

Proper Potassium

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Potassium is a mineral involved in electrical and cellular body functions. It plays various roles in metabolism and is essential for the proper function of all cells, tissues, and organs (4). Adequate potassium helps to maintain lower blood pressure levels, reduce the effects of sodium intake on blood pressure, prevent kidney stones, decrease bone loss (1), and improve glucose metabolism (2).

For athletes, potassium's role is of particular importance because potassium helps regulate fluids and mineral balance and is needed for muscle contractions and transmission of nerve impulses. Specifically, potassium:

- Assists in the regulation of the acid-base balance.
- Assists in protein synthesis from amino acids and in carbohydrate metabolism.
- Is necessary for the building of muscle and for normal body growth (4).

Even the 2005 Dietary Guidelines point to potassium as an important mineral not to be overlooked. The Dietary Guidelines suggest that individuals choose and prepare foods with little salt. At the same time, consume potassium-rich foods, such as fruits and vegetables (1). Apparently, there is some concern about adequate intake. And with good reason.

How Much Potassium Do You Need?

Until the Institute of Medicine (IOM) set the recommended guidelines for potassium, there was no real consensus on the amount of potassium required by individuals and athletes. The Adequate Intake (AI) for potassium, set by the (IOM) in 2004 is 4.7 grams per day (1).

Unfortunately, the dietary intake of potassium by all groups in the United States is considerably lower than the AI. Currently, the average daily intake of potassium by adults in the United States is 2.8 to 3.3 g for men and 2.2 to 2.4 g per day for women (1). Clearly, adults and athletes in particular, need to pay closer attention to their potassium intake.

Potassium Balance

A deficiency of potassium (hypokalemia) can occur in people with certain diseases or as a result of taking diuretics for the treatment of high blood pressure, heart failure, or weight loss. Therefore, athletes with eating disorders, or those wrestlers and others who are trying to make weight, may be at an increased risk. Diuretics are probably the most common cause of hypokalemia.

A variety of conditions can cause the loss of potassium from the body. The most common of these conditions are vomit-

ing and diarrhea. Additionally, many medications such as diuretics, laxatives, and steroids can cause depletion of potassium (4). Again, athletes must be aware of these influences.

The most common symptom of potassium depletion is fatigue. Other symptoms of potassium deficiency include slow reflexes, muscle weakness, and EKG changes. A quick loss of potassium could lead to cardiac arrhythmias and even death (1,4).

Increased levels of potassium in the blood is known as hyperkalemia. Muscle breakdown from heat, exercise, or medications can occur, albeit rarely, and can cause hyperkalemia. In addition, during vigorous exercise, especially in a dehydrated individual, excess potassium intake through food or supplements can cause hyperkalemia. Cardiac arrest (absent heartbeat) may occur at any time with hyperkalemia, so hospitalization and close monitoring is required (3).

Potassium supplements

Taking in a potassium supplement is not necessary as this mineral can be readily obtained through a variety of food sources. Fish such as: salmon, cod, flounder, and sardines are good sources of potassium. Various other meats also contain potassium. Vegetables including: broccoli, peas, lima beans, tomatoes, potatoes (especially their skins), and leafy green vegetables such as spinach, lettuce, and parsley contain potassium. Fruits that contain significant sources of potassium include: citrus fruits, apples, bananas, and apricots (4).

There is no upper level set for potassium, as food sources of potassium have not shown to reach toxic levels. On the other hand, supplemental potassium can lead to acute toxicity in otherwise healthy individuals (1).

Be sure to check your intake to make sure it is adequate in all nutrients, including potassium.

References

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About the Author

Debra Wein is a faculty member at the University of Massachusetts Boston and adjunct lecturer at Simmons College. Debra is the President and Co-founder of Sensible Nutrition, Inc. (www.sensiblenutrition.com), a consulting firm established in 1994 that provides nutrition services to individuals, universities, corporate wellness programs and nonprofit groups. Her sport nutrition handouts are available online at www.sensiblenutrition.com.

