To get a more descriptive idea of antioxidants and free radicals, check the video links below.

[Antioxidants](#)

[Free Radicals](#)

### With a little help from my friends

No matter how old or young you are, no matter your lifestyle or especially your dietary habits, you'll never get to absorb enough antioxidants to fight free radicals. You can have a pristine dietary habit... but yet the pollution around you will take its toll. You can be a young man in the mid 20's, but without having good eating habits free radicals will take their toll. After a specific age, you would need to consume the equivalent of 120 oranges or 90 glasses of red wine EVERY DAY in order to obtain the valuable antioxidants that let you cope with cell degeneration, which is clearly impossible. That's why vitamin and multivitamin supplements are indispensable to help you fend off free radicals. The most classic causes that make your organism to require more and more antioxidants are as follow:

**Unhealthy diet** - over consumption of high-fat and high-carb foods, processed foods that are filled with chemicals, bad fats found in margarines and oils, sugar, etc.

**Pollution** – pesticides, cigarette smoke, air pollutants or toxic metals like lead and cadmium.

**Lifestyle** – diets that are low on vegetables and fruits, grains and beans, for example, help you lead a very unhealthy lifestyle.

The above mentioned causes are thus responsible for you to need generous supplements of all the necessary multivitamins. Since your body cannot synthesize all the different vitamins that you need unless you can eat absurd amounts of fruit and vegetables every single day, vitamin and multivitamin supplements exist to help you deal with that unfair fight that you partake every day. By taking them, you not only reinforce your body's natural defenses, starting to feel better day after day, but you also LIVE LONGER, as cell regeneration starts to take place too. But, as with everything in life, you have to be very careful on what you are consuming, as MANY of them just don't work. Just continue reading as this will certainly be one of the most important parts about vitamin and multivitamin supplements.

### **Buyers beware!**

As stated some lines ago, many vitamin and multivitamin supplements do not work! Whys is that, you might ask? The most common reason is that plenty of companies focus more in *dumping* their product to the shelves than on actually presenting a legit and efficient way of being healthier. There are millions of people that take these supplements daily thinking that they are improving their health, but nothing could be more erroneous, as their bodies do not synthesize the ingested vitamins. In fact, the best way to assimilate them is through natural ingredients (the same to say 'food'), as synthetic vitamins are not beneficial and can be harmful, but as discussed before, sometimes that's just not enough. In that case (and because every nutrient is absorbed and processed differently from each other), the best thing to do is to choose the best multivitamin supplement available on the market. So how do you know what's best for you? First off: what type of natural ingredients do you consume the least? Is it oranges, lemons and other citrus? Then Vitamin C is the most adequate for your needs. Following this example will provide you critical information on all your supplement needs, since knowing what you eat less will give you a clue about which vitamins you need the most. Then, your age and the type of your activity should also be considered, as different metabolisms and activities need different supplements. Of course that taking the manufacturer's name into consideration is obviously essential when deciding what to buy; you can always check a company's policy and the tests that they have done regarding their product online for further information. Are they more or less credited? What sort of technology do they use to offer the best product on the market? Furthermore, you must know what you're doing, as a massive dosage of multivitamins can be toxic to your system, so before going into self prescribing mode, contact a nutritionist, as his opinion will be very valuable here. Finally, and most important of all, the vitamin or multivitamin supplements that you are considering to buy should have very high absorption rates and ensure that the different nutrients are delivered accordingly and effectively, or else you'd rather be eating candy for the same effect, as your body won't absorb them and you'll be doing nothing in the end.

### **So how can you decide what's good and what's not?**

As seen previously, vitamin and multivitamin supplements are a good way of keeping healthy, but you have to know what's best for your specific needs, as many supplements don't even work. You have to take them anyway, so how can you know those that are good from the ones that aren't? There are easy tips to let you know about this, so let's deconstruct the concept. You still remember that some vitamins are antioxidants, yes? The more vitamins and minerals one supplement has, then, the more antioxidants it should have as well. A good way to see how each individual person fares against each other is by using a clever mechanism called Biophotonic Scanner. Yes, it's got a big fancy name, but it also shows big fancy results. What this machine does is it scans your skin for carotenoids (these are pigments that are not produced by the animalia kingdom or by animals if you prefer, and thus are ingested by eating fruits and vegetables that belong to the plantae kingdom or flora) and in as little time as 90 seconds it tells you how high your level of skin carotenoids is. So what do carotenoids have to do with antioxidants? Simple: the level of carotenoids in your skin is identical to the level of antioxidants in your body, so the more you have the better, and the lower you have... you get the point. The levels go from red (lower) to blue (highest), and a good score shouldn't ever be below 50,000 and the higher the better for you. The average American citizen has a 22,000 score thanks to his dietary habits that consist in food with poor levels of antioxidants, which is a VERY LOW level, in fact being less than 50% of what's needed, and this leads to several diseases talked before too, being cancer the most frightening. This obviously means that the supplements that Americans are buying aren't being effective at all, or else their levels would be through the roof. So, a good way of knowing if an antioxidant supplement is good for your needs would be for it to have more than 60 vitamins and minerals all together, as the higher the diversity, the more your body will thank you. If you remember correctly, ALL VITAMINS have a role in your body functions, so there's no limit to how many vitamins can a supplement have. This is why a good multivitamin supplement is essential for someone who plans on keeping on living for as long as possible... and we know that's what everyone wants!

### **Why some supplements work... and why some don't**

As you know by now, the major factor for a multivitamin or vitamin supplement not to work is its absorption rate. There are several tips that help the nutrients to be well absorbed by your body. For instance, practicing yoga or meditating will help your body absorb better. Exercise, eating slowly and also eating healthy food will increase the absorption rate significantly. Then, the absorption rate is also directly proportional to natural and synthesized vitamins: the ones that are found in food will always have a higher absorption rate than those that are presented chemically in supplements (again: EAT WELL!), but you also know that some of them you can only get through supplements, and that's why you take them. The supplements available on the market have several forms, from pills and tablets to injections, and each one of them has significant differences when it comes to the absorption rate. Let's take a look:

As you can see, these differ clearly from one another. The most used format in the world is pills or tablets... and you can see what they offer you! Bad information from companies that only think about selling a product leads to this type of misconceptions, and then what happens is that the citizen buys something thinking he is becoming healthier... but he isn't. Some other companies, however, have been very successful when trying new approaches to multivitamin supplements based on organic ingredients (mainly in liquid, powdered and food forms) and effective technology, thus increasing substantially the absorption rate of the supplements as well.

### **The importance of knowing what you're buying**

This seems obvious: it is important to know what you are buying in order to get the best results! Yes, that's true, but is there any other way to know that you are buying what's right for you? There certainly is. When you have a problem with your car, who would you prefer to take care of it, a construction worker or a mechanic? On the other hand, if you're planning to build another section in your house, you definitely would go to a construction worker to get it done, instead of a mechanic. Everything in its right place! The same goes for supplements, of course. Which manufacturer would you trust when buying a supplement: one that presents you the multivitamins that you need in a shiny and glossy colored box with no other information inside than what will you get from his product or one that presents you the same multivitamins with an inside leaflet that explains how they were used in clinical tests and trials among a certain number of the population, showing you percentage results by age, activity and gender, etc. etc. etc.?

Yes, it makes much more sense to trust the one that has invested his time and money on doing clinical tests to ensure you that you will get results  $x$ ,  $y$  and  $z$  by taking his supplements. After all, information is never too much when you're talking about your health. As with any other product, many companies will highlight what multivitamins do, why do you need them and why their product is the best, all this conveniently wrapped in an appealing and sometimes gorgeously designed box to lure people to buy it. Some other companies are a bit more old school and prefer to tell you the naked truth with no *ifs* and *buts*, they just tell you that what you'll see is what you'll get, with no sugar coating or cherries on top, and this usually will be presented with black writings on white boxes, but at least you know what you are buying and from who. Scientists have one goal and one goal only: to know the truth; opting by the right choice here, at least you'll be using what you need from the people who know what they do best instead of spending some dozens of dollars more for a neat package that in no way improves your health and fine living. In the end, it's all about results, so being a savvy buyer will benefit you both ways.