

Vitamin A

Fat Soluble Vitamin

Maintains hair and skin cells.

Helps prevent night blindness.

Food Sources:

Orange and dark green vegetables, dairy products, and fish oils



Vitamin D

Fat Soluble Vitamin

Works with calcium to build and maintain healthy bones and teeth.

Source:

Manufactured by the body with exposure to the sun.
“Sunshine Vitamin”

Commonly added (fortified) to milk and fish oils



Vitamin E

Fat Soluble Vitamin

**Protects
membranes and
red blood cells**

Food Sources:

Vegetable oils, whole grains, most fruits and vegetables, nuts, and seeds



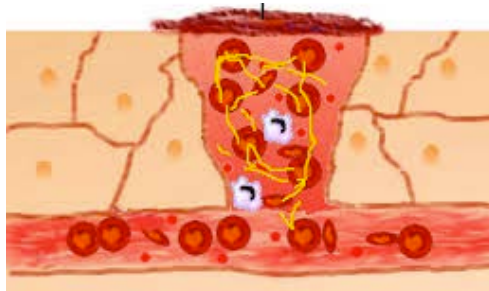
Vitamin K

Fat Soluble Vitamin

**Aids in blood
clotting**

Food Sources:

Dark green leafy vegetables
or liver



Vitamin C

Water Soluble Vitamin

**Aids in wound healing,
cell function,
formation of collagen,
and iron absorption.**

Food Sources:

Citrus Fruit, green leafy
vegetables, broccoli,
peppers, and tomatoes



Folate/Folic Acid (B9)

Water Soluble Vitamin

**Helps form red
and white blood
cells, RNA, and
DNA.**

Food Sources:

Beans, peas, lentils, green
leafy vegetables, and whole
grains



Thiamin (B1)

Water Soluble Vitamin

**Helps nerve tissue,
digestive system, and
energy**

Food Sources:

Milk, whole grains, pork,
dried beans, and nuts



Riboflavin (B2)

Water Soluble Vitamin

**Converts food
into energy**

Food Sources:

Milk, cheese, whole grains,
green leafy vegetables,
fish, and eggs



Niacin (B3)

Water Soluble Vitamin

**Converts food
into energy**

Food Sources:

Milk, whole grains,
legumes, fish, and poultry



Calcium

Macro Mineral

**Helps bones, teeth,
blood clotting,
muscles, and nerves**

Food Sources:

Dairy products, tofu,
broccoli, parsley, and
spinach



Phosphorus

Macro Mineral

Phosphorus is a component of bones, teeth, DNA, RNA, and cell membranes. It also releases energy.

Food Sources:

Whole grains, meat, eggs, milk, and cheese.



Magnesium

Macro Mineral

Builds bones and regulates nerves and muscles

Food Sources:

Dark green leafy vegetables, whole grain products, and nuts.



Iron

Micro Mineral

**Promotes
healthy red
blood cells**

Food Sources:

Red meat, poultry, fish,
legumes, and fortified foods



Iodine

Micro Mineral

**A component of
thyroid hormones**

Food Sources:

Iodized salt, seafood, and
milk



Fluoride

Micro Mineral

A component of teeth and bones, and helps prevent dental cavities

Food Sources:

Fluoridated water, fish, and some dental products like toothpaste



Zinc

Micro Mineral

Helps metabolize food, promotes growth, and assists in the production of the oxygen-carrying part of red blood cells.

Food Sources:

Meat, liver, seafood, milk, and eggs



Copper

Micro Mineral

**Frees iron from storage
and promotes the
functionality of
connective tissue**

**Food Sources:
Shellfish, nuts, and
legumes**



B Vitamins

**B Vitamins help turn carbohydrates into energy
and promote a healthy nervous system.**



A family of 8 vitamins including thiamin (B1), riboflavin, niacin, pantothenic acid, biotin, vitamin B6, folate, and vitamin B12.

Night Blindness, Poor Eyesight

Vitamin A deficiency

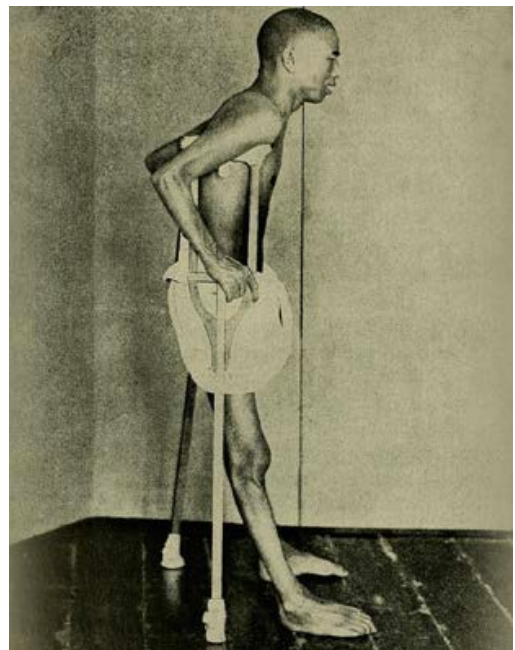
Eyes become sensitive to light and have difficulty seeing in dim light.



Beriberi

Thiamin (B1) deficiency

Swelling of the heart, numbness of hands and feet, mental confusion.



Pellagra

Niacin deficiency

A disease causing skin irritations, digestive problems, and swelling of the tongue. If not treated can result in mental disorder, or death.



Spina bifida

Folic Acid/Folate deficiency in early stages of pregnancy

A birth defect that occurs when the spine and spinal cord don't form properly in the womb.



Scurvy

Vitamin C deficiency

A deficiency which leads to weakness, anemia, gum disease, and skin problems. It was a common disease of sailors when long sea voyages made it hard to get a steady supply of fresh produce.



Rickets

Vitamin D deficiency

Bones become weak and soft. This can result in bone deformities in growing children.



Normal anatomy



Rickets



Jaundice

Caused by excess vitamin K

A yellowing of the skin or whites of the eyes caused by a build-up of the pigment bilirubin. Jaundice occurs when bilirubin builds up faster than the liver can break it down.

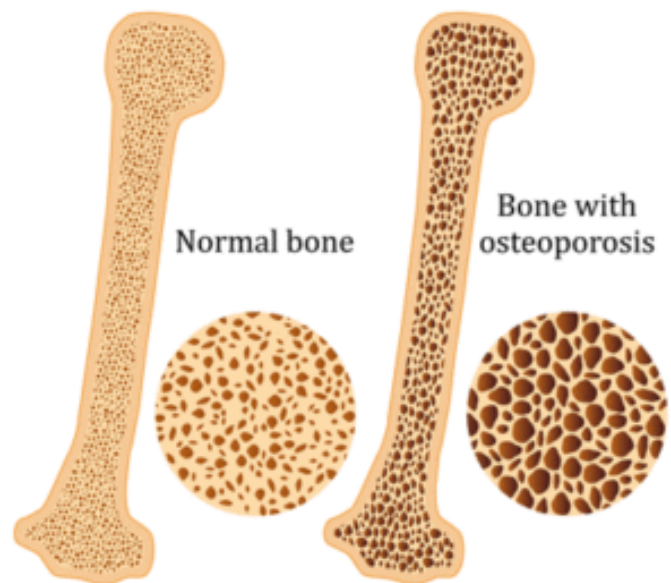


Phototherapy is a treatment with a special light that helps rid the body of the bilirubin, making it easier for the liver to break it down.

Osteoporosis

Calcium deficiency

When bones gradually lose their minerals. Bones become fragile and break easily and skeleton may shrink. Develops mostly in women and the elderly.



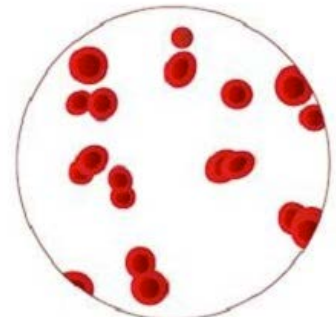
Anemia

Iron deficiency

Poor appetite, pale skin, fatigue and weakness caused by a decreased number of circulating red blood cells in the body.



Normal



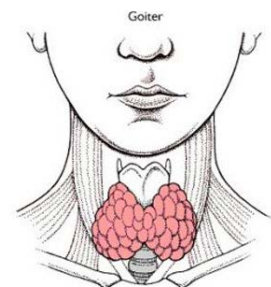
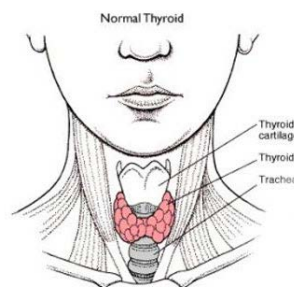
Anemia

Too much iron is not good for you either. It leads to damage of the liver and other body tissue.

Goiter

Iodine deficiency

An abnormal enlargement of the thyroid gland at the base of the neck.



Fat-soluble Vitamins

There are four fat-soluble vitamins.

- **K**
- **A**
- **D**
- **E**

These vitamins dissolve in fat.

The body can store fat-soluble vitamins, but they can be toxic in excessive amounts.



Water-soluble Vitamins

Water-soluble vitamins include:

- All the B vitamins
- C vitamins
- These vitamins dissolve in water.
- The body uses what it needs and then excretes the rest in urine.
- Water-soluble vitamins do not become toxic.



Fun Facts

Did you know that red meats are the best source of iron?



The best sources of calcium are dairy products like milk, cheese, and yogurt.

Vocabulary

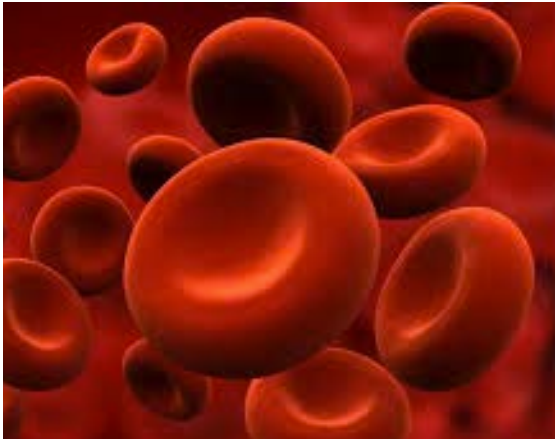
Toxicity: Too much of something (toxic/poisonous)



Deficiency: Not enough of something (shortage)

Fun Facts

Calcium and iron are the two most common mineral deficiencies in the United States.



Vocabulary

Macro Minerals:

Minerals needed in **larger** quantities in the body.

Micro Minerals:

Minerals needed in **smaller** quantities, but are just as essential as macro minerals.



Fun Facts About Minerals

- Most minerals help build strong bones and teeth.
- Others minerals are used to make substances that the body needs.
- Minerals are usually needed in tiny amounts, but are critical to health.



Fun Facts About Vitamins

- Water-soluble vitamins cannot be stored in the body, and must be replaced daily.
- Once absorbed into the body, Vitamin C only has a short life of 30 minutes in the blood stream.



