

Introduction

Potassium (Chemical Element)

Potassium is a chemical element with symbol *K* and atomic number **19**. It was first isolated from potash, the ashes of plants, from which its name is derived.

Symbol: K

Molar mass: 39.0983 g/mol

Formula: K

Electron configuration: [Ar] 4s¹

Atomic number: 19

Atomic mass: 39.0983 ± 0.0001 u

Discoverer: [Humphry Davy](#)

Potassium is a very important mineral for the proper function of all cells, tissues, and organs in the human body. It is also an electrolyte, a substance that conducts electricity in the body, along with sodium, chloride, calcium, and magnesium



Function

- ❑ **Potassium** is a very important mineral for the proper function of all cells, tissues, and organs in the human body.
- ❑ It is also an electrolyte, a substance that conducts electricity in the body, along with sodium, chloride, calcium, and magnesium. It plays a vital role in Maintaining Health.
- ❑ Along with sodium, it regulates the water balance and the acid-base balance in the blood and tissues
- ❑ Electrical potential gradient, created by the "sodium-potassium pump," helps generate muscle contractions and regulates the heartbeat.
- ❑ Potassium is very important in cellular biochemical reactions and energy metabolism; it participates in the synthesis of protein from amino acids in the cell.

Function Continues..

- ❑ Potassium also functions in carbohydrate metabolism; it is active in glycogen and glucose metabolism, converting glucose to glycogen that can be stored in the liver for future energy
- ❑ Potassium is important for normal growth and for building muscle.
- ❑ Though sodium is readily conserved by the body, there is no effective method for potassium conservation. Even when a potassium shortage exists, the kidneys continue to excrete it. Because the human body relies on potassium balance for a regularly contracting heart and a healthy nervous system, it is essential to strive for this electrolyte's balance.

At a Glance

Sources

- ❑ Potassium is found in a wide range of foods. Many fruits and vegetables are high in potassium and low in sodium and help prevent hypertension.
- ❑ Leafy green vegetables such as spinach, parsley, and lettuce, as well as broccoli, peas, lima beans, tomatoes, and potatoes, especially the skins, all have significant levels of potassium.
- ❑ Fruits that contain this mineral include oranges and other citrus fruits, bananas, apples, avocados, raisins, and apricots, particularly dried.
- ❑ Whole grains, wheat germ, seeds, and nuts are high-potassium foods.



Sources Continues..

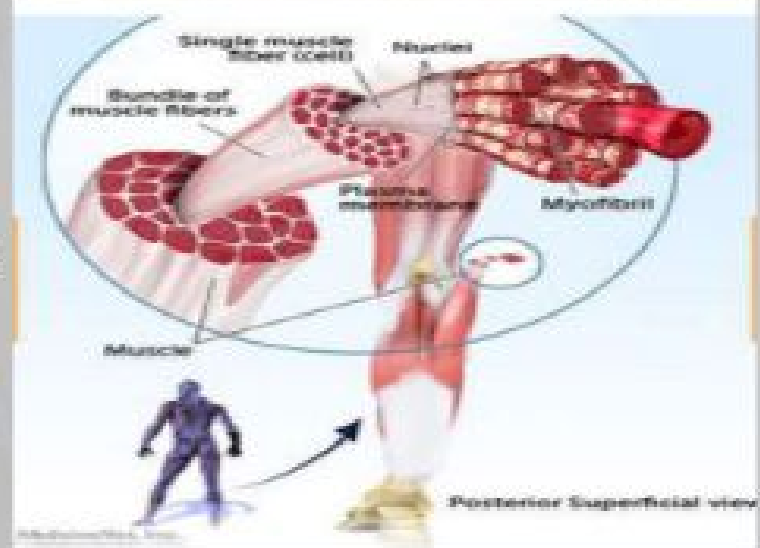
- ❑ Fish such as flounder, salmon, sardines, and cod are rich in potassium, and many meat foods contain even more potassium than sodium, although they often have additional sodium added as salt.
- ❑ Potassium may also be obtained from the following herbs: red clover, sage, catnip, hops, horsetail, nettle, plantain and skullcap.
- ❑ Caffeine and tobacco reduce the absorption of potassium.
- ❑ People at risk for insufficient potassium intake include alcoholics, drug addicts and crash dieters.



Deficiency Diseases

The following conditions are the cause or symptom of Low Potassium (Hypokalemia).

- ❑ **Muscle Cramps:** A muscle cramp is an involuntarily and forcibly contracted muscle that does not relax. When we use the muscles that can be controlled voluntarily, such as those of our arms and legs, they alternately contract and relax as we move our limbs. A muscle (or even a few fibers of a muscle) that involuntarily (without consciously willing it) contracts is in a "spasm." If the spasm is forceful and sustained, it becomes a cramp. Muscle cramps often cause a visible or palpable hardening of the involved muscle.



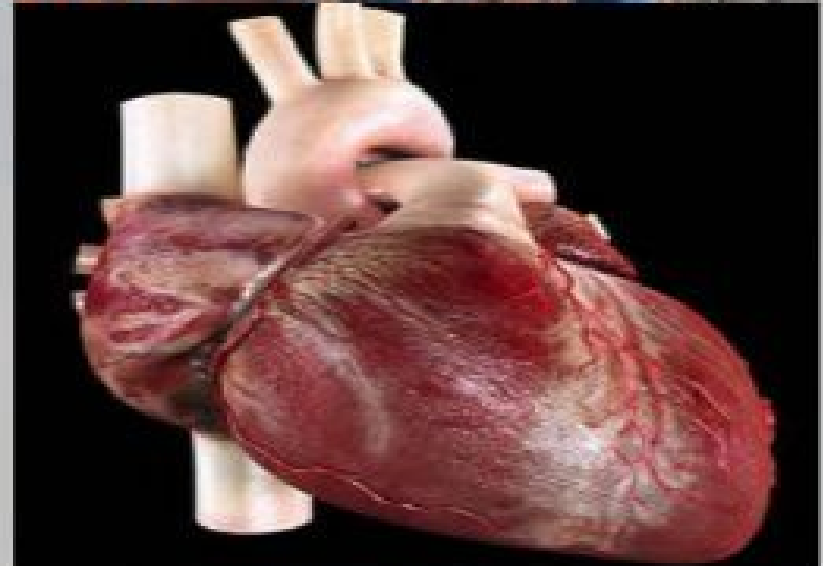
Deficiency Diseases Continues..

❑ Congestive Heart Failure (CHF):

Congestive heart failure (CHF) is a condition in which the heart's function as a pump is inadequate to meet the body's needs. Many disease processes can impair the pumping efficiency of the heart to cause congestive heart failure.

The symptoms of congestive heart failure vary, but can include:

- fatigue,
- diminished exercise capacity,
- shortness of breath, and
- swelling (edema).



Deficiency Diseases Continues..

- ❑ **Diarrhea**: Diarrhea is caused by increased secretion of fluid into the intestine, reduced absorption of fluid from the intestine or rapid passage of stool through the intestine. Symptoms associated with diarrhea include abdominal pain, especially cramping. Other symptoms depend on the cause of the diarrhea.
- ❑ **Dehydration** Symptoms and signs of dehydration can be minor, such as increased thirst, or severe and life-threatening, depending on the extent of the dehydration. The early symptoms of dehydration are
 - thirst, and reduced urine output and darkening of the urine.



Deficiency Diseases Continues..

- ❑ **Gastroenteritis (Stomach Flu):** Gastroenteritis (often referred to as the "stomach flu") however, it is not related to the influenza virus. Gastroenteritis is a nonspecific term for various inflammatory problems in the gastrointestinal tract. It is occurred due to lack of Potassium.
- ❑ **Hyperkalemia (High Blood Potassium):** Hyperkalemia is a common diagnosis. Fortunately, most patients who are diagnosed have mild hyperkalemia (which is usually well tolerated).

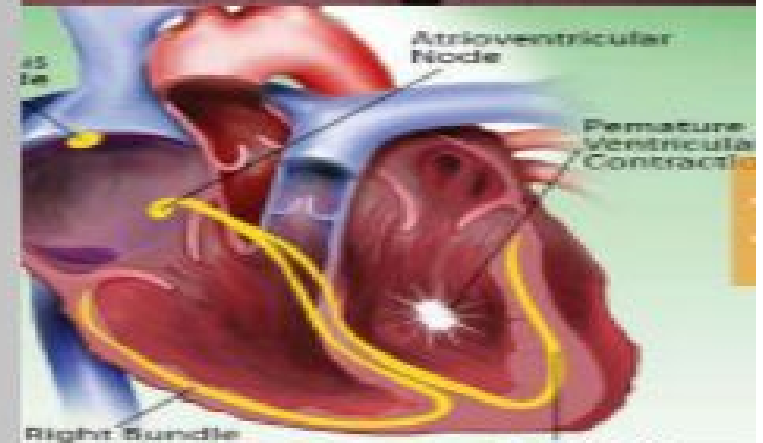


Deficiency Diseases Continues..

❑ Premature Ventricular

Contractions (PVCs): Premature ventricular contractions (PVCs) are premature heartbeats originating from the ventricles of the heart. Premature ventricular contractions are premature because they occur before the regular heartbeat.

- ❑ Palpitations: Palpitations are sensations by a person that they are having hard, rapid, or irregular heartbeats or a combination of these sensations.



Uses

- ❑ In medicine, potassium is one of the most commonly prescribed minerals. It is also commonly measured in biochemical testing and is supplemented if it is low.
- ❑ In one study, 37 adults with mild hypertension participated in a crossover study. Patients received either 2.5 g of potassium per day, 2.5 g of potassium plus 480 mg of magnesium, or a placebo for eight weeks.
- ❑ There is no specific RDA for potassium, though it is thought that at least 2-2.5 grams per day are needed, or about 0.8-1.5 grams per 1,000 calories consumed. The average American diet includes from 2-6 grams per day.
- ❑ In cooking or canning foods, potassium is depleted but sodium is increased, as it is in most American processed foods as well. It is suggested that we include more potassium than sodium in our diets; a ratio of about 2:1 would be ideal

Thank
you