K+2 Potassium

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K+2 Potassium is a uniquely formulated potassium product composed of potassium bicarbonate and potassium bound to the amino acid glycine, which gives this product optimal potency, stability and tolerability.

Potassium is the third most abundant mineral in the body after calcium and phosphorus. Total body potassium content is about 30-40 grams, 98% of which is contained inside cells, mostly in skeletal muscle[1]. Potassium is the most abundant positively charged intracellular electrolyte. Potassium concentrations are about 30 times higher inside cells than outside, compared to the concentration of sodium, which is 10 times lower inside cells than outside.[2] This difference is what creates the membrane potential, an electrochemical gradient across the cell membrane essential for proper muscle contraction, nerve impulse transmission, hormone secretion from endocrine glands, and cardiac muscle function. As much as 20%-40% of an adult's resting energy expenditure is dedicated to maintaining this critical electrochemical balance, via sodium-potassium-ATPase pumps.[2]

Risk factors for potassium deficiency or insufficiency:

- Chronic dieting for weight loss
- Prolonged strenuous exercise, especially in hot weather (potassium loss in sweat)
- Chronic kidney failure
- Alcoholism
- Vomiting and/or diarrhea from illness (including inflammatory bowel disease) or overuse/abuse of laxatives and emetics
- Use of pharmaceutical drugs that cause potassium loss (e.g., hydrochlorothiazide, furosemide, "loop" diuretics)
- Magnesium deficiency may lead to potassium depletion

Potassium is abundant in vegetables, fruits, beans and nuts, with smaller amounts in animal foods. Owing to this relative ubiquity, overt potassium deficiency is rare, but suboptimal intake may lead to signs and symptoms of insufficiency, which may include fatigue, lethargy, muscle weakness, cramping or twitching, heavy legs, constipation, intestinal paralysis (resulting in delayed gastric emptying, bloating and abdominal pain), and cardiac arrhythmias.[1,2] Inadequate dietary intake does not typically result in hypokalemia (dangerously low blood potassium), but the risk factors for potassium deficiency in the sidebar should be noted.

Potassium in Health

Potassium is best regarded for its roles in lowering blood pressure, reducing risk for stroke, supporting bone health and reducing risk for kidney stones.

Low potassium intake may be a risk factor for hypertension, especially when combined with high sodium intake. A meta-analysis of randomized controlled trials of potassium supplementation for lowering blood pressure found that potassium is effective for this purpose in both normotensive and hypertensive subjects, with the effect being more pronounced in those with hypertension. Reduction in BP was correlated significantly with decreased urinary sodium-to-potassium ratio and increased urinary potassium.[3] Similar findings were observed in a separate meta-analysis of RCTs, which found that potassium supplementation induced a modest but significant reduction in BP in patients with primary hypertension.[4] The effects may be more pronounced in subjects whose baseline dietary potassium intake is low.[5]

Several epidemiological studies suggest that higher potassium intakes are associated with reduced risk for stroke. A meta-analysis from the American Heart Association looking at potassium intake and stroke risk found that individuals with the highest potassium intake had a 13% reduced risk for stroke compared to those with the lowest intake, and that the intake associated with the lowest risk of stroke was 3500 mg/day.[6]

A high sodium-to-potassium intake is also associated with hypertension and cardiovascular disease.[7] A review that included randomized trials of the effect of dietary salt reduction and/or increased potassium intake on blood pressure, target organ damage, cardiovascular disease, and mortality found that high salt intake increases blood pressure and plays a role in endothelial dysfunction and cardiovascular morbidity and mortality.[8] Potassium, on the other hand, was demonstrated to attenuate these, with an association with reduced stroke rate and risk for cardiovascular disease.

High potassium intakes are associated with greater bone mineral density (BMD) in postmenopausal women. A prospective study of elderly women (age 70-80) showed that those in the highest quartile of urinary potassium excretion had significantly greater BMD at 5 years than those in the lowest quartile.[9] A study of postmenopausal women and men over age 50 in Korea showed that higher potassium intakes (assessed via food frequency questionnaire) are associated with greater BMD in both populations.[10]

Who May Benefit*:

- Individuals with hypertension
- Those at increased risk for stroke
- Individuals with a history of kidney stones
- People on ketogenic/low-carb diets
- Those taking potassium-wasting drugs

Supplement Facts

Serving Size 1 capsule

Amount Per Serving		% Daily Value
Potassium (as Potassium Bicarbonate, Potassium Glycinate Complex)	300 mg	6%

Other Ingredients: Cellulose (capsule), vegetable stearate.

Potassium-rich foods (especially vegetables and fruit) tend to also be precursors to alkalinizing bicarbonate ions, which buffer acids in the body.[2] The modern American diet is relatively low in alkaline-forming foods and higher in acid-forming foods (grain, dairy, meat). If the availability of bicarbonate ions is insufficient for maintaining normal pH, alkaline calcium salts may be liberated from bone in order to neutralize the metabolic acidity. K+2 Potassium provides potassium bicarbonate to address this from both angles. The acid/alkaline buffering by bone tissue is not universally accepted, however, and there are other mechanisms by which potassium may support bone mass, such as by directly suppressing calcium resorption or bone mineral dissolution or both, independent of its alkalinizing effects.[11]

The potassium bicarbonate in K+2 Potassium may also help reduce risk for kidney stones. Diets high in potassium are associated with higher urine pH and reduced risk for stones,[12] and low urinary pH is the strongest factor in the development of uric acid stones.[13] A prospective cohort study of over 45,000 men showed that those in the highest potassium intake quintile had substantially lower relative risk for stone formation compared to those in the lowest quintile after 14 years of follow-up.[14] (For patients with kidney stones, consider adding DFH's MagCitrate powder to increase urinary citrate.)

Recommended Use: As a dietary supplement, take one capsule per day, or as directed by your health care practitioner.

Caution: Monitor potassium status in patients taking potassium-sparing diuretics (amiloride, spironolactone), ACE inhibitors and angiotensin receptor blockers (ARBs), which may increase risk for hyperkalemia, particularly when impaired kidney function is also present. Monitor potassium status in those taking loop and thiazide diuretics, which may lead to hypokalemia.[18]

For a list of references cited in this document, please visit:
https://www.designsforhealth.com/api/library-assets/literature-reference---k-2-potassium-tech-sheet-references

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

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