

# Evidence-based Potassium Usage

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**Name(s):** Potassium chloride, potassium bicarbonate, chelated potassium (potassium aspartate, potassium citrate)

**Description:** Potassium is an intracellular mineral involved in maintaining osmotic pressure and the acid/base balance. This means that, along with sodium, it regulates the fluids on both sides of the cell and maintains the proper pH of the body. Potassium also helps other nutrients in and out of the cell. This mineral is also involved in the conversion of glucose to glycogen (the form in which the liver stores glucose) and the synthesis of protein from amino acids. Other functions of this mineral include, normalizing the heartbeat, stimulating the kidneys to excrete poisonous waste, and in the metabolism of carbohydrates.<sup>1</sup>

**Absorption/Storage:** The small intestines absorb about 90% of that ingested. Most is excreted through perspiration and some is excreted through urination.<sup>1</sup>

**Recommended Dietary Allowance/Dietary Reference Intake:** Because lack of potassium is rare, there is no RDA or RNI for this mineral. However, it is thought that 1600 to 2000 mg (40 to 50 milliequivalents [mEq]) per day for adults is adequate.<sup>2</sup>

**Optimum Daily Allowance (Adult):** 99-500 mg.<sup>3</sup>

**Tolerable Upper Intake Levels:** None available.

**Principal Uses:** Hypertension (if not on potassium sparing medications),<sup>4-12</sup> and kidney stones (citrate with magnesium citrate).<sup>13-18</sup>

**Proposed Uses:** Cardiac arrhythmia, congestive heart failure, premenstrual syndrome and stroke.<sup>19</sup>

**Traditional Uses:** None.<sup>19</sup>

**Healthy Sources:**

High (40%+ US DRI): Boiled adzuki beans, dried agar, amaranth, boiled artichoke, raw avocado, homemade baked beans, boiled bamboo shoots, boiled beet greens, whole groat buckwheat flour, carob (St. John's bread) flour, raw cassava, raw coconut cream, boiled catjang cowpeas, boiled cranberry beans, dried figs, boiled French beans, raw strawberry guava, red kidney beans, boiled lentils, boiled lima beans, dried logans, dried lychees, dried mixed fruit, boiled great northern beans, dried oriental radish, raw

papaya, fresh passion fruit juice, dried sulphured peaches, dried sulphured pears, boiled pink beans, boiled pinto beans, cooked plantain, potato flour, baked potato with skin, prune juice, quinoa, raisins, refried beans, dark rye flour, raw sapote, soy flour, roasted soybean nuts, boiled mature soybeans, boiled split peas, sun-dried red tomatoes, raw tamarind, whole grain triticale flour, boiled black turtle beans, boiled white beans and dried zante.<sup>20</sup>

Medium (25-39% US DRI): baked acorn squash, boiled amaranth, dried sulphured apricots, raw bamboo shoots, raw banana, boiled black beans, boiled black eye peas, raw breadfruit, boiled broad beans, boiled burdock root, raw cantaloupe, carrot juice, chickpeas, raw coconut milk, coconut water, corn pudding, low fat cottonseed flour, partially defatted cottonseed meal, dried dates, boiled dishcloth gourd, raw elderberries, boiled garland chrysanthemum, fresh grapefruit juice, raw honeydew melon, boiled horseradish tree pods, dried jujube, raw lotus root, frozen melon balls, boiled moth beans, boiled mung beans, fresh orange juice, boiled pigeon peas, baked potato without skin, dried prunes, raw pummelo, rice bran, brown rice flour, raw sour sop, boiled green soybeans, boiled spinach, raw vine spinach, boiled Swiss chard, cooked Tahitian taro, fresh tangerine juice, tomato juice, canned tomato paste or puree, whole wheat flour, boiled winged beans, baked or boiled yam, boiled yard long beans and boiled yellow beans.<sup>20</sup>

**Contraindications:** In deciding to use a medicine, the risks of taking the medicine must be weighed against the good it will do. This is a decision you and your doctor will make. For potassium supplements, the following should be considered:

Allergies--Tell your doctor if you have ever had any unusual or allergic reaction to potassium preparations. Also tell your doctor and pharmacist if you are allergic to any other substances, such as foods, preservatives, or dyes.

Pregnancy--Potassium supplements have not been shown to cause problems in humans.

Breast-feeding--Potassium supplements pass into breast milk. However, this medicine has not been reported to cause problems in nursing babies.

Children--Although there is no specific information comparing use of potassium supplements in children with

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use in other age groups, they are not expected to cause different side effects or problems in children than they do in adults.

Older adults--Many medicines have not been studied specifically in older people. Therefore, it may not be known whether they work exactly the same way they do in younger adults. Although there is no specific information comparing use of potassium supplements in the elderly with use in other age groups, they are not expected to cause different side effects or problems in older people than they do in younger adults.

Older adults may be at a greater risk of developing high blood levels of potassium (hyperkalaemia).

Other medicines--Although certain medicines should not be used together at all, in other cases two different medicines may be used together even if an interaction might occur. In these cases, your doctor may want to change the dose, or other precautions may be necessary. When you are taking potassium supplements, it is especially important that your doctor and pharmacist know if you are taking any of the following:

- Amantadine (e.g., Symmetrel) or
- Anticholinergics (medicine for abdominal or stomach spasms or cramps) or
- Antidepressants (medicine for depression) or
- Antidyskinetics (medicine for Parkinson's disease or other conditions affecting control of muscles) or
- Antihistamines or
- Antipsychotic medicine (medicine for mental illness) or
- Buclizine (e.g., Bucladin) or
- Carbamazepine (e.g., Tegretol) or
- Cyclizine (e.g., Mareline) or
- Cyclobenzaprine (e.g., Flexeril) or
- Disopyramide (e.g., Norpace) or
- Flavoxate (e.g., Urispas) or
- Ipratropium (e.g., Atrovent) or
- Meclizine (e.g., Antivert) or
- Methylphenidate (e.g., Ritalin) or
- Orphenadrine (e.g., Norflex) or
- Oxybutynin (e.g., Ditropan) or
- Procainamide (e.g., Pronestyl) or
- Promethazine (e.g., Phenergan) or
- Quinidine (e.g., Quinidex) or
- Trimethoprim (e.g., Temaril)--Use with potassium

supplements may cause or worsen certain stomach or intestine problems

- Angiotensin-converting enzyme (ACE) inhibitors (benazepril [e.g., Lotensin], captopril [e.g., Capoten], enalapril [e.g., Vasotec], fosinopril [e.g., Monotril], lisinopril [e.g., Prinivil, Zestril], quinapril [e.g., Accupril], ramipril [e.g., Altace]) or
- Amiloride (e.g., Midamor) or
- Beta-adrenergic blocking agents (acebutolol [e.g., Sectral], atenolol [e.g., Tenormin], betaxolol [e.g., Kerlone], carteolol [e.g., Cartrol], labetalol [e.g., Normodyne], metoprolol [e.g., Lopressor], nadolol [e.g., Corgard], oxprenolol [e.g., Trasicor], penbutolol [e.g., Levatol], pindolol [e.g., Viskin], propranolol [e.g., Inderal], sotalol [e.g., Sotacor], timolol [e.g., Blocadren]) or
- Heparin (e.g., Panheprin) or
- Inflammation or pain medicine (except narcotics) or
- Potassium-containing medicines (other) or
- Salt substitutes, low-salt foods, or milk or
- Spironolactone (e.g., Aldactone) or
- Triamterene (e.g., Dyrenium)--Use with potassium supplements may further increase potassium blood levels, which may cause or worsen heart problems
- Digitalis glycosides (heart medicine)--Use with potassium supplements may make heart problems worse
- Thiazide diuretics (water pills)--If you have been taking a potassium supplement and a thiazide diuretic together, stopping the thiazide diuretic may cause hyperkalaemia (high blood levels of potassium)

Other medical problems--The presence of other medical problems may affect the use of potassium supplements. Make sure you tell your doctor if you have any other medical problems, especially:

- Addison's disease (underactive adrenal glands) or
- Dehydration (excessive loss of body water, continuing or severe)
- Diabetes mellitus (sugar diabetes) or
- Kidney disease--Potassium supplements may increase the risk of hyperkalaemia (high blood levels of potassium), which may worsen or cause heart problems in patients with these conditions
- Diarrhoea (continuing or severe)--The loss of fluid in combination with potassium supplements may cause kidney problems, which may increase the risk of

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hyperkalaemia (high blood levels of potassium)

- Heart disease--Potassium supplements may make this condition worse
- Intestinal or oesophageal blockage--Potassium supplements may damage the intestines
- Stomach ulcer--Potassium supplements may make this condition worse.<sup>2</sup>

## Interactions:

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Decreases Mineral Availability:       | Albuterol, celecoxib, cisplatin, colchicine, oral corticosteroids, digoxin, docusate, epinephrine, felodipine, ipecac, mineral oil, laxative use >1 week theophylline, <sup>19</sup> aminoglycosides, bisacodyl, loop diuretics, tetracyclines, thiazides, <sup>19,21</sup> aloe (dangerously), amphotericin B, aspirin, caffeine, carbenoxolone, ethacrynic acid, licorice (large amounts) and phenolphthalein. <sup>21</sup> |
| Increases Mineral Availability:       | Amiloride, haloperidol, heparin, trimethoprim/sulfamethoxazole, <sup>19</sup> mannitol, magnesium, ramnus fruit or bark (dangerously), triamterene, <sup>21</sup> ACE inhibitors and potassium-containing salt substitutes (dangerously). <sup>19,21</sup>                                                                                                                                                                     |
| Is Decreased By Mineral Availability: | Digoxin toxicity (if supplementing low potassium levels), quinidine side effects, thioridazine side effects, <sup>19</sup> magnesium (high doses) and vitamin B12. <sup>21</sup>                                                                                                                                                                                                                                               |
| Is Increased By Mineral Availability: | NSAIDS side effects. <sup>19</sup>                                                                                                                                                                                                                                                                                                                                                                                             |
| Adverse Reactions:                    | ACE inhibitors, potassium sparing diuretics, beta blockers, ketorolac, labetalol, losartan, sulfamethoxazole, trimethoprim, <sup>19</sup> NSAIDS (with potassium supplements or potassium-containing salt substitutes). <sup>21</sup>                                                                                                                                                                                          |

**Deficiency:** So-called primitive diets provided much greater levels of potassium; modern diets may provide too little. Gross deficiencies, however, are rare except in cases of prolonged vomiting, diarrhoea, or use of “potassium depleting” diuretic drugs. People taking one of these drugs should be informed by their doctor to take potassium.

Prescription levels of potassium are higher than the amount sold over the counter but not more than the amount found in several pieces of fruit.<sup>19</sup>

**Toxicity/Side Effects:** Along with its needed effects, a medicine may cause some unwanted effects. Although not all of these side effects may occur, if they do occur they may need medical attention.

*Stop taking this medicine and check with your doctor immediately if any of the following side effects occur:*

## Less common

- Confusion; irregular or slow heartbeat; numbness or tingling in hands, feet, or lips; shortness of breath or difficult breathing; unexplained anxiety; unusual tiredness or weakness; weakness or heaviness of legs

Also, check with your doctor if any of the following side effects occur:

## Rare

- Abdominal or stomach pain, cramping, or soreness (continuing); chest or throat pain, especially when swallowing; stools with signs of blood (red or black colour)

Other side effects may occur that usually do not need medical attention. These side effects may go away during treatment as your body adjusts to the medicine. However, check with your doctor if any of the following side effects continue or are bothersome:

## More common

- Diarrhoea; nausea; stomach pain, discomfort, or gas (mild); vomiting

Sometimes you may see what appears to be a whole tablet in the stool after taking certain extended-release potassium chloride tablets. This is to be expected. Your body has absorbed the potassium from the tablet and the shell is then expelled.

Other side effects not listed above may also occur in some patients. If you notice any other effects, check with your doctor.

Your doctor should check your progress at regular visits to

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make sure the medicine is working properly and that possible side effects are avoided. Laboratory tests may be necessary.

*Do not use salt substitutes, eat low-sodium foods, especially some breads and canned foods, or drink low-sodium milk unless you are told to do so by your doctor, since these products may contain potassium. It is important to read the labels carefully on all low-sodium food products.*

Check with your doctor before starting any physical exercise program, especially if you are out of condition and are taking any other medicine. Exercise and certain medicines may increase the amount of potassium in the blood.

*Check with your doctor at once if you notice blackish stools or other signs of stomach or intestinal bleeding.* This medicine may cause such a condition to become worse, especially when taken in tablet form.<sup>2</sup>

The best way to get extra potassium is to eat several pieces of fruit per day. The amount allowed in supplements—99 mg per tablet or capsule—is very low, considering that one banana can contain 500 mg. Multiple potassium pills should not be taken in an attempt to get a higher amount, because they can irritate the stomach—a problem not encountered with the potassium in fruit.<sup>19</sup>

**Treatment For Overdose:** Push fluids.

**Storage:** To store this medicine:

- Keep out of the reach of children.
- Store away from heat and direct light.
- Do not store in the bathroom, near the kitchen sink, or in other damp places. Heat or moisture may cause the medicine to break down.
- Keep the liquid form of this medicine from freezing.
- Do not keep outdated medicine or medicine no longer needed. Be sure that any discarded medicine is out of the reach of children.<sup>2</sup>

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