



# Extension FactSheet

Human Nutrition, 1787 Neil Avenue, Columbus, OH 43210

## Vitamin A (Retinol)

This fact sheet is one in a series containing information to help you select foods that provide adequate daily amounts of vitamins, minerals, and dietary fiber. The Dietary Guidelines Advisory Committee just released the Dietary Guidelines for Americans 2005 that convey the following nine major messages concerning these topics:

- Adequate nutrients within calorie needs
- Weight management
- Physical activity
- Food groups to encourage: fruits and vegetables, whole grains, and nonfat or low-fat milk and milk products
- Fat
- Carbohydrates
- Sodium and potassium
- Alcoholic beverages
- Food safety

### What is the importance of vitamin A?

Vitamin A, a fat-soluble vitamin, plays essential roles in vision, growth, and development; the development and maintenance of healthy skin, hair, and mucous membranes; immune functions; and reproduction.

### How much do you need?

Vitamin A is also called retinol. Measurement of the amount of vitamin A is taken in retinol activity equivalents (RAE). Carotene, an orange pigment found in food, is split by the body to become two active units of vitamin A. This is also important when calculating the amount of vitamin A in the body.

The U.S. Recommended Daily Allowance (RDA) for vitamin A is 700 RAE per day for women and 900 RAE per day for men. The U.S. RDA given is for adults and changes for women who are pregnant or lactating; therefore, please consult your healthcare provider for differences.

A good source of vitamin A contains substantial amounts of vitamin A and/or carotene in relation to its calorie content and contributes at least 10% of the U.S. RDA for vitamin A in a serving.

### Do Americans get enough vitamin A?

According to recent surveys by the U.S. Department of Agriculture (USDA), the average intake of vitamin A (and carotene) by an American adult is adequate.

### How to get enough vitamin A.

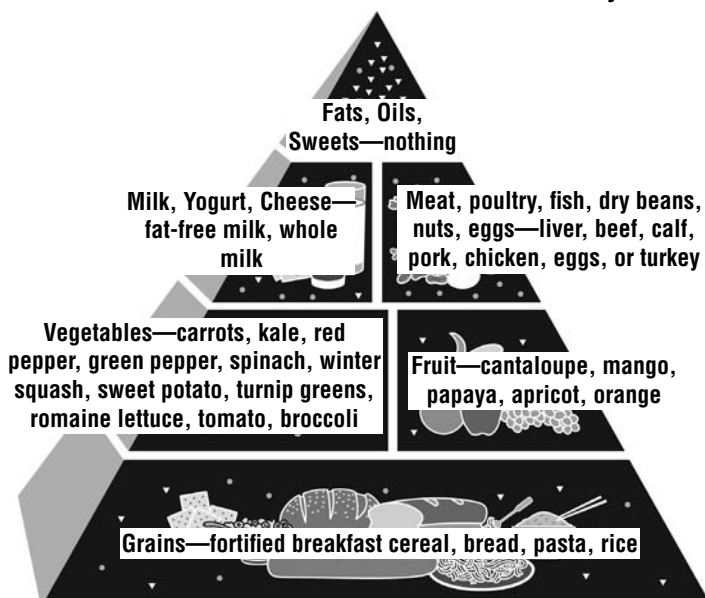
Eating a variety of foods that contain vitamin A (and carotene) is the best way to get an adequate amount. Healthy individuals who eat a balanced diet rarely need supplements. In fact, too much vitamin A can be toxic. Select foods that contain excellent to good sources of vitamin A each day.

### How to prepare foods to retain vitamin A.

Vitamin A can be lost from foods during preparation, cooking, or storage. To prevent loss of vitamin A:

- Use raw fruits and vegetables whenever possible.
- Keep vegetables (except sweet potatoes and winter squash) and fruits covered and refrigerated during storage.

### Where to find vitamin A in the Food Guide Pyramid.



### Good Sources of Vitamin A

Food	Serving Size	RAE	% RDA men	% RDA women
Sweet Potato.....	1/2 C .....	1400.....	155.....	200
Carrot .....	1 medium .....	1015.....	112.....	145
Kale, boiled .....	1/2 C .....	240.....	26.6.....	34.2
Mango .....	1/2 medium.....	200.....	22.2.....	28.5
Turnip Greens .....	1/2 C .....	200.....	22.2.....	28.5
Spinach, raw.....	1 C.....	185.....	20.5.....	26.4
Papaya.....	1/2 medium.....	150.....	16.6.....	21.4
Red Bell Pepper .....	1/2 medium.....	140.....	15.5.....	20
Apricot .....	3.....	135.....	15.....	19.2
Cantaloupe .....	1/2 C .....	130.....	14.4.....	18.5
Milk, Fat Free.....	1 C.....	150.....	16.6.....	21.4
Romaine .....	1 C.....	70.....	7.7.....	10
Egg, large .....	1.....	95.....	10.5.....	13.5
Milk, whole.....	1 C .....	75.....	8.3.....	10.7
Tomato, raw .....	1 medium .....	35.....	3.8.....	5
Broccoli.....	1/2 C .....	35.....	3.8.....	5
Green Bell Pepper.....	1/2 C .....	15.....	1.6.....	2.1
Orange.....	1 medium .....	15.....	1.6.....	2.1

- Steam vegetables and braise, bake, or broil meats instead of frying. Some of the vitamin A is lost in the fat during frying.

#### What about fortified foods?

Low-fat and skim milk are often fortified with vitamin A because it is lost during processing. Margarine is fortified to make its vitamin A content the same as butter.

Most ready-to-eat and instant prepared cereals are fortified with vitamin A. Fortified ready-to-eat cereals usually contain at least 25% of the U.S. RDA for vitamin A. Cereals vary, so check the label on the package for the vitamin A content for that cereal.

#### What is a serving?

The amount of vitamin A in a serving depends on the weight of the serving. For example, ½ cup of a cooked vegetable contains more vitamin A than ½ cup of the same vegetable raw, because the cooked vegetable weighs more. Therefore, the cooked vegetable provides vitamin A, just not enough in a ½-cup serving to be considered a good source.

Food companies label their products according to regulations set by the Food and Drug Administration (FDA). Terms to define a serving of food that has 20% or more of the RDA

include: “high,” “rich in,” or “excellent source of” vitamin A. Terms to define a serving of food that contains 10% or more of the RDA include: “good,” “contains or provides” vitamin A. Terms to define a serving of food that contains less than 10% of the RDA include: “enriched,” “fortified,” or “added” vitamin A.

#### References

- Browne, M. B. 1993. *Label Facts for Healthful Eating*. Mazer Corporation, Dayton, OH.
- Federation of American Societies for Experimental Biology, Life Sciences Research Office. Prepared for the Interagency Board for Nutrition Monitoring and Related Research, 1995. *Third Report on Nutrition Monitoring in the United States: Volumes 1 and 2*. U.S. Government Printing Office, Washington, DC.
- Subcommittee on the 10<sup>th</sup> Edition of the RDAs, Food and Nutrition Board, Commission on Life Sciences, National Research Council. 1987. *Recommended Dietary Allowances, 10<sup>th</sup> ed.* Academy Press, Washington, DC.
- U.S. Department of Agriculture, U.S. Department of Health and Human Services. *Your Health: Dietary Guidelines for Americans, 4<sup>th</sup> ed.* Home and Garden Bulletin No. 232. U.S. Government Printing Office, Washington, DC.

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