

Electrolyte Synergy™

Comprehensive electrolyte formula

By David M. Brady, ND, DC, CCN, DACBN & Suzanne Copp, MS

THIS INFORMATION IS PROVIDED AS A MEDICAL AND SCIENTIFIC EDUCATIONAL RESOURCE FOR THE USE OF PHYSICIANS AND OTHER LICENSED HEALTH CARE PRACTITIONERS ("PRACTITIONERS"). THIS INFORMATION IS INTENDED FOR PRACTITIONERS TO USE AS A BASIS FOR DETERMINING WHETHER TO RECOMMEND THESE PRODUCTS TO THEIR PATIENTS. ALL RECOMMENDATIONS REGARDING PROTOCOLS, DOSING, PRESCRIBING AND/OR USAGE INSTRUCTIONS SHOULD BE TAILORED TO THE INDIVIDUAL NEEDS OF THE PATIENT CONSIDERING THEIR MEDICAL HISTORY AND CONCOMITANT THERAPIES. THIS INFORMATION IS NOT INTENDED FOR USE BY CONSUMERS.

Electrolyte Synergy™ is a complete and balanced electrolyte formula to help promote optimal hydration, especially after excessive sweating or other fluid loss.* This product has a delicious natural lemon-orange flavor, is sugar-free, and gets its sweetness from small amounts of the natural herb stevia.

Electrolytes play a critical role in the body. The main electrolytes found in the body are potassium, sodium, chloride and magnesium. Through a biochemical process, electrolytes become ions that can conduct electricity. The body requires these electrical signals as a means of communication within itself. Electrolyte function is critical to specific areas such as cardiovascular health, adrenal health, diabetes and endurance exercise.

Cardiovascular Health

Potassium is especially important due to its role in heartbeat regulation and muscle function, specifically that of muscle contraction.¹ When potassium is not properly balanced, hyperkalemia (abnormally high levels of potassium) can occur, or if potassium levels drop too low, hypokalemia can occur. These conditions, and others associated with this imbalance, can create cardiac abnormalities which can be potentially life-threatening. It is difficult to assess the true concentration of these minerals in the body, because blood levels may be maintained in the normal ranges at the expense of levels elsewhere. The body works hard to regulate mineral levels, since any steep fluctuation — either too low or too high — may result in dangerous heart arrhythmias. Low potassium can result in elevated sodium within the cell because the two must be maintained at the proper ratio. Therefore, the proper balance of these chemicals is of critical importance in keeping fluid levels normal and thus, blood pressure regulated. Regulation of the flow of potassium and magnesium intercellularly and extracellularly is also important in the regulation of blood pressure.

This formula also contains vitamin C, along with quercetin and bioflavonoids found naturally in citrus fruit. Vitamin C supports the cardiovascular system by helping to build healthy collagen, which is one of the main structural components of blood vessels. Additionally, vitamin C and these synergistic compounds offer anti-inflammatory, antioxidant, and vasoprotective benefits, including helping to maintain capillary integrity.²⁻⁷ Abnormal capillary leakiness may result in aches, pains and weakness in the extremities, nighttime leg cramps, and easy bruising/bleeding from even very minor trauma.

Adrenal Stress

In today's high-stress society, adrenal burnout and other hormonal disturbances are commonplace. Weak adrenals, for example, make the body unable to hold onto potassium. The adrenal glands produce three major groups of steroid hormones collectively called corticosteroids - the mineral corticoids, the glucocorticoids, and the sex hormones. The mineral corticoids are produced by the outermost layer of the adrenal cortex and regulate the mineral content of the blood. During times of stress, the body's need for vitamin C may be increased, as vitamin C is crucial for healthy adrenal function.⁸

Hyponatremia is considered the most common electrolyte imbalance, where sodium levels are lower than normal. This condition is closely connected to disorders of the parathyroid glands, which help control the amount of calcium in the blood (normal calcium levels help maintain muscle control). Parathyroid hormone (PTH) acts as a counter to calcitonin. When calcium levels drop in the blood, PTH releases calcium into the blood from stores in bone tissue. The sodium imbalance in hyponatremia can be attributed to abnormal anti-diuretic hormone, aldosterone, or kidney function (the kidneys work to keep electrolyte levels in the blood constant despite changes in the body).⁹

Supplement Facts

Serving Size 8 grams (approx. one scoop)
Servings Per Container 30

Amount Per Serving	% Daily Value	Amount Per Serving	% Daily Value
Calories	10	Potassium (as Potassium Bicarbonate, Potassium Aspartate)	170 mg 4%
Total Carbohydrate	3 g 1%**	D-Ribose	757 mg *
Vitamin C (as Ascorbic Acid, Calcium Ascorbate, Magnesium Ascorbate)	1734 mg 1927%	Taurine	379 mg *
Magnesium (as Di-Magnesium Malate, Magnesium Ascorbate)	80 mg 19%	Citrus Bioflavonoids	14 mg *
Chloride (as Sodium Chloride)	190 mg 8%	Quercetin	13 mg *
Sodium (as Sodium Chloride)	110 mg 5%	Rutin	7 mg *

*Daily Value not established.
**Percent Daily Values are based on a 2,000 calorie diet.

Other Ingredients: Natural flavors, tapioca dextrin, silicon dioxide, certified organic stevia leaf extract (*Stevia rebaudiana*), citric acid.

Diabetes

Diabetes is the most obvious metabolic disease that can bring about the need for electrolyte balance. Among the telltale symptoms of diabetes are intense thirst and abnormally frequent urination, which are associated with an electrolyte imbalance involving sodium. When the body has adequate fluids, coupled with the appropriate amount of insulin, sodium and other chemicals tend to balance out. Diabetic ketoacidosis is a complication treated with intravenous fluids (to dilute the glucose levels in the system and rehydrate the dehydrated person), with insulin (to aid in helping glucose get into the cells), and with electrolytes (usually potassium, sodium, phosphates, and bicarbonates) which also aid in getting glucose into the cells and correcting the acidosis created by dangerously high ketone levels.^{10,11} Two of the most common electrolytes that need replacing are potassium and sodium. Patients living with diabetes and other metabolic diseases are often prone to electrolyte imbalances. A product such as Electrolyte Synergy™ can act as a balancing agent when the body is unable to properly balance itself.*

Who should take Electrolyte Synergy™?

Electrolyte Synergy™ can be an important aid in supporting cardiovascular health and replenishing electrolytes lost during exercise, particularly during warmer weather or after an intense session that results in significant sweating.¹²⁻¹⁷ This formula includes taurine, which supports healthy blood pressure and regulates the flow of electrolytes in and out of the cell. It also governs osmotic control (prevents dehydration and catabolism), is a natural diuretic, and aids insulin function.¹⁸⁻²¹ D-Ribose is included in this powdered formula because of its importance for cardiac function, exercise recovery and energy production.^{22-25*}

This complete and balanced electrolyte formula can be used to improve symptoms of dehydration after excessive diarrhea or vomiting, or after excessive sweating. Athletes may benefit from regular use of Electrolyte Synergy™. Chronic stress can lead to low levels of one or more of these electrolytes, especially magnesium and potassium. Symptoms may include fatigue, lethargy, dizziness, cramping or twitching, tachycardia, arrhythmia, heavy legs, irritability and/or noise sensitivity. Patients with sodium-sensitive hypertension should not take Electrolyte Synergy™. This product is not recommended for patients with a pacemaker, nor for patients with high blood sodium or potassium levels. Children can take Electrolyte Synergy™ during any illness involving diarrhea or vomiting to prevent dehydration.*

Recommended Use: Mix 8 grams (approx. one scoop) in 10-12 ounces of water per day or as directed by your health-care practitioner.

Mix into any beverage, sports bottle, or mix with water and place in ice racks to make into popsicles.

For a list of references cited in this document, please visit:

<https://www.designsforhealth.com/api/library-assets/literature-reference---electrolyte-synergy-tech-sheet-references>

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Healthcare practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage.

*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

To contact Designs for Health, please call us at (860) 623-6314, or visit us on the web at www.designsforhealth.com.

References

1. Dodd SL, Johnson CA, Fernholz K, and St Cyr JA. The role of ribose in human skeletal muscle metabolism. *Med Hypotheses*. 2004; 62(5):819-24.
2. Maughan RJ, and Leiper JB. Sodium intake and post-exercise rehydration in man. *Eur J Appl Physiol Occup Physiol*. 1995;71(4):311-9.
3. Zeybek A, Ercan F, Cetinel S, Cikler E, Saglam B, and Sener G. Taurine ameliorates water avoidance stress-induced degenerations of gastrointestinal tract and liver. *Dig Dis Sci*. 2006 Aug 30.
4. Cuisinier C, Michotte De Welle J, Verbeeck RK, Poortmans JR, Ward R, Sturbois X, Francaux M. Role of taurine in osmoregulation during endurance exercise. *Eur J Appl Physiol*. 2002 Oct; 87(6):489-95.
5. Pastene J, Germain M, Allevard AM, Gharib C, Lacour JR. Water balance during and after marathon running. *Eur J Appl Physiol Occup Physiol*. 1996;73(1-2):49-55.
6. Maughan RJ, Owen JH, Shirreffs SM, Leiper JB. Post-exercise rehydration in man: effects of electrolyte addition to ingested fluids. *Eur J Appl Physiol Occup Physiol*. 1994;69(3):209-15.
7. Maughan RJ, Leiper JB, Shirreffs SM. Restoration of fluid balance after exercise-induced dehydration: effects of food and fluid intake. *Eur J Appl Physiol Occup Physiol*. 1996;73(3-4):317-25.
8. Patak P1, Willenberg HS, Bornstein SR. Vitamin C is an important cofactor for both adrenal cortex and adrenal medulla. *Endocr Res*. 2004 Nov;30(4):871-5.
9. Padh H. Vitamin C: newer insights into its biochemical functions. *Nutr Rev*. 1991 Mar;49(3):65-70.
10. Roohbakhsh A, Parhiz H, Soltani F, et al. Molecular mechanisms behind the biological effects of hesperidin and hesperetin for the prevention of cancer and cardiovascular diseases. *Life Sci*. 2015 Mar 1;124:64-74.
11. Parhiz H, Roohbakhsh A, Soltani F, et al. Antioxidant and anti-inflammatory properties of the citrus flavonoids hesperidin and hesperetin: an updated review of their molecular mechanisms and experimental models. *Phytother Res*. 2015 Mar;29(3):323-31.
12. Larson AJ, Symons JD, Jalili T. Therapeutic Potential of Quercetin to Decrease Blood Pressure: Review of Efficacy and Mechanisms. *Advances in Nutrition*. 2012;3(1):39-46.
13. Sharma S, Ali A, Ali J, Sahni JK, Baboota S. Rutin : therapeutic potential and recent advances in drug delivery. *Expert Opin Investig Drugs*. 2013 Aug;22(8):1063-79.