

Vitamin D and Your Bones

Vitamin D: It Matters

Vitamin D is important throughout life to help your body use calcium to build and maintain strong bones. It may also increase muscle strength to help prevent falls and broken bones in older adults.

Recommended Daily Vitamin D Intakes

Age	Vitamin D in IU (International Units)
Birth to 12 months	400
1 to 70	600
71 or older	800

- Your health care provider may recommend more vitamin D than the above amounts.
- The American Academy of Pediatrics recommends 400 IU of vitamin D each day for infants from birth to 12 months. Vitamin D is found in formula or it is given as prescription drops (necessary for all breast-fed infants).

Three ways to get Vitamin D

There are 3 ways to get vitamin D: from sunlight, food, and supplements.

Vitamin D and the Sun

The body makes vitamin D when skin is exposed to the ultraviolet light (UVB rays) from the sun. During the winter months in New York, the UVB rays are not adequate to make enough vitamin D. In addition, as we age, our bodies are less able to make vitamin D from sun exposure. The most important factor that blocks the body's ability

to make vitamin D is the use of sunscreen to protect skin from sun damage. For all of these reasons, especially the importance of protecting your skin, it is recommended that people use sunscreen and get vitamin D from foods and/or supplements.

Nutrition Information about Vitamin D

There is limited but growing information available about the vitamin D content of foods. The USDA National Nutrient Database (www.nal.usda.gov) and food labels are the best resources for more information.

Reading Food Labels to Find Vitamin D Content (IU Vitamin D per serving)

1. Find the Vitamin D % (listed as % Daily Value per serving) (*Note: Currently the 100% Daily Value for Vitamin D = 400 IU*)
2. Drop the %
3. Multiply x 4

Example: To find the IU of Vitamin D per serving of milk

1. The label lists Vitamin D 25% in an 8-ounce cup
2. Drop the % = 25
3. $25 \times 4 = 100$ IU per 8-ounce cup

Supplemental Sources

It is very difficult for many individuals to get enough vitamin D from food. Many children and adults need to take vitamin D as a supplement, including all breast-fed infants and infants taking less than 1 quart of formula a day. Vitamin D comes in two sources, vitamin D2 and vitamin D3. Vitamin D2 is also called ergocalciferol and comes from vegetarian sources. Vitamin D3 is also called cholecalciferol and comes from animal sources. Vitamin D2 and vitamin D3 can both help protect your bones.

Non Fat Milk			
Nutrition Facts			
Serving Size		1 cup (240ml)	
Servings Per Container		8	
Amount Per Serving			
Calories	90	Calories from Fat	0
		% Daily Value*	
Total Fat	0g		0%
Saturated Fat	0g		0%
Trans Fat	0g		
Cholesterol	5mg		2%
Sodium	125mg		5%
Total Carbohydrate	13g		4%
Dietary Fiber	0g		4%
Sugars	12g		
Protein	8g		
Vitamin A	10%	Calcium	30%
Vitamin C	2%	Iron	0%
Vitamin D	25%		
*Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.			
	Calories	2000	2500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400m	2400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Supplements Containing Vitamin D

- Multivitamins
- Calcium with vitamin D
- Vitamin D alone (Do not select vitamin D in combination with retinol sources of vitamin A*)

Vitamin D is available in various doses over the counter without a prescription or as a prescription. Speak to your health care provider to find out how much vitamin D you need and the best source for you.

Vitamin A: Get it from Colorful Fruits and Vegetables

- Retinol (a form of vitamin A found in foods of animal origin and in some supplements) may have a negative effect on the skeleton. However, beta-carotene and other carotenoids (forms of vitamin A found in darkly colored red, orange and green fruits and vegetables, as well as in some supplements) appear to be safe for the skeleton.
- It is wise to avoid foods high in retinol content, including cod liver oil and liver, even though they are sources of vitamin D. You can easily get enough vitamin A by eating several daily servings of fruits and vegetables high in carotenoids such as, carrots, cantaloupe, sweet potatoes, and spinach.
- By reading the labels of supplements, you can find out the content and source of vitamin A. It is recommended to avoid combination vitamin D and A supplements, and to choose multivitamins that contain less than 80% of the Daily Value (DV) of vitamin A from retinol sources. Retinol sources may be listed on the supplement label as provitamin A, retinyl palmitate, vitamin A palmitate, retinyl acetate, and vitamin A acetate.

Vitamin D Sources from Foods:

Vitamin D is found in foods in the natural state as well as in some fortified foods. The natural sources tend to be high in fat and eaten only occasionally by most people.

Natural Sources of Vitamin D:	IU	per serving
Eel	792	3 ounces
Trout	645	3 ounces
Salmon (smoked chinook)	583	3 ounces
Swordfish	566	3 ounces
Salmon (pink, canned)	465	3 ounces
Salmon, sockeye	447	3 ounces
Catfish (wild)	425	3 ounces
Mackerel (Atlantic)	388	3 ounces
Salmon (wild)	307	3 ounces
Tuna (light, canned in oil)	229	3 ounces
Sardines (Atlantic, canned in oil)	164	3 ounces
Rockfish	156	3 ounces
Tuna (light, canned in water)	154	3 ounces
Halibut	196	3 ounces
Flounder or sole	118	3 ounces
Herring (pickled)	96	3 ounces
Tuna (white, canned in water)	68	3 ounces
Tuna, yellowfin	70	3 ounces
Shitake mushrooms	41	1 cup
Egg	41	1 large egg (including yolk)

Cod liver oil contains 450 IU of vitamin D per teaspoon and liver contains 42 IU per slice but they are not recommended sources of vitamin D (See Vitamin A: Get It From Colorful Fruits and Vegetables).

Fortified Sources of Vitamin D:

Fortified foods (foods with vitamin D added) supply most of the vitamin D in typical U.S. diets.

**Not all brands are fortified with vitamin D. Be sure to read food labels to select brands with vitamin D added.*

Fortified Sources of Vitamin D:	IU	per serving
Malted milk*	326	8 ounces
Oatmeal*	150	1 packet
Milkshake	123 to 150	11 ounces
Eggnog	123	8 ounces
Milk	115 to 124	8 ounces
Milk (evaporated)	100	4 ounces
Milk (instant, dry)	100	1/3 cup
Rice drink*	100	8 ounces
Soy milk or almond milk*	100	8 ounces
Orange juice*	100	8 ounces
Infant formulas	100	8 ounces
Yogurt*	80 to 200	6 ounces
Tofu*	80	3 ounces
Creamed soup made with milk	62	1 cup
Cereal, fortified	50 to 100	as listed on label
Pudding, made with milk	49 to 60	1/2 cup
Cheese*	40	1 slice or stick
Egg substitutes	50	1/4 cup
Margarine*	25	teaspoon

Sources: www.nal.usda.gov and food manufacturers' information