



Potassium

Why is Potassium Important?

Potassium is one of the main electrolytes in your blood. It works very closely with sodium to regulate your water balance, acid-base balance, muscles contractions of skeletal and cardiac muscle, and nerve impulses. Potassium is the primary positive ion inside your cells. Most of the potassium in your body resides within your cells and plays an important role in regulating many bodily functions. It has been shown that having the right amount of potassium can help maintain a healthy blood pressure, reduce your risk of cardiovascular disease and stroke. Potassium also works very closely with your catecholamines (epinephrine and norepinephrine) to increase influx of potassium into cells and efflux of sodium when needed.

What Body Functions is Potassium Important for?

Cardiovascular System: In your heart potassium plays a very important role. When your heart generates an action potential, it creates an influx of sodium into cardiac muscles cells and when your heart reaches a certain membrane voltage, potassium channels open and creates an efflux of potassium this causes your heart to repolarize and get ready for another heartbeat.

*Action potential: Creates a positive charge in your cell's membrane, which is crucial in transmitting signals in your neurons and muscle cells.

*Repolarize: Cell regains negative charge.

Muscular System: Potassium plays an important role in skeletal muscle action potentials. It allows your muscles to repolarize to prepare for another contraction. Too much potassium and your muscles will have a hard time contracting and if you don't have enough potassium your muscles will have a hard time relaxing.

Urinary System: Your urinary system plays a crucial role in regulating your potassium levels. In your kidneys potassium is reabsorbed to maintain potassium homeostasis and if you have excess potassium in your kidneys, it will be excreted through your urine. This is why renal

function is very important to regulating electrolytes in your body. Potassium is important in maintaining kidney health.

Digestive System: Most of the dietary potassium is absorbed in your small intestine and then delivered to the rest of your body. Your large intestine also has the ability to sense the amount of potassium left over and will excrete excess potassium if needed.

Different Types of Potassium:

Potassium Citrate: This type of potassium is a potassium salt that can be taken orally. It has been found to help prevent kidney stones and treatment of acid problems in your blood.

Potassium Chloride: This type of potassium is bonded with chloride, and it used to treat low potassium levels in the body.

Potassium Gluconate: This type of potassium helps to treat and prevent low potassium levels in your body.

Potassium Phosphate: This type of potassium can be used to treat low phosphorus levels in the body and help prevent the formation of kidney stones.

Food Sources Potassium is Found in:

Plant Sources	Mg/serving
Beet Greens (1 cup)	1309
Lima Beans (1 cup)	955
Baked Potato	926
Yam	911
Acorn Squash	896
Spinach (1 cup)	839
Plantains (1 cup)	663
Butternut Squash (1 cup)	582
Sweet Potato	572
Broccoli Rabe (1 cup)	550
Portabella Mushrooms (1 cup)	529
Artichoke (1 cup)	480
Carrots (1 cup)	410
Corn (1 cup)	384
Avocado (½ cup)	364
Onions (1 cup)	359
Cauliflower (1 cup)	320
Red Bell Pepper (1 cup)	314
Banana	451
Cantaloupe (1 cup)	473
Grapefruit	415
Apricots (1 cup)	401
Peach (1 cup)	293
Honeydew Melon (1 cup)	388
Raisins (¾ cup)	307
Cherries (1 cup)	306

Animal Sources	Mg/serving
Nonfat Yogurt (8 ounces)	625
Low Fat Yogurt (8 ounces)	573
Cow's Milk (1 cup)	320-365
Greek Yogurt (8 ounces)	200-290
Trout (3 ounces)	383
Sardines (3 ounces)	338
Cod (3 ounces)	316
Bison (3 ounces)	307
Pork (3 ounces)	303
Beef (3 ounces)	288
Pistachios (1 ounce)	286
Lamb (3 ounces)	285
Salmon (3 ounces)	280-535

Signs and Causes of Potassium Deficiency:

One of the most common electrolyte disturbances. This is due to decreasing dietary intake of potassium rich foods. Other causes can be from high dose diuretic use, vomiting, and diarrhea. This is because your body is not absorbing enough potassium whether that be because of an acute illness or chronic illness.

Neuromuscular Signs of Potassium Deficiency: The most prominent sign is muscle twitches. This is due to your skeletal muscles inability to fully repolarize and relax.

Cardiac Signs of Potassium Deficiency: Signs include cardiac arrhythmias. These arrhythmias include atrial fibrillation, atrial tachycardia, and premature ventricular contraction. This is due to your hearts inability to fully repolarize after each heartbeat causing increased heart rate and increased contractility. This causes arrhythmias because your heart's electrical conduction system is specifically designed to beat at a certain rate and have your atria beat before your ventricles, but without the correct amount of potassium all of this is disrupted.

Central Nervous System Potassium Deficiency: Signs include brain fog, chronic fatigue, confusion, disorientation, and in severe cases seizures. This is because of the impaired ability of neurons to fire sufficiently, due to their decreased ability to repolarize.

Renal (kidneys) Loss of Potassium: If you have any chronic kidney diseases or have any acute kidney trauma, they won't be able to sufficiently reabsorb potassium which will lead to a loss of more potassium through your urine.

*hypokalemia = low blood potassium levels

Signs and Causes of Potassium Toxicity:

Renal insufficiency is the main cause of potassium toxicity because excess potassium is primarily excreted by the kidneys and when your kidneys aren't working properly, they aren't filtering potassium efficiently. Other causes can be from eating too much of potassium rich foods or over supplementing potassium.

Signs of Potassium Toxicity: Certain cardiac arrhythmias can be caused by hyperkalemia. Too much potassium in your heart causes your heart to slow down because the cardiac muscle cells become hyperpolarized causing your heart to take longer to generate an action potential to make your heartbeat. You can either experience bradycardia (slow heartrate) or your heart can stop all together and there will be no electrical activity in your heart (asystole).

*hyperkalemia = high blood potassium levels

Supplementation of Potassium:

Supplementation of potassium should only be done if you are deficient in potassium. Over supplementing potassium can lead to hyperkalemic related issues.

Supplementation of potassium when you are deficient can help reduce the risk of cardiovascular problems, hypertension, and kidney stones. Supplementation or increase dietary uptake of potassium is important in those who are pregnant or lactating

***It is important to know that dietary intake of potassium should be your main source of potassium, and any potassium supplements should supplement the potassium you are already ingesting.**

Daily Recommended Dose of Potassium

Age	Amount
Birth to under 4 months	400 mg
4 to under 12 months	600 mg
1-4 years	1,100 mg
4-7 years	1,300 mg
7-10 years	2,000 mg
10-13 years	2,900 mg
13-15 years	3,600 mg
15-19 years	4,000 mg
19-25 years	4,000 mg
25-51 years	4,000 mg
51-65 years	4,000 mg
65+ years	4,000 mg
Pregnant Women	4,000 mg
Lactating Women	4,400 mg

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