



For your bones and blood

Vitamin K

What is my blood vitamin K level and how does it compare to the recommended level?

The vitamin K level in your blood was tested on:

(Date) _____ and the result was: _____.

The normal level for your age is: _____.

How do I maintain or improve my intake?

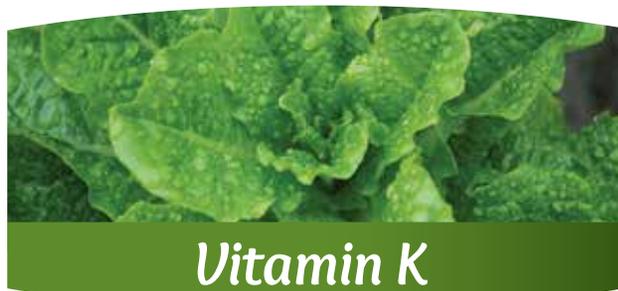
- Eat foods high in vitamin K
- Take my vitamins as prescribed
 - Brand _____
 - Dose _____
- Take my vitamins with foods and, if prescribed, enzymes
- Other Actions _____

What is vitamin K?

Vitamin K is a fat-soluble vitamin. This means that it is absorbed into the body with fat. So, if you take enzymes, it is important to take them with your food and vitamin supplements.

Why should I care?

Vitamin K is best known for its role in helping blood clot. Without enough vitamin K in the body, your blood takes longer to clot, which can be dangerous. Vitamin K also helps keep bones healthy.



Vitamin K

How much vitamin K do I need every day?

The daily recommended vitamin K intake from infancy through adulthood for people who do not have CF is 2 to 120 micrograms. People who have CF need more. Each person's needs are different, with some people needing more than others. These are the CF Foundation recommendations, which can be used as a guide:

Age	Vitamin K (mcg)
0 to 12 months	300 - 500
1 to 3 years	300 - 500
4 to 8 years	300 - 500
9 years and older	300 - 500

Studies now show that people who have CF may need more vitamin K than listed in the recommendations. The vitamin K in multivitamins designed for people who have CF is in a formulation that may make it easier to absorb. These supplements contain more vitamin K when compared to multivitamins for people who do not have CF.

What are the best sources of vitamin K?

The best food sources are the dark green leafy vegetables, especially spinach, broccoli, turnip greens, and Swiss chard. The good bacteria in the intestines also makes some vitamin K. However antibiotics can destroy these bacteria, so you need to rely on foods and supplements.

Can I get too much vitamin K?

Vitamin K is a generally safe vitamin, but taking too much of any nutrient may be harmful. It is best to work with your CF Healthcare Team to decide how much vitamin K is right for you.

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Helps fight infection to keep you healthy

Vitamin E

What is my blood vitamin E level and how does it compare to the recommended level?

The vitamin E level in your blood was tested on:

(Date) _____ and the result was: _____.

The normal level for your age is: _____.

How do I maintain or improve my intake?

Eat foods high in vitamin E

Take my vitamins as prescribed

Brand _____

Dose _____

Take my vitamins with foods and, if prescribed, enzymes

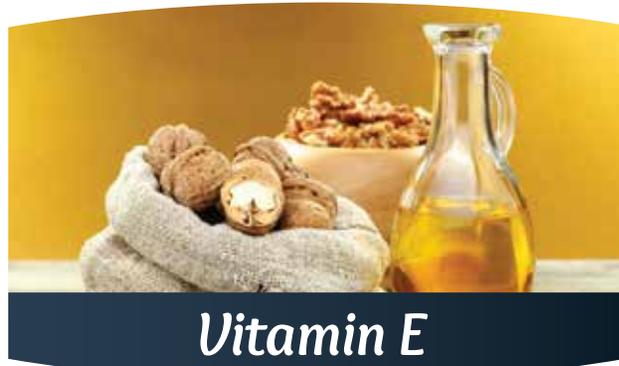
Other Actions _____

What is vitamin E?

Vitamin E is a fat-soluble vitamin. This means that it is absorbed into the body with fat. So, if you take enzymes, it is important to take them with your food and vitamin supplements. The most important form of vitamin E is alpha-tocopherol.

Why should I care?

Vitamin E is a strong antioxidant, which means it protects compounds in the body from combining with oxygen. Oxidized compounds become useless or harmful to the body. Vitamin E also helps to keep red blood cells healthy. Vitamin E also works in the lining of your lungs to help fight infection. It also helps maintain the health of your intestines. Not getting enough vitamin E over a long time can lead to vitamin E deficiency and problems with muscles and nerves.



Vitamin E

How much vitamin E do I need every day?

The daily recommended vitamin E intake from infancy through adulthood for people who do not have CF is 6 to 22 International Units (IU). People who have CF need more. Each person's needs are different, with some people needing more than others. These are the CF Foundation recommendations, which can be used as a guide:

Age	Vitamin E (IU)
0 to 12 months	40 - 50
1 to 3 years	80 - 150
4 to 8 years	100 - 200
9 years and older	200 - 400

The vitamin E in multivitamins designed for people who have CF is in a formulation that may make it easier to absorb. These supplements contain more vitamin E when compared to multivitamins for people who do not have CF.

What foods contain vitamin E?

The best food sources of vitamin E are vegetable oils, nuts, wheat germ, green leafy vegetables and fortified cereals. To preserve vitamin E, it is best to keep foods in a closed, dark container.

Can I get too much vitamin E?

Vitamin E is a generally safe vitamin, but taking too much of any nutrient may be harmful. It is best to work with your CF Healthcare Team when deciding how much vitamin E is right for you.

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Important for growth, taste, wound healing

Zinc

What is zinc?

Zinc is a mineral. Because the body cannot make zinc, it is called an “essential” nutrient and must be supplied by the diet or zinc supplements. Up until the 1960’s very little was known about zinc, but now it is clear that it plays a very important role in health.

How do I maintain or improve my intake?

- Eat foods high in zinc
- Take my CF multivitamin as prescribed
- If prescribed, take my zinc supplement as directed

Dose _____

- Other Actions _____

Why should I care?

Zinc is involved in over 300 bodily functions. Zinc helps keep your body healthy and works with other nutrients to promote growth, maintain taste and appetite, fight infection, heal wounds, and promote sexual development. Zinc also helps the liver release vitamin A into the blood. It is important to get enough zinc every day since it is involved in so many of the body’s functions.

Zinc

How much zinc do I need every day?

There are no specific recommendations for daily zinc intake for people who have CF. You may need more zinc than is recommended for people without CF. Your CF center dietitian (RD) can help you figure out how much zinc you need. The daily recommended intake of zinc from infancy through adulthood for people who do NOT have CF is about:

Age	Zinc (mg)
0 to 12 months	3
1 to 3 years	3
4 to 8 years	5
9 years and older	8 to 13

What are the best sources of zinc?

The best food sources are oysters, beef and beef liver. Good sources are high-protein foods such as turkey, cheese and milk. Many breakfast cereals are fortified with zinc. All forms of multivitamin supplements designed for people with CF have zinc, but not all over-the-counter multivitamins do. Look at the label of the multivitamin you are taking and make sure it contains zinc. Ask your CF center RD if your multivitamin has enough zinc.

Food	Zinc (mg)
Eastern Oysters (1/2 cup)	113.0
Total® cereal (1 cup)	11.3
Wheat germ (1/4 cup)	4.7
Ground beef (3 ounces)	4.6
Turkey, dark meat (3 ounces)	3.8
Cheerios® (1 cup)	3.8
Ricotta cheese (1/2 cup)	1.7
Peanuts (1/4 cup)	1.4
Milk (1 cup)	1.0
Whole wheat bread (1 slice)	0.5
White bread (1 slice)	0.2



Can I get too much zinc?

Too much zinc can interfere with other minerals so ask your CF Center dietitian if you need to take extra zinc.

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Carries oxygen in the blood to the lungs

Iron

What is iron?

Iron is a mineral. Because the body cannot make iron, it is called an “essential” nutrient and must be supplied by the diet or iron supplements.

How do I maintain or improve my intake?

- Eat foods high in iron
- If prescribed, take my iron supplement as directed
Dose _____
- Other Actions _____

Why should I care?

Most of the body’s iron is in the blood. Iron plays an important role in carrying oxygen from the lungs to all the cells of the body and it is also needed for other functions in the body. It is very important to get enough iron every day. Not having enough iron in your blood cells is called anemia. Not getting enough iron from the foods you eat is called iron deficiency anemia. Losing blood during menstruation or other forms of bleeding can also cause anemia. Having infections for a long time can cause another kind of anemia called anemia of chronic inflammation. Your CF Center medical team can determine if you are anemic and if you need iron supplementation.

Iron

How much iron do I need every day?

There are no specific recommendations for daily iron intake for people who have CF. Most people can get enough iron from food, but sometimes an iron supplement is needed. The daily recommended iron intake from food and supplements for all people is:

Age	Iron (mg)
0 to 12 months	11
1 to 3 years	7
4 to 8 years	10
9 years and older	8 to 27

What are the best sources of iron?

There are two forms of iron in food – heme and nonheme. Heme iron is found in animal protein such as beef and beef liver. Nonheme iron is found in non-animal protein foods like lima beans, kidney beans, lentils, dark green vegetables, and enriched and fortified cereals. The body is better able to absorb heme iron, but both types of iron are important for overall health. Nonheme iron and iron supplements are absorbed better if taken with a vitamin C source such as orange juice or another vitamin C-rich food.

Food Iron (mg)

Heme Iron

Beef liver (3 ounces)	5.3
Beef (3 ounces)	2.6
Chicken (3 ounces)	1.1

Nonheme Iron

Total® cereal	13.5
Farina cereal (1 cup)	12.0
Cheerios® cereal (1 cup)	8.4
Kidney beans (1/2 cup)	2.6
Spinach (1/2 cup)	2.4



Can I get too much iron?

You can get too much iron so it is best not to take an iron supplement without talking to your CF Center medical team. If you need to take iron supplements, ask your CF Center medical team how to take the supplement for best absorption and fewer side effects.

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Good for your eyes and lungs

Vitamin A

What is my blood vitamin A level and how does it compare to the recommended level?

The vitamin A level in your blood was tested on:

(Date) _____ and the result was _____.

The normal level for your age is _____.

How do I maintain or improve my intake?

Eat foods high in vitamin A

Take my vitamins as prescribed

Brand _____

Dose _____

Take my vitamins with foods and, if prescribed, enzymes

Other Actions _____

What is vitamin A?

Vitamin A is a fat-soluble vitamin. This means that it is absorbed into the body with fat. So, if you take enzymes, it is important to take them with your food and vitamin supplements. Vitamin A is available in different forms, such as retinol and carotenoids. Retinol is called preformed vitamin A. The carotenoids, such as beta-carotene, must be changed to retinol by the body.

Why should I care?

Vitamin A has many roles in health: normal vision, bone and tooth formation, cell function, and immunity. The carotenoids act as antioxidants. Vitamin A works in the lining of your lungs to help fight infection. It also helps to keep your intestines healthy.

Not getting enough vitamin A can lead to night blindness. This means your eyes do not adjust when going from a lighted area to a dark area, such as when entering a dark movie theater.

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Vitamin A

How much vitamin A do I need every day?

The daily recommended vitamin A intake from infancy through adulthood for people who do not have CF is 1,000 to 3,000 International Units (IU). People who have CF need more. Each person's needs are different, with some people needing more than others. These are the CF Foundation recommendations, which can be used as a guide:

Age	Vitamin A (IU)
0 to 12 months	1,500
1 to 3 years	5,000
4 to 8 years	5,000 - 10,000
9 years and older	10,000

The vitamin A in multivitamins designed for people who have CF is in a formulation that may make it easier to absorb. These supplements have more vitamin A when compared to multivitamins for people who do not have CF.

What are the best sources of vitamin A?

Preformed vitamin A, retinol, is found in animal foods like: liver, egg yolk, whole milk, and fortified low-fat milks. Fortified cereals also contain vitamin A. Plant foods such as: darkly colored fruits and vegetables, including carrots, sweet potato, spinach, broccoli, apricots, cantaloupe, and peaches are very good sources of beta-carotene.

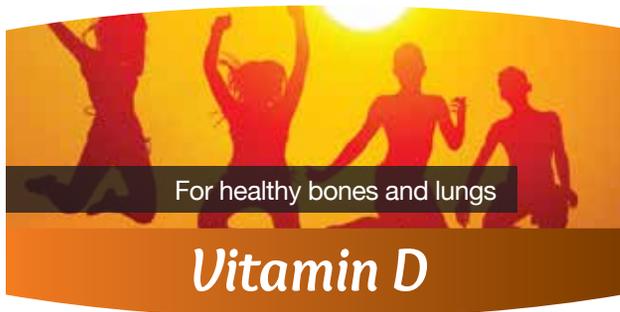
Can I get too much vitamin A?

Too much retinol can cause bone and liver problems. On the other hand, beta-carotene is safer. Pregnant women need to be careful not to take too much retinol daily, since it may be harmful to the developing baby. It is best to work with your CF Healthcare Team to decide how much vitamin A is right for you.

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For healthy bones and lungs

Vitamin D

What is my blood vitamin D level and how does it compare to the recommended level?

The vitamin D level in your blood was tested on:

(Date) _____ and the result was:

_____. The normal level for your age is:

_____.

How do I maintain or improve my intake?

Eat foods high in vitamin D

Get some sun exposure

Take my vitamins as prescribed

Brand _____

Dose _____

Take my vitamins with foods and, if prescribed, enzymes

Other Actions _____

What is vitamin D?

Vitamin D is a fat-soluble vitamin. This means that it is absorbed into the body with fat. So, if you take enzymes, it is important to take them with your food and vitamin supplements. Vitamin D is special because your body can make its own when your skin is exposed to sunshine. This is why vitamin D is called the “sunshine vitamin.”

Why should I care?

The best known job of vitamin D is to help build and maintain strong bones and teeth. It does this by keeping the right amount of the minerals calcium and phosphorus in your blood. Without enough vitamin D, bones can become thin and brittle. People who have CF are at risk for bone problems. So, it is important to get the right amounts of vitamin D every day.

Vitamin D

How much vitamin D do I need every day?

From infancy throughout adulthood, each person's need for vitamin D is different, with some people needing more than others. The CF Foundation recommends that vitamin D be prescribed in a step-wise fashion, starting with multivitamins designed specifically for people who have CF. The vitamin D in the CF multivitamins is in a formulation that may make it easier to absorb. Some people who have CF need extra vitamin D to reach normal blood levels and may be prescribed a CF multivitamin with more vitamin D or a separate vitamin D pill. Some children and adults will require additional amounts throughout life. These are the CF Foundation's starting dose recommendations, if more D is needed the CFF “Step”[®] recommendations should be followed:

Age	Vitamin D (IU)
0 to 12 months	400 - 500
12 months to 10 yrs	800 - 1,000
10 yrs to 18 yrs	800 - 2,000
9 years and older	800 - 2,000



What are the best sources of vitamin D?

Few foods have large amounts of vitamin D. Some fish, such as mackerel and canned sardines have vitamin D, so do fish-liver oils, like cod-liver oil. Milk usually is fortified with vitamin D and has 100 IU of vitamin D per cup (8 ounces). Foods made from milk, such as cheese, yogurt, and ice cream may not be made from vitamin D fortified milk. Be sure to read the labels. Fortified cereals and fortified soy products contain vitamin D.

Sunshine on the skin is a great source of vitamin D. But, too much sunshine can put people at risk for skin cancer. So it is important to talk to your CF Healthcare Team about the right amount of sunshine for you.

Can I get too much vitamin D?

It is possible to get too much vitamin D, especially from taking too much fish-liver oil or self-medicating with vitamin D pills. It is best to work with your CF Center Healthcare Team to decide how much vitamin D is right for you.

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For healthy bones and teeth

Calcium

What is Calcium?

Calcium is the most abundant mineral in the body. Because the body cannot make calcium it is called “essential” and must be supplied by the diet or supplements.

How do I maintain or improve my intake?

- Eat foods and drinks high in calcium
- If prescribed, take my calcium supplement as directed
Dose _____
- Other Actions _____

Why should I care?

The best known job of calcium is to help build strong (hard) bones and teeth. But, calcium also helps your nerves and muscles working correctly and helps your blood clot. If you do not get enough calcium from food or supplements every day, your body will take calcium from your bones. When you lose too much calcium from your bones you are at risk for breaking them. You could break ribs during chest PT or break a bone during a fall. Your CF Center Caregivers may recommend that you get a DEXA study to check your bone health.

Calcium

How much calcium do I need?

The CF Foundation recommends that you get the amount of calcium listed below. The results of your DEXA may show that you need more calcium. Ask your CF dietitian (RD) how to meet your calcium needs.

Age	Calcium (mg)
0 to 12 months	210-270
1 to 3 years	500
4 to 8 years	800
9 years and older	1300-1500

What are the best sources of calcium?

Dairy foods and drinks are the best calcium sources. Many are fortified with vitamin D, another important nutrient for bone health. Other good calcium sources are foods made with dairy products, like macaroni and cheese, cheeseburgers, puddings, and creamed soups. Dark green vegetables and calcium fortified orange juice have some calcium and some breakfast cereals are fortified with calcium. If you cannot get enough calcium from foods, ask your CF Center RD about calcium supplements. Your body can absorb only about 500 mg of calcium at a time; so spread your calcium sources throughout the day.

Food	Calcium (mg)
Total® cereal (1 cup)	750
Yogurt (8 oz. cup)	419
Milk (1 cup)	291
Cheese (1 ounce)	200
Ice Cream (1 cup)	176
Spinach (1/2 cup)	138
Cheerios® (1 cup)	107



Can I get too much calcium?

Most people find it difficult to get enough calcium, but it is possible to get too much. The upper limit of calcium intake is 2,500 mg daily. Too much calcium (usually as supplements) can interfere with the absorption of some other minerals. Calcium can also interfere with the absorption of some antibiotics, so it is best to ask your CF Center RD how much calcium you should get each day.

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Important for fluid balance, growth and appetite

Sodium Chloride (Salt)

What is Sodium Chloride?

Sodium and chloride are minerals. Together they are known as salt. Because the body cannot make sodium and chloride, they are called “essential” nutrients and must be supplied by the diet.

How do I maintain or improve my intake?

- Eat foods that have a lot of salt
- Add salt to my food at meals and snacks
- Other Actions _____

Why should I care?

Salt helps maintain the body’s fluid balance – keeping the right amount of water in the right places. Salt also helps muscles contract. Not getting enough salt can interfere with growth; reduce appetite; and cause stomach pain, weakness, nausea and headache. People who have CF lose extra salt in their sweat. To make up for the salt lost in sweat it is important to eat enough salt and salty foods every day.

Sodium Chloride (Salt)

How much salt do I need?

No one is sure how much salt children and adults who have CF need; the usual recommendation is to eat salty foods and use the salt shaker freely at meals and snacks. People with CF who play or exercise outside in hot weather may want to add 1/8 teaspoon of salt to 1 1/2 cups (12 ounces) of a sports drink, such as Gatorade®.

What are the best sources of salt?

Table salt is the best source of sodium chloride along with foods that are processed with salt, like bacon and pickles. Fresh foods such as meats, chicken, fish, fruits, vegetables, rice and pasta have very little salt. But, these foods are high in salt when they are processed into canned and boxed soups, vegetables, pastas, and frozen dinners. Many food manufacturers are lowering the salt in their products, so it is important to read labels and use the saltshaker to add extra salt. Food labels tell you how much sodium is in food; foods that are higher in sodium are higher in salt.

Food	Sodium (mg)
Ramen, Cup Noodles (1 package)	1430
Salt (1/4 teaspoon)	580
Dill Pickle (1 medium)	570
Canned soup (1 cup)	480
Hard pretzels (1 ounce)	385
Pedialyte® (1 cup)	245
Cheerios® (1 cup)	204
Gatorade Endurance® (1 cup)	200
Bacon (1 slice)	185
Potato chips (1 ounce)	180
Canned carrots (1/2 cup)	177
Gatorade® (1 cup)	110
Whole milk (1 cup)	98



Can I get too much salt?

It is very unusual for someone who has CF to get too much salt. Instead, people with CF are at risk for too little salt, especially in hot, humid weather, or during heavy exercise. So if you spend time outside on hot days or exercise a lot, be sure to ask your CF Center RD how much salt is best for you.

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Works to keep you well hydrated

Fluid

What is fluid?

Next to oxygen, water is most important for life. Water makes up more than half the weight of adults and children. Every cell in the body needs water to work properly. Since the body cannot store water, you must replace it daily. Water comes from different sources. Most of the water you need comes from what you drink, but many foods also have water.

How do I maintain or improve my intake?

- Drink at least _____ cups of fluid daily.
- Drink water and beverages throughout the day.
- Drink before I become thirsty.
- Increase my usual fluid intake in hot weather or when I have a fever.
- Drink extra fluids before, during, and after being extra active or playing sports.
- Other actions: _____

Why should I care?

Water has many important roles and is found everywhere in your body, such as in your:

1. Lungs to help thin mucus.
2. Saliva to help swallow food.
3. Stomach to help digest food and eliminate waste products from the intestines.
4. Blood to keep it flowing to carry oxygen and nutrients to all parts of the body.
5. Nose, mouth, skin and eyes to keep them moist.
6. Sweat to help cool your body down when it is overly hot.

How much fluid do I need?

The amount of fluid you need depends on your age, weight, activity level, climate, and state of health. Relying on your sense of thirst to guide how much to drink isn't a good indicator, especially for people who have CF. By the time your brain signals you to drink, you may already be dehydrated. Some symptoms of dehydration are: headache, nausea, loss of appetite, and feeling tired. The color of your urine may help you know if you are getting enough fluids. Urine should be very pale yellow, but vitamins and medications may temporarily affect color. Your CF Center Registered Dietitian can help you figure out how much fluid you need each day, and help you decide on the best sources.



Fluid

What are good sources of fluid?

All the beverages in the table below are good sources of water. See how your favorite drink compares:

Beverages	Nutrients	Calories
Water	None	None
Milk & Milk Beverages	High	High
Fruit Juices	Medium to high	Medium
Sports Drinks	None	Low to High
Soda, coffee, tea	None	None to High

In addition to beverages, many foods have lots of water. Examples are:

Food	Percent water
Soup	92
Watermelon	92
Yogurt	91
Orange	87
Cooked cereal	85
Commercial jarred baby food	85
Potato	77
Pudding	75
Egg	75
Cooked pasta	66
Ice cream	61

Can I get too much fluid?

Yes, too much fluid can be a problem. If you have any questions, ask your CF Center Healthcare Team.

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