Nutrition: Vitamins and Minerals

Cooperative Extension South Dakota State University

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Email: sdsu.extension@sdstate.edu

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NUTRITION

VITAMINS

AND

MINERALS
Vitamins are chemical compounds which are required by the body in small amounts.

What do Vitamins Do?

Vitamins do many things, but in general, they are catalysts. Your metabolism is made up of millions of chemical reactions which go on day in and day out without your ever even knowing it. Let's discuss one vitamin, thiamin, in detail. Thiamin is involved in many chemical reactions in your body. An apple contains a sugar called fructose, fiber and some vitamins and minerals. Your body, in a series of reactions, breaks down this sugar to glucose, which then yields energy and carbon dioxide (which is exhaled from your lungs). Thiamin is needed to change (catalyze) glucose into energy and carbon dioxide, similar to the way a spark plug is used to change gas and air into energy (movement) and exhaust in a car.

Some thiamin is necessary to provide energy to the body BUT extra thiamin WILL NOT give you extra energy, just like extra spark plugs will not give you better mileage.

Nutrients work together in our bodies to do specific jobs.

Blood Builders

Iron, B12 and folic acid are all necessary for the formation of blood cells. They are all needed together. In addition, calcium, vitamin E and K are needed to keep red blood cells intact and aid in the clotting of blood.

Bone Builders

Calcium and phosphorus make up 85% of the weight of our bones. In addition, vitamin D and vitamin C help our bodies build bones and teeth.

Calcium is needed also to help muscles contract...if you do not consume enough calcium to support your muscle contractions...your body must draw the calcium from your bones.

Functioning of Nerves

B12, niacin, thiamin, magnesium, and calcium are all needed in different ways to insure proper functioning of our nerves. All are necessary, but extra amounts will not calm your nerves.

Functioning of Muscles

Protein, calcium, magnesium, and potassium, are all necessary for the contraction and maintenance of muscle tissue.

Providing Energy to Cells

Protein, carbohydrate, and fat, pantothenic acid, pyridoxine, niacin, riboflavin, thiamin, are all involved in providing energy to cells. Protein, carbohydrate and fat all contain calories. The enzymes of our bodies transforms these complex compounds into similar ones which can be used by our cells. Many enzymes use one vitamin to help do their jobs.

Vitamin Myths

There are hundreds of vitamin myths. It is true that vitamin D is necessary to the formation of strong bones, however, extra vitamin D will not give you extra strong bones. Some is necessary; excessive amounts can be harmful. It is true that some vitamin A is needed to maintain healthy skin, but extra vitamin A will not give you glowing, radiant skin. If you want to be healthier, don't smoke, maintain ideal weight, exercise and eat a well balanced diet. That's what it takes to improve your health.

Look for Vitamins in Food, Not Pills

When most people hear the word "vitamins," they think of pills... vitamin pills. However, even today with all the miracles of science, there is no better source of vitamins than the food you eat.

Some of the vitamin companies lead us to believe that our food today does not contain all the vitamins and minerals it did thirty years ago. Actually, the foods we have available have never been better.

If you eat a well balanced diet, you will get all the nutrients you need from food. Meat group foods contain protein, iron, and B vitamins. Milk group foods contain protein and calcium. Fruits and vegetables contain vitamin A, vitamin C and fiber. Bread and cereals contain B vitamins, iron and fiber. If you eat foods from each of the food groups you will get all the nutrients you need to be healthy.

If you choose to take vitamin supplements, be sure to watch how
much you take. If you eat a cereal which provides 100% of the RDA and take vitamin pills which provide 100% of RDA you could be taking too much! Our bodies were meant to use foods, not highly concentrated forms of vitamins and minerals.

How Much of the RDA Do You Need?

Although vitamins are crucial to our existence, we need only a small amount of them. The RDA's which are listed on the packages are actually higher than most people need. When the National Research Council developed the RDA's, they determined what the minimum requirement was and then added a generous allowance. If you consume just 100% of the RDA, chances are you are consuming more than enough of the nutrients you need already. If on top of this, you take extra pills, there is a chance you might be consuming too much. Excessive amounts of some vitamins can be harmful. For example, too much vitamin A during pregnancy has been associated with cleft palate. These toxic amounts of vitamins are almost impossible to obtain by eating foods, however, it is possible to get toxic amounts by taking pills.

Who Should Take Vitamin Pills?

If you think you should be taking vitamin pills, check with your doctor, nutritionist or dietitian.

What About Natural Vitamins?

Several companies make natural vitamins. A product labeled "Rose Hips Vitamin C" most likely contains only a small fraction of vitamin C from Rose Hips. A standard dose of vitamin C would be as big as a golf ball if Rose Hips alone were used. If you want natural vitamins...all you have to do is eat wisely. That's as natural as you can get.

Go natural all the way...get your vitamins and minerals from food.

Our bodies take food, plants and animals and change them into energy for growth and activity. People have survived for centuries without vitamin pills and most people still don't need them.