

Culinary Nutrition News:

Vitamin D: The Sunshine Vitamin

Provided through a partnership between ACFEF Chef & Child Foundation and Clemson University, and sponsored by French's Foodservice

Recently, there has been increased interest and caution surrounding the topic of vitamin D. Perhaps you have heard whispers among customers and staff at your restaurant. Can vitamin D help prevent heart disease, cancer and diabetes? How much do we need? Should we take supplements to ensure that we get enough? Before answering these questions and others, it is important to understand what vitamin D is, what it does and where to obtain it. So, if it's a sunny and pleasant day where you are, find a seat outside and take a load off as we investigate the hype surrounding the infamous "sunshine vitamin."

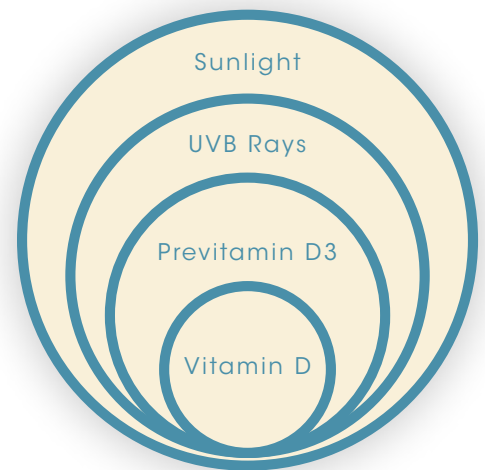
What it is

Vitamins are chemical substances that perform specific functions in the body. They are considered essential nutrients because our bodies cannot produce them and, therefore, we must consume them in our diets. Vitamins are classified as either fat-soluble (vitamins A,

D, E and K) or water-soluble (vitamins B and C), depending on their behavior in the body. Vitamin D is considered a fat-soluble vitamin. Fat-soluble vitamins are transported through the body by being absorbed and stored in fat. Water-soluble vitamins are dissolved in water and transported through the body. Since they cannot be stored, they must be consumed on a routine or daily basis. Conversely, fat-soluble vitamins are stored in your liver and fatty tissues and are eliminated much more slowly.

What it does

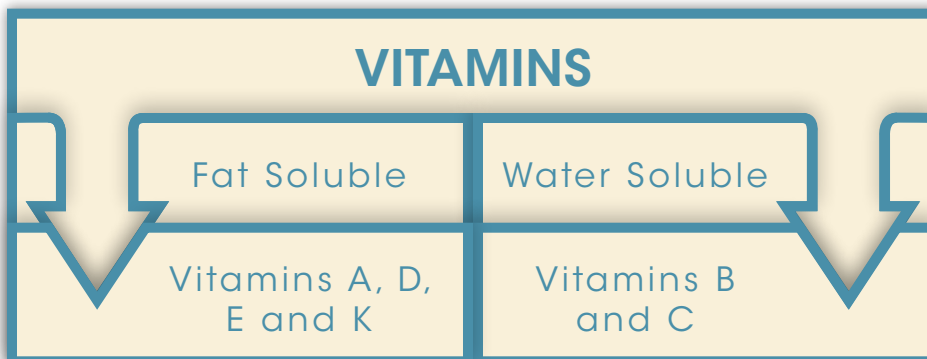
Vitamin D is a nutrient that helps almost every part of the body. Specifically, vitamin D is required to form and maintain strong bones. The major biological function of vitamin D is to maintain normal blood levels of calcium and phosphorus. Some nutrients, such as water-soluble vitamins, are put to work immediately by the body in the form in which they are consumed. However,



vitamin D and other fat-soluble vitamins, require processing and are stored before using. Unlike other vitamins, vitamin D also behaves as a hormone in the body by relaying chemical messages. For example, vitamin D signals the intestines to absorb calcium from foods and to regulate its uptake by bone cells.

Where to obtain it

Vitamin D is unique in that the most important source of this nutrient is not food, but sunlight. Hence, the reason it is coined the "sunshine vitamin." The term "vitamin D" refers to several different forms of this vitamin. Two forms are important in humans: ergocalciferol (previtamin D2) and cholecalciferol (previtamin D3). Previtamin D2 is derived from plant sources and can only be obtained through diet. Previtamin D3 is



the most readily absorbed form and is synthesized by our skin when exposed to ultraviolet-B (UVB) rays from sunlight. Foods may be fortified with previtamin D2 or D3, but the best way for children and adults to get vitamin D is by exposing the skin to the sun for 5 to 15 minutes a day. Sun exposure builds adequate amounts of vitamin D without the risk of overdose. Very few foods naturally have vitamin D, and fortified foods provide most of the vitamin D in American diets.



Mushrooms provide some vitamin D, but recently the amount has been boosted in some by ultraviolet light.

Food sources

FATTY FISH such as salmon, tuna and mackerel are among the best sources of vitamin D.

BEEF LIVER, CHEESE, and egg yolks provide small amounts.

MUSHROOMS provide some vitamin D. Recently, stores have made mushrooms available that have a boosted vitamin D amount because they have been exposed to ultraviolet light.

ALMOST ALL of the U.S. milk supply is fortified with 400 international units (IU) of vitamin D per quart. However, foods made from milk, such as cheese and ice cream are usually not fortified.

VITAMIN D is added to many breakfast cereals and to some brands of orange juice, yogurt, margarine and soy beverages, so be sure to check the labels.

sun for more than a few minutes, wear protective clothing and apply sunscreen with an SPF (sun protection factor) of 8 or more. On pleasant days in warmer months, offer outdoor seating at your restaurant, so your customers can fulfill their food cravings and vitamin D needs.

However, clothing, sunscreen, indoor living, shade, cloudy days and dark-colored skin can reduce the amount of vitamin D made by our skin. Of all the factors that affect our ability to synthesize vitamin D from sunlight, latitude and time of year are most significant. During the winter months (November to February) in the northern half of the United States—above a line drawn between Boston and the northern border of California—there's not enough UVB rays in sunlight for skin to make into vitamin D. Therefore,

people who avoid the sun, cover their skin with sunscreen or clothing, or live in the northern half of the United States during the winter months, should include good sources of vitamin D in their diets.

Even with the fortification of milk and other products, it can still be difficult to get enough vitamin D through your diet, so you may want to consider taking a supplement. Some people believe daily doses of 1,000 to 4,000 units can prevent ailments such as cancer, cardiovascular disease, arthritis, diabetes, influenza and immune disorders. However, further research needs to be conducted for these claims to be warranted. It is also important to remember that overdoses on vitamin D and other vitamins are primary caused by excessive intakes of vitamin supplements.

Amount needed

The body makes vitamin D when skin is directly exposed to the sun, and most people meet at least some of their vitamin D needs this way. However, skin exposed to sunshine indoors through a window will not produce vitamin D. Tanning bed rays do allow the skin to make vitamin D, but may increase risks of skin cancer. Despite the importance of the sun to vitamin D synthesis, it is still wise to limit your skin's exposure to sunlight in order to reduce the risk for skin cancer. When out in the

Amount needed by age

The amount of vitamin D needed depends on your age. Here are the average daily amounts needed for several different age groups:

Birth -12 months	400 IU
Children 1-13 years	600 IU
Teens 14-18 years	600 IU
Adults 19-70 years	600 IU
Adults 71 years and older	800 IU
Pregnant and breastfeeding teens and women	600 IU



Fatty fish such as salmon, tuna, and mackerel are among the best sources of vitamin D.

For More Information

The Office of Dietary Supplements (ODS) from National Institutes of Health provides a current overview of individual vitamins, minerals and other dietary supplements. ODS is writing fact sheets in three versions—for the health professional, consumer and quick facts. All versions provide the same types of information but vary in the level of detail. Visit: <http://ods.od.nih.gov/>

About the American Culinary Federation and the Chef & Child Foundation



The American Culinary Federation, Inc., established in 1929, is the premier professional organization for culinarians in North America. With more than 20,000

members in 225 chapters nationwide, ACF is the culinary leader in offering educational resources, training, apprenticeship and accreditation. In addition, ACF operates the most comprehensive certification program for chefs in the United States. ACF is home to ACF Culinary Team USA, the official representative for the United States in major international culinary competitions, and to the Chef & Child Foundation, founded in 1989 to promote proper nutrition in children and to combat childhood obesity. For more information, visit www.acfchefs.org.

About Clemson University



CU CHEFS® (Clemson University's Cooking and Healthy Eating Food Specialists) instructional program, led by Dr. Margaret Condcrasky, associate professor in Food Science and Human Nutrition, is a registered trademark of Clemson University designed to promote changes in menu planning, food purchasing, food preparation and food consumption behaviors with a goal of fostering good health through healthy nutrition. 'Culinary nutrition' is the application of nutrition principles combined with food science knowledge displayed through a mastery of culinary skills. The results are healthy eating behaviors grounded in culinary confidence and nutrition alertness. CU CHEFS® promotes an awareness of the latest trends in foods and nutrition through the demonstration of proficient culinary skills to produce flavorful, health-inspired menus for schools, churches and restaurants. Clemson University, located in Clemson, S.C., is ranked 22 among the nation's top public institutions. Since 2001, Clemson has doubled external research funding, raised the academic profile of the student body, increased retention and graduation rates, launched high-profile economic development and earned national accolades, including being named *Time's* Public College of the Year.

About French's Foodservice



French's Foodservice is proud to sponsor this series of nutritional articles authored by Clemson University for the American Culinary Federation's Chef & Child Foundation. At French's Foodservice, we believe that "you are what you serve," and have built our reputation by providing the highest quality ingredients to meet the ever-changing needs of the foodservice industry. As chefs, restaurateurs, educators and nutritionists, you positively impact the health of our nation by advocating the positive impact of healthy eating, especially among children. We are proud to support this worthy cause.

Over the last 100 years, French's has become one of the most recognized and respected brands in America. Today, the French's Foodservice family of brands delivers the highest quality, most flavorful products possible. For the brands your patrons know and love and the incredible flavors that enhance everything from soups and salads to sandwiches and entrées, entrust your patrons to the flavors of French's.



Help customers obtain vitamin D by offering outdoor seating at your restaurant during warmer months.