



Sports Drinks: Comparison Chart[©]

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Electrolyte and Carbohydrate Replacement During Prolonged Activity — Product Comparisons

Sports drinks or sweat replacement drinks should contain carbohydrates for energy, fluid and essential electrolytes. The carbohydrates provide calories or energy for the body. The ingestion of carbohydrates during prolonged physical activity has been shown to delay the onset of fatigue. **Effective fluid absorption is also dependent on the simultaneous availability of carbohydrate and sodium.** Most sports drinks on the market contain carbohydrates in the form of simple sugars, which can cause adverse effects such as nausea, vomiting or GI distress. Drinks and drink mixes without any carbohydrates or inadequate are not correct formulations.

CeraSport and CeraSport EX1 contain a rice-based carbohydrate blend that breaks down systematically, providing quick and sustained hydration. Electrolytes help to maintain body-fluid balance, aid in muscle contraction, cardiac performance and nerve impulse transmission. The electrolytes that are lost in sweat include sodium, potassium, chloride and bicarbonate. **CeraSport and CeraSport EX1** contain electrolytes and a base (citrate). Citrate is an efficient way to replace bicarbonate losses and helps to neutralize acidosis.

When evaluating sports drinks it is important to review the nutritional composition of each product. The chart below compares a variety of sports drinks that are currently on the market.

Product Serving Size 8 FL OZ (240 mL)	Calories	Total Carbohydrates (g)	Sugars (g)	Sodium (mg)	Potassium (mg)	Fat (g)	Protein (g)
CeraSport EX1[®]	20	5	1	200	100	0	0
CeraSport[®]	40	10	2	100	37	0	0
Accelerade [®]	80	15	14	120	15	0	0
CamelBak Elixir [®]	<5	<1		136	23	0	0
Cliff Quench [®]	45	11	10	130	35	0	0
Cytomax [®]	71	18	10	96	48	0	0
First Endurance EFS	63	16	11	180	107	0	0
Gatorade [®]	50	14	14	110	30	0	0
Gatorade Endurance [®]	50	14	14	200	90	0	0
Gatorade G2 [®]	25	7	7	110	30	0	0
GU Electrolyte Brew [®]	50	13	4	125	20	0	0
GU ₂ O [®]	<54	13	3	122	21	0	0
Heed [®]	51	13	1	20	8	0	0
HYPR Sports Drink [®]	71	19	—	151	—	0	0
Nuun [®]	<5	<1	—	187	51	0	0
PowerADE [®]	60	15	15	52	32	0	0

*The Sugars in **CeraSport and CeraSport EX1** are the naturally occurring sugars from rice. There are no added sugar derivatives.

Product Serving	Calories	Total Carbohydrates (g)	Sugars (g)	Sodium (mg)	Potassium (mg)	Fat (g)	Protein (g)
Cera Sport EX1® & CeraSport®	40	10	2	200	92	0	0
Carbo Pro 2.6 FL OZ	200	50	—	150	100	0	0
FRS ¹	85	22	19	—	—	—	—
GU Gel Packet	100	25	5	55	45	0	0
ZICO Coconut Water ²	44	11	10	44	488	0	0

* The above chart indicates salts and carbohydrates for CeraSport, CeraSportEX1 and when you combine 1 packet of CeraSport (20g) with 1 packet of CeraSportEX1 (12.5g) into 24 oz of water. For 250 ml, CeraSport calories would be 40 and CeraSportEX1 would be 20. It is important to mix into the correct amount of water, so measure!

Meeting caloric requirements and adequately replacing electrolytes during activity can pose a challenge, especially for endurance athletes. There are a number of new products on the market that target endurance athletes. It is important to understand your own individual nutritional needs, in order to sustain energy and maintain proper hydration throughout activity.

¹ FRS

FRS, which stands for Free Radical Scavenger is a new alternative energy drink that contains vitamins and antioxidants. This energy drink is promoted by Lance Armstrong. This drink could be used in addition to a sweat replacement drink before or after exercise. However, it should not be used as a sweat replacement drink. The reason being is that it does not contain essential electrolytes lost in sweat.

² Coconut Water

Coconut water is currently being marketed as an “all natural sports drink.” Coconut water has a large amount of potassium (488 mg/serving) compared to sodium (44 mg/serving). It could be **dangerous** for endurance athletes to consume this product throughout the course of prolonged activity due to the proportion of electrolytes. High levels of potassium in the blood or hyperkalemia can lead to malaise, palpitations, muscle weakness and a possible unwanted trip to the hospital.

Drinking coconut water could be highly dangerous; leading to potential cardiac standstill and death.”

– **Dr. William Greenough, Johns Hopkins School of Medicine**

The Principle of Osmolarity:

Osmolarity is a scientific term that refers to the concentration of particles dissolved in a fluid. Your blood has an osmolarity of 300 milliosmoles per liter (mOsm/L). Any fluid with an osmolarity below 300 is absorbed quickly and effectively. Unfortunately, most popular colas and

sports drinks have an osmolarity far above 300 due to their high sugar concentration. Gatorade is at 365 mOsm/Liter for example, and most colas are over 500 mOsm/L. CeraSport and CeraSportEX1 have low osmolarity (<150 mOsm/Liter) because CeraSport is formulated with a patented mixed-chain rice carbohydrate with the right amount of needed salts to replace losses due to sweat. CeraSport and CeraSportEX1 give people what they need for quick recovery and for sustained performance. ■

CeraSport and CeraSport EX1 contain chloride and citrate.

Product Serving Size 8 FL OZ (240 mL)	Chloride (mg)	Citrate (mg)
CeraSport	260	240
CeraSport EX1	315	165

Chloride works with sodium and potassium in the regulation of body-fluid balance. It is critical for nerve impulse transmission, and also involved with the formation of hydrochloric acid in the stomach.

Bicarbonate, which is replaced by citrate, works with sodium and potassium in the regulation of body-fluid balance. It also helps to neutralize acidosis.

Hydration Tips

Hydrating with water is good; however, only drinking water is not sufficient. Water lacks the electrolytes the body needs. CeraSport contains a mixed blend of rice carbohydrates and the needed electrolytes. The combination of the carbohydrates and the sodium stimulate the absorption of fluids by the sustained release of glucose in the gut.

- ▶ Replacing between 125 to 150% of fluid lost is recommended after exercise.
- ▶ Each pound lost during exercise should be replaced with 20-24oz of fluid.
- ▶ Two liters of fluid consumed in 500 ml amounts every 20 to 30 minutes is an effective rehydration strategy.
- ▶ Slowly drinking CeraSport overtime is more beneficial for rehydration than consuming a large volume of fluid immediately after activity.