

Dr. Zsuzsanna Fajcsak
PhD, MA, MA, MSc, CNS

What does Nutritional Supplementation Means?

There is a growing popularity to take nutritional supplements. Nutritional supplementation today is a multibillion-dollar business. As life is running in the fast lane, we eat on the run. We grab something from fast-food places and eat less home cooked meals made of organically grown vegetables and meat. The food we eat today has less and less nutritional value, lacking of essential nutrient. Our meat is mostly grilled on very high temperature destroying essential amino acid, which we need for muscle and tissue repair and building. We eat the same foods (pizza, hamburger, sandwich, rice and potato instead of vegetables) day after day. Our body is under tremendous mental stress to make a living, so we eating on the run. We don't have time to chew our food so we gabble it down or drink it liquid form. As a consequence, we develop digestive problems, we have more allergies then ever, our body is unable to absorb essential nutrients, becomes tired and malnourished. We cannot sleep at night because of all the problems, therefore we cannot recover. We drag our days in fatigue because our body does not enough of the essential nutrients to maintain normal healthy functioning.

The key functions of nutrients such as vitamins and minerals, revolves around their essential role as a components of enzymes and co-enzymes. Enzymes are molecules involved in speeding up biochemical processes necessary for human body functions. Co-enzymes are molecules that help the enzymes to work properly. Enzymes and co-enzymes work together. They either join molecules together or split them a part.

The key in nutritional supplementation, to provide the necessary support or nutrients to allow the enzymes to work at their optimal level. Most enzymes are composed of protein (amino acids) an essential mineral and a vitamin. If the enzyme is lacking the essential mineral or vitamin it cannot function properly. If our diet or a nutritional formula provides the essential mineral or vitamin then the enzymes is able to perform its vital function.

If we lack of an essential nutrient we called this state deficiency. When the body is this low in nutrients we call it subclinical nutritional deficiency. Once the body is in a subclinical deficient state, only supplementation can raise up nutrients to its normal level. For example if you have "night blindness", which is a sign of zinc or vitamin A deficiency (zinc is necessary to activate vitamin A in the visual process). By supplying the enzyme with zinc, we perform an "enzyme therapy". A nutritional supplementation therefore, has to be individualized to work properly. Giving magnesium to a person who is lacking zinc will not help the individual.

What Do We really Need to Take as a Nutritional Supplement?

There are a growing number of people who take nutritional supplements. Many people take supplements due to media advertisement on TV, radio and magazines and bulletin boards. Many companies sale their products in multilevel marketing and "sale us " supplements. Most people know that they don't get enough nutrients from their diet so they must need supplements. This is a very improved thinking! If you realize that your diet is unhealthy and you need to do something about it. However, most people take a vitamin pills but live their lives exactly the same way as before. They have been taking supplements but do not really feel any different. Lets us stop here for a minute and think...

Do the media really starts us to think that the unhealthy eating, lack of exercise and weight loss can be solved by taking pills?

Well, by my professional opinion **only a well-balanced diet can be supplemented**. So the first thing you need to do is to prioritize your life! What is really important?

Since you cannot work and enjoy the fruit of your work without your health, you must take care of your body. *The first step of taking care of your body is to get your eating in order.*

This include:

1. Rotating your foods (do not eat the same every day)
2. Eat glycemically favorable foods to provide stabile blood sugar and insulin levels, optimal energy for you during the day and for a good night sleep as well as long-term weight loss. Eat 70% of your carbohydrates from low GI foods (above the ground vegetables, legumes such as lentils beans, peas, citrus and temperate fruits (apples, pears, peach, plum, apricot etc.).
3. Consume appropriate amount of high biological value protein in your meals (lean meat, poultry, fish eggs)
4. Sit down to eat and chew your food for proper digestion
5. Take care of your gut and eliminate possible food allergens (gluten from grains, casein from milk) to establish proper digestion and absorption of the food you eat so that it really can become the part of your body.
6. Drink 2-2.5L water with electrolytes (Sodium, Mg, K, Na) a day for proper hydration and to avoid a heat stroke. If you exercise about 45 minutes drink water every 15 minutes. If you exercise more then 90 minutes consume 1-3 dl electrolyte and carbohydrate drink (sport drink) ever 2-3 km of running. Replace every half kg weight loss due to exercise by 5 dl of electrolyte and carbohydrate containing drink.
7. Pregnant women and women after menopause need extra Ca for promoting bone formation and to avoid osteoporosis
8. When going through high physical and emotional stress take magnesium.
9. Etc.

Most important and recommended primary elements for nutritional supplementation program

1. High-quality multivitamin and mineral complex
2. Extra anti-oxidant (Vitamin C, E, selenium, beta carotene)
3. 1 table spoon of flaxseed oil or fish oil

The physical care of the human body includes:

1. Deep breathing
2. Postural work
3. Body work (massage, reflexology etc) and muscle work (weight training, yoga)
4. Cardio exercise (walking, jogging, biking, swimming)

Once your diet is in order take a high quality multivitamin and mineral complex some extra antioxidant and an essential oil (flaxseed oil or fish oil).

The following tables show the optimal range of vitamins and mineral intake. As you can see these qualities are higher then the RDA. The studies in the United States indicate that the diet is extremely unlike to provide the essential nutrient for the body.

Optimal Intake Range for Vitamins and Minerals	
VITAMIN	RANGE FOR ADULTS
Vitamin A (retinol)	5,000 IU*
Vitamin A (from beta-carotene)	5,000 – 25,000 IU
Vitamin D	100-400 IU §
Vitamin E (d-alpha tocopherol)	100-800 IU #
Vitamin K (phytonadione)	60-300 mcg
Vitamin C (ascorbic acid)	100-1,000 mg †
Vitamin B1 (thiamin)	10-100 mg
Vitamin B2 (riboflavin)	10-50 mg
Niacin	10-100 mg
Niacinamide	10-30 mg
Vitamin B6 (pyridoxine)	25-100 mg
Biotin	100-300 mcg
Pathotenic Acid	25-100 mg
Folic Acid	400 mcg
Vitamin B12	400 mcg
Choline	10-100 mg
Inositol	10-100 mg
MINERALS	
Boron	1-6 mg
Calcium	250-1,500 mg ##
Chromium	200-400 mcg &
Copper	1-2 mg
Iodine	50-150 mcg
Iron	15-30 mg §§
Magnesium	250-500 mg**
Manganese	10-15 mg
Molybdenium	10-25 m
Potassium (kalium)	200-500 mg
Selenium	100-200 mcg
Silica	1-25 mg
Vanadium	50-100 mcg
Zinc	15-45 mg

* Women of childbearing age should not take retinol if becoming pregnant is a possibility, due to the risk of birth defects

§ Elderly people in nursing homes who live in northern latitude should supplement at the high end of the range

It may be more cost effective to take vitamin E separately

† It may be easier to take vitamin C separately

Taking separate calcium supplement may be necessary in women at risk or suffering from osteoporosis.

& For diabetes and weight loss, doses of 600 mcg can be used

§§ Men and postmenopausal women rarely need supplemental iron.

** When magnesium therapy is indicated, take a separate magnesium supplement

How to Choose Nutritional Supplements?

It is a very important subject to find the way in the “forest” of nutritional supplements. Quality shall come first. We need to think about nutritional supplements as food. The freshest the better source it came from, the better it has been prepared the more like that it will become the part of our body.

The most frequent problem with nutritional supplements is the manufacturing. First problem, that one machine can make many different tablets. Compressing the tablet often comes with temperature rise, which may destroy significant percent of the heat unstable antioxidant, supposing in the pill. Secondly, they try to compress too many different nutrients in one tablet and our body is unable to break down and absorb all. Third, manufacturers need to use binders to stick the pills together. Sometimes the binders are so strong that the body cannot break down the pill itself. I had personal experience finding a multivitamin tablet in the toilette bowl the same way it was taken. We call this multivitamins “bed-pan bullets”.

There are many-many brands on the market however there are only so many manufacturer. The best to buy nutritional supplements form the manufacturer (read the label if the manufacturer is the same as the distributor that is the best).

How to test your Vitamins ?

Test your vitamin tablet; see if it dissolves in vinegar. Pour 3 tablespoons of vinegar in 1 dl water and put your vitamin tablet in it. If the tablet dissolves in 20 minutes it is highly likely that it will dissolve in your stomach and will be absorbed. The vinegar test is especially important to test Calcium supplements. Best to take multivitamins in a capsule form.

What do you need to know when taking supplements

- Iron has been a very important topic for supplementation of adult. We need to take a few important things on mind about iron. Iron is necessary for our red blood cell to transport oxygen. Iron with copper, is a highly free radical forming compound in the body. Free radicals destroy healthy cells and may cause cancer of many different kinds. Pregnant women and women who menstruate and lose some amount of blood each month may need to take extra iron. Endurance athletes with confirmed iron deficient anemia need to take iron supplements as well. Iron and as part of a multivitamin for man and post menopause women has not been recommended.
- Be aware of interaction. Vitamin C and E absorb on the same site of the intestines so take them at least 20 minutes apart. The same is true for Mg and Ca, so do not take them together. Magnesium cannot be absorbed while under stress. So if you take Mg during the day it is highly likely that it will not absorb. The best time to take Mg is at bedtime (right before you go to bed). Vitamin C increases iron absorption, so it is the best to take it together. Or take vitamin C when you eat red meat (more iron will be absorbed from the meat)
- Take vitamins with food. Fat soluble vitamins need fat to absorb. These are Vitamin A, D, E, K.
- Think about nutritional supplement as food and keep it in the fridge. This is especially necessary for essential oils, such as flaxseed or fish oil. The so-called double bounds, making these molecules essential for the body disappear to heat, light and oxygen. The best to take essential oils in capsule form packaged in dark glass bottle and store them in the fridge.
- Make sure to keep Ca:Mg ratio 2:1. Magnesium keeps calcium dissolved in the body. Too much Ca can precipitate in your body and causes stone formation. The very painful kidney stones in men are one of the signs of magnesium deficiency.
- Spread out your vitamin intake during the day. Take your vitamins and nutritional supplements in 3 parts, to provide optimal absorption and to avoid interaction.
- Probiotics such as *Lactobacillus* and *Bifidus* species should come from human source. Most probiotic supplements contain bovine source of these important protective bacterias, which are normally part of our gut immunity. Probiotics bacterial count shall reach minimum 10^7 and the capsule should dissolve in the small intestine in order to deliver the probiotic bacterias to their target place. Take probiotics on empty stomach, best time is in the morning after awakening and wait half hour before eating.
- Food allergies such as gluten (protein part of most grains) sensitivity for example can destroy the gut micro villi and the digestive enzymes can disappear. This can cause an array of digestive disorders (rheumatoid arthritis, migraines, puffy eyes, psoriasis, schizophrenia, autism large intestinal cancer etc.) and the over population of candida, bacteria and parasites. These people can greatly benefit from supplemental digestive enzymes (hydrochloric acid, and pancreatic enzymes) taken 10 minutes before meal time, besides following a special gluten-free diet.

- If you have difficulty losing weight, you must support your liver detoxification. Fat functions as a buffer, fat stores toxins in the body. When the fat storage opens, the fat and the toxins come out to the blood together. If the liver detoxification pathways are overwhelmed due to unhealthy eating (food additives, food colors, flavoring and sweeteners), pesticides, chemicals, environmental pollutants, medication, hormones, birth control pills, alcohol abuse – it cannot detoxify the toxins coming out from the fat storage. Fat then will bind the toxins again and take it out from the blood back into the fat storage. Liver detoxification supporting supplements substance, such as Selenium, Molybdenum, R- alfa Lipoic acid, glutathion, S-adenozil-methionine, Sylimaryn from St. Maries Thistle, cumin, flavanoids etc. provide safe and long-term fat loss and protect the liver from further damage.

Amino Acid Supplementation

Extreme stress such as strenuous physical exercise, chronic illness, vegetarianism, calorie restricted diet, muscle wasting due to illness increases protein (muscle and enzyme) brake down in the body. Therefore athletes, people who begin to exercise, those who want to lose weight, elderly, and chronically ill benefit from amino acid supplementation (For more specifics and detail on amino acid supplementation for performance and muscle building please refer my article in the previous issue of Exercising Bodies).

L-carnitene: Nutritional supplementation for promoting fat loss

Besides proper protein and amino acid intake the body needs L-carnitine to optimize fat oxidation (using fat for energy). L-carnitine transports fat inside the cell to the mitochondria where it can be "burned". If your body does not have enough L-carnitine you endurance performance and your fat loss will suffer. The natural source of L-carnitine is found in meat. L-carnitene is deficient in vegetarians, in stressed out people (not only mentally but physically stressed out such as endurance athletes) and overweight / obese. Extra L-carnitine supplementation of 900-1200 mg of L-carnitine may be necessary for these individuals.

L-carnitine is highly unstable. Heat, light and oxygen destroys L-carnitine molecule so it is o longer effective. Therefore, buy L-carnitine in capsule form packaged in a dark glass bottle and keep it in the refrigerator.

Take care of your body physically!

Besides nutritional supplementation, in order to maintain health we need to take care of our body physically as well. Both physical care and nutritional supplementation is essential to good health.

1. Take time each day to practice deep breathing (take yoga) and work on your posture (practice bringing your scapula, your shoulders back).
2. Do weight training twice a week and cardio exercise 30-45 minutes 3-5 times a week. For weigh loss walk 45 minutes each day.
3. Do 30 minutes house work, gardening, playing with children etc. each day.
4. Have a massage occasionally
5. Find a hobby and spend some time each week enjoy it
6. Spend half an hour each day for yourself, thinking, meditating, doing things which makes you happy.

Summary

As you can see there is no magic pill! Individualized nutritional supplementation, as part of healthy and well balanced diet, active life style and healthy mental attitude, can optimize your health and performance. You cannot bypass changing yourself. The first step is taking responsibility for your life. Accept the fundamental truth that your happiness depends on only one person in this life, and that is you! Change first is your attitude toward your life and all will fall in places. Do not wait until you must do something about your health condition, your body weight and your illness. Prevent it!

Reference

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