

FACT SHEET

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VITAMIN C

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Vitamin C is essential to good health. British sailors were called "limeys" for eating limes and lemons to prevent scurvy. Later, it was found that vitamin C is the nutrient in citrus fruit which prevents this disease. Scurvy is not prevalent in America today, but other signs of vitamin C deficiency sometimes appear among infants, young children and older adults.

Functions of Vitamin C in the Body

Vitamin C is necessary for normal functioning of all cells. It is essential for the formation of collagen, sometimes called "intercellular cement." Vitamin C is necessary for the structural soundness of bones, teeth, connective tissues, skin, cartilage and capillary walls. In this role vitamin C is important in wound-healing and the ability to withstand stresses of injury and infection.

Need for Vitamin C

The need for vitamin C increases with age and during pregnancy and lactation. The needs are reflected in the Recommended Dietary Allowances (RDA) for ascorbic acid—the amount recommended to be consumed by average healthy persons. See Table 1.

There may be an increased need for the vitamin under certain conditions of continued stress and drug therapy. However, consuming large doses of ascorbic acid on a routine basis is not wise without medical advice. The claim that excesses are beneficial in the treatment of arthritis and the common

Table 1. Recommended Dietary Allowances of Vitamin C.¹

	Age	Milligrams/day
Infants	up to 1 year	35
Children	1 to 10 years	40
Males and females	11 years and over	45
Pregnant		60
Lactating		80

cold has not been proven. A recent finding indicates that excessive amounts of vitamin C destroy vitamin B₁₂, so excessive doses actually may be harmful.

Getting Enough Vitamin C

The average American diet supplies 90 to 100 per cent of the vitamin C needed in the daily diet.

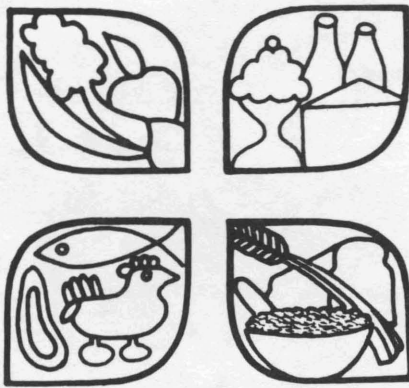
Food sources that contribute vitamin C include:
Meat, fish and poultry-1 per cent.
Dairy products including butter-4.7 per cent.
Citrus fruit-23.3 per cent.
Other fruits-11.7 per cent.
Potatoes and sweet potatoes-20.9 per cent.
Dark green and deep yellow vegetables-8.2 per cent.
Other vegetables including tomatoes-30.1 per cent.
Dry beans and peas, nuts, soya flour-less than 0.05 per cent.
Sugars and other sweets-less than 0.05 per cent.

Fruits and vegetables supply more than 94 per cent of the vitamin C intake in foods.

Vitamin C is not stored in the body except for small amounts in the liver. Thus it is needed in the diet daily.

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¹Food and Nutrition Board, National Academy of Sciences — National Research Council. Revised, 1973.



Follow the Daily Food Guide recommendation to be assured of adequate amounts of vitamin C. A serving of citrus fruit or other fruit or vegetable high in vitamin C is recommended. Three or more servings of other fruits and vegetables are recommended to help fulfill the day's total need. A 6-ounce glass of fresh or frozen orange juice supplies 80 to 100 milligrams of vitamin C, considerably more than the minimum daily allowance.

Store vitamin C foods covered in the refrigerator. Cook vitamin C foods quickly in non-copper saucepans with small amounts of water (no soda) to conserve the vitamin. Vitamin C is destroyed when exposed to air. Losses are hastened by warm temperature; long, slow cooking; and exposure to copper, and alkali, such as baking soda.

There are many other ways to insure adequate vitamin C in the diet. Fresh strawberries, melons, tomatoes or tomato juice supply 18 to 44 milligrams per serving. Vegetables that are good vitamin C sources also may be used as the main source or in combination with a second source, especially if citrus fruit cannot be tolerated or is unavailable. A half-cup serving of Brussels sprouts provides more than 45 milligrams of vitamin C. See Tables 2 and 3.

Table 2. Groups of fruits and vegetables that provide the RDA of vitamin C in the daily diet for normal adults.

FOOD	AMOUNT	VITAMIN C (MILLIGRAMS)
1. Grapefruit juice	1/2 cup canned	48
2. Spinach, cooked	1/2 cup	25
Potato, white	1 medium, baked or boiled with skin	20
		45
3. Tomato juice	1/2 cup	18
Okra, cooked	8 pods	17
Banana, fresh	1 banana	12
		47
4. Strawberries	1/2 cup	44
Squash, summer, cooked	1/2 cup	10
		54

Table 3. Amounts of vitamin C in common fruits and vegetables.

FRUITS	AMOUNT	VITAMIN C (MILLIGRAMS)
Oranges, fresh	1 orange	66
Cantaloupe	1/2 melon	63
Orange juice, frozen, diluted	1/2 cup	60
Grapefruit juice, frozen, diluted	1/2 cup	48
Grapefruit, fresh	1/2 grapefruit	44
Strawberries, fresh	1/2 cup	44
Blackberries, fresh	1 cup	30
Watermelon	1 wedge	30
Lemonade	1 cup	17
Bananas, fresh	1 banana	12
Apricots, canned	1/2 cup	10
Pineapple, crushed	1/2 cup	8
Rhubarb, cooked	1/2 cup	8
Peaches, fresh	1 peach	7
Pears, fresh	1 pear	7
Plums, fresh	1 plum	3
VEGETABLES		
Broccoli, cooked	1/2 cup	70
Brussels sprouts, cooked	1/2 cup	67
Collards, cooked	1/2 cup	43
Mustard greens, cooked	1/2 cup	34
Turnip greens, cooked	1/2 cup	34
Cauliflower, cooked	1/2 cup	33
Spinach, cooked	1/2 cup	25
Potatoes, sweet, baked	1 potato	24
Peppers, green, sweet, raw	1/4 pod	23
Tomatoes, fresh	1/2 tomato	21
Potatoes, white, baked	1 potato	20
Tomato juice, canned	1/2 cup	18
Okra, cooked	8 pods	17
Asparagus, cooked	4 spears	16
Cabbage, fresh, shredded	1/2 cup	16
Peas, green, cooked	1/2 cup	16
Sauerkraut, cooked	1/2 cup	16
Blackeyed peas, cooked	1/2 cup	14
Squash, winter, baked	1/2 cup	13
Radishes, fresh	4 radishes	10
Squash, summer, cooked	1/2 cup	10
Lettuce, fresh	2 leaves	9
Beans, green snap, cooked	1/2 cup	7
Corn, sweet, canned	1/2 cup	6
Cucumbers, fresh	6 slices	6
Onions, young, green	3 onions	6
Pumpkin, canned	1/2 cup	6
Beets, sliced	1/2 cup	5
Onions, mature	1/2 onion	5
Carrots, grated, fresh	1/2 cup	4
Celery, fresh	1 stalk	4
Potato chips	10 medium	3
Pepper, hot, red	1 tablespoon	2

Lack of Ascorbic Acid in the Diet

Some of the most obvious signs of scurvy are found in growing bone. Minerals and protein essential for bone formation may be present, but

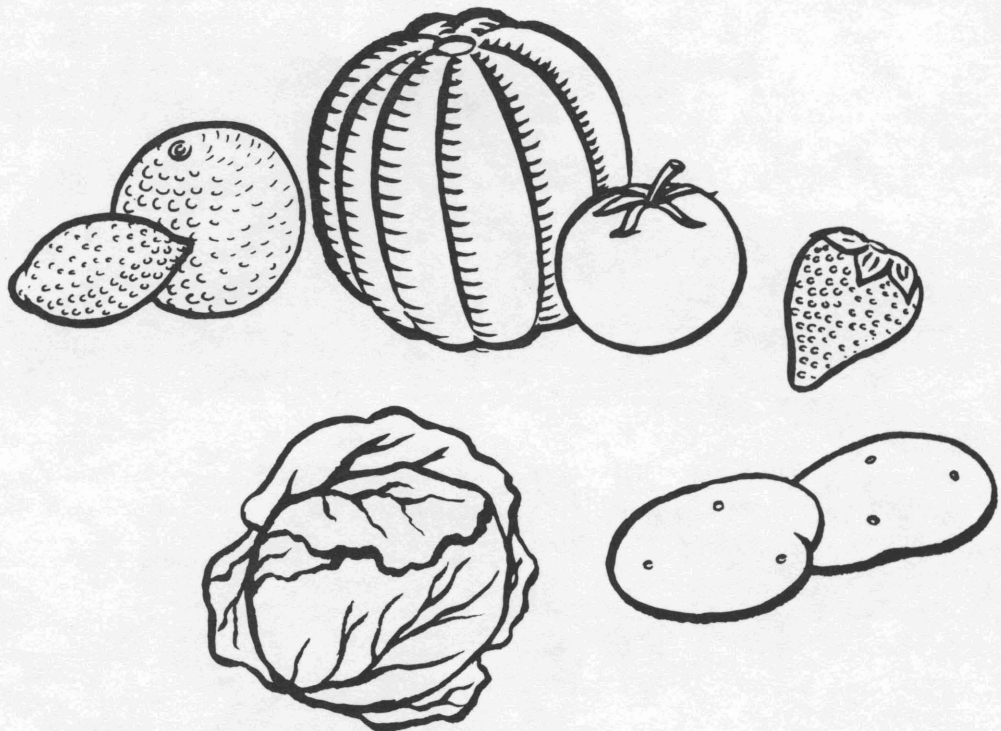
bones will not develop properly unless an adequate amount of vitamin C is present. Proper mineralization of human bones requires vitamin C for the intercellular cementing process.

A frequent sign of scurvy in the young child is "beaded" ribs. The front end of the ribs may be sore, and breathing uncomfortable and difficult.

Scurvy in young children also is characterized by soft, swollen tissue around joints, painful when touched.

In adults, vitamin C deficiency is evidenced by swollen gums that are spongy and bleed easily. The unhealthy condition makes gums highly susceptible to infection. If the condition is severe, teeth may loosen. This condition usually is called gingivitis.

The skin may become scaly and thickened. Small capillaries (tiny blood vessels) may hemorrhage in severe cases. The person may complain of fatigue and general ill health. Wounds do not heal easily and there is some lowered resistance to general infection.



Oranges and other citrus fruits are rich in vitamin C. Tomatoes, cantaloupe, strawberries, raw cabbage, turnip greens and potatoes are some other foods containing vitamin C.

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