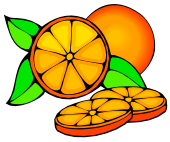
UF UNIVERSITY of FLORIDA
IFAS Extension

FCS8808

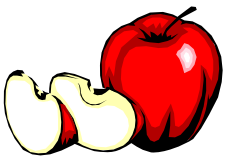
Facts about Vitamins[1]

R. Elaine Turner[2]

What are vitamins?



Vitamins are chemical compounds that the body uses in a variety of ways. We need to get vitamins from our diet because we can't make them in the body.



There are 13 different vitamins that have been identified as important nutrients for humans.

What are the different types of vitamins?

Vitamins are grouped as **water-soluble** and **fat-soluble.** The water-soluble vitamins include vitamin C and the B vitamins. The fat-soluble vitamins are vitamins A, D, E, and K.

Water-soluble and fat-soluble vitamins differ in how easily they dissolve in water. This mainly affects how the different types of vitamins are absorbed and carried in the body.

Most vitamins have both a chemical name and a letter name. This table shows the names of all the vitamins.

Water-Soluble Vitamins

Ascorbic Acid……Vitamin C

Thiamin……Vitamin B_1

Riboflavin……...Vitamin B_2

Niacin……Vitamin B_3

Pyridoxine……Vitamin B_6

Cobalamin……..Vitamin B_{12}

Folate
Pantothenic Acid
Biotin

Fat-Soluble Vitamins

Retinol……..Vitamin A
Calciferol……..Vitamin D
Tocopherol……..Vitamin E
Quinones……..Vitamin K

1. This document is FCS8808, one of a series of the Department of Family, Youth and Community Sciences, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Publication date: December 2006. Please visit the EDIS Web site at http://edis.ifas.ufl.edu.

2. R. Elaine Turner, PhD, RD, associate dean, College of Agricultural and Life Sciences, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611.

What do vitamins do in the body?

Vitamins work in many reactions that regulate body processes.

- All of the B vitamins help us get energy from the foods we eat.
- Vitamin C, vitamin E, and beta-carotene (a form of vitamin A) act as antioxidants. They prevent cells from being damaged by oxygen.
- Vitamin A is important for normal vision.
- Vitamin D is needed for bone health.
- Vitamin K is important for blood clotting.

Where are vitamins found in foods?

All of the food groups have foods rich in vitamins. Milk naturally contains riboflavin and is fortified with vitamins A and D. Enriched grain products contain added thiamin, riboflavin, niacin and folic acid.

Vitamin C is found in fruits and vegetables, while only animal foods naturally contain vitamin B_{12}. Some high-fat foods, such as vegetable oil, salad dressing, nuts, seeds, and mayonnaise, are rich in vitamin E.

It's important to eat a variety of foods from each of the food groups to get all the vitamins you need.

MyPyramid.gov
STEPS TO A HEALTHIER YOU

For information about nutrients found in the various food groups, see http://www.MyPyramid.gov or contact your local Extension office.

Do fresh foods have the most vitamins?

Fresh fruits and vegetables are good sources of many vitamins. The fresher they are, the more vitamins they contain. Farmer's markets are great sources of fresh fruits and vegetables in season.

Canned and frozen fruits and vegetables can be just as nutritious as fresh produce. When produce is canned or frozen, it is processed quickly and then sealed in a package to reduce further loss of vitamins.

How can I get the most out of the foods I eat?

Vitamins, especially water-soluble vitamins, can be lost from foods when exposed to heat, light, and/or air. Cooking foods, especially if they are chopped up and cooked for a long time in large amounts of water, reduces their vitamin content. Here are some cooking tips to help preserve the vitamin content of your foods:

- Use as little water as necessary.
- Keep the pieces of food as large as possible.
- Cook for a short period of time.
- Microwave, stir-fry, or steam vegetables.
- Use vegetable cooking water to make soups or stews (use within a couple of days, or freeze).

How much of each vitamin do I need each day?

The amount of vitamins we need is actually very small--much smaller than the amounts of

carbohydrates, protein, and fat required for a healthy diet. For example, we need only a few micrograms of vitamin B_{12} per day. To give you an idea of how little this is, a teaspoon of vitamin B_{12} is enough to meet the daily needs of over 2 million adults!

The % Daily Value for a vitamin on a food label shows you what percent of a typical healthy adult's daily need for that vitamin is provided by a serving of the food. For example, an 8-ounce glass of orange juice provides 120% of the Daily Value for vitamin C, and 15% of the Daily Value for folate.

100% Orange Juice – Calcium-Fortified Nutrition Facts

Serving Size 8 fl oz (240 ml)
Servings Per Container 8

Amount Per Serving	
Calories 110	Calories from fat 0
	% Daily Value
Total Fat 0g	0%
Sodium 0mg	0%
Potassium 450 mg	13%
Total Carbohydrate 26g	
Sugars 22g	
Protein 2g	
Vitamin C 120%	Calcium 35%
Thiamin 10%	Riboflavin 6%
Niacin 4%	Vitamin B_6 5%
Folate 15%	Magnesium 6%

Not a significant source of saturated fat, cholesterol, dietary fiber, vitamin A or iron.

*Percent Daily Values are based on a 2,000 calorie diet.

Should I take supplements to get the vitamins I need?

While it's possible to get all the vitamins you need by making healthy food choices, people sometimes need supplements.

For example, all women of childbearing age should get 400 micrograms of folic acid each day from fortified foods or a supplement, in addition to folate from a varied diet.

Older adults may have difficulty absorbing vitamin B_{12} from foods. They also need more vitamin D as they age. Most of their B_{12} intake should come from fortified foods or supplements.

Pregnant women should ask their physician about the supplements that are right for them.

Can large amounts of vitamins be harmful?

With vitamins, as with many things in life, more is **not** necessarily better. Some vitamins can be toxic in large doses (see table below). Side effects range from stomach upset or diarrhea to liver damage or birth defects.

WARNING!!!

Do NOT consume more than these amounts!

Niacin	35 mg (from supplements)
Vitamin B_6	100 mg (from supplements)
Folate	1,000 mcg (as folic acid)
Vitamin C	2,000 mg
Vitamin A	3,000 mcg (10,000 IU)
Vitamin D	50 mcg (2,000 IU)
Vitamin E	1,000 mg (1,500 IU)

mg = milligrams
mcg = micrograms
IU = International Units

Excessive intakes of vitamins usually come from high-dose supplements. That's why most people should choose supplements that contain no more than 100 to 150% of the Daily Value for each vitamin.

Typical Label for Multivitamin

Supplement Facts

Serving Size 1 Tablet

Each Tablet Contains		%DV
Vitamin A (20% as Beta Carotene)	5,000 IU	100%
Vitamin C	60 mg	100%
Vitamin D	400 IU	100%
Vitamin E	30 IU	100%
Vitamin K	25 mg	31%
Thiamin	1.5 mg	100%
Riboflavin	1.7 mg	100%
Niacin	20 mg	100%
Vitamin B_6	2 mg	100%
Folic Acid	400 mcg	100%
Vitamin B_{12}	6 mcg	100%
Biotin	30 mcg	10%
Pantothenic Acid	10 mg	100%

High doses of vitamins are more likely to be a problem if taken daily over time.

Large amounts of thiamin, riboflavin, vitamin B_{12}, pantothenic acid, biotin, and vitamin K usually don't cause problems.

If you currently are taking medications, check with your doctor or pharmacist to see if there are any reasons that you should or shouldn't take a vitamin supplement. Some vitamins interfere with how well a medication might work in the body. Also, some medications can interfere with how well the body uses vitamins.

Where can I get more information?

The Family and Consumer Sciences (FCS) agent at your county Extension office may have written information and nutrition classes for you to attend. Also, a registered dietitian (RD) can provide reliable information to you.

Reliable nutrition information may be found on the Internet at the following sites:

http://fycs.ifas.ufl.edu
http://solutionsforyourlife.ufl.edu
http://mypyramid.gov
http://www.nal.usda.gov/fnic
http://www.nutrition.gov