CeraSport® Hydration©

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Military Kits, Hydration and ORS Administration

Maintaining proper hydration is important for anyone but an especially critical issue for military personnel. Oral rehydration (or ORS) should be given to troops before, during and after physical training, or in field operations. ORS should also be given to troops during other dehydrating illness, some trauma events and when anyone has influenza or other upper respiratory illness with fever.

Signs and Symptoms of Dehydration:

- Increased body temperature
- Impaired performance
- Heat cramps, chills, nausea, clammy skin, rapid pulse, 20-30% decrease in endurance capacity
- Gastrointestinal problems, heat exhaustion, dizziness, headache, dry mouth, fatigue
- Heat stroke, hallucinations, no sweat or urine or dark urine, swollen tongue, high body temperature, shaky or unsteady walk

photo courtesy of the US Department of Defense

Hydration and Sweat Replacement:

Extreme environments and high levels of physical exertion can cause dehydration which significantly decreases both physical and mental performance. It is essential for military personnel to prevent and correct dehydration quickly.

Water and electrolytes play a major role in the proper functioning of the human body. Maintaining proper hydration helps prevent fatigue, muscle cramping and heat stroke. Therefore, it is essential to replenish water and electrolytes as they are lost in sweat, which happens when an individual is exposed to high heat conditions or taking part in prolonged physical activity.

Energy is provided by calories, by eating and drinking. Maintaining optimal performance also requires sufficient energy so consuming carbohydrates prior to or during prolonged physical activity delays the onset of fatigue. Cera Products' rice-based carbohydrate blend provides a more efficient delivery system than the simple sugars found in most sports drinks, as it provides quick yet sustained delivery.

The quantity of fluid an individual needs to drink before, during and after physical activity depends on a number of factors, primarily how much fluid they have lost. The amount of fluid lost varies by individual, as some people sweat more than others. To maintain hydration, people need to replace what they lose (in amount as well as composition). A general rule of thumb is to drink a half liter prior to exercise and at least one liter per hour during exercise. CeraSport and CeraSport EX1 contain natural rice carbohydrates for energy, as well as needed electrolytes. Recovery time is shorter if hydration is good.

Preventing Dehydration:

The major difference between standard CeraSport and CeraSport EX1 is the amount of carbohydrates and electrolytes. CeraSportEX1 has 20 grams of rice syrup solids or half of the rice-based carbohydrate of standard CeraSport. CeraSportEX1 has nearly

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ORS Products for Medical Kits

The table below compares the formulas of the WHO/Unicef , Cera Products and other ORS preparations available in the U.S. Note the differences between products with regard to carbohydrate, sodium and osmolarity. *CeraLyte® 50 and 70 have the lowest osmolarity; CeraLyte-70 would be close to the WHO ORS formulation (low osmolarity); CeraLyte-90 would be used for cholera.

Comparison of ORS Product Composition

	Carbohydrate (gm/L)		Sodium mEq/L	Potassium mEq/L	Base mEq/L	Osmolarity mOsm/L
WHO/Unicef ORS Standard Formula	(glucose)	20	90	20	30	310
Reduced-Osmolarity Formula	(glucose)	13.5	75	20	30	245
CeraLyte 50	(rice starch)	40	50	20	30	180-200
CeraLyte 70	(rice starch)	40	70	20	30	220-235
CeraLyte 90	(rice starch)	40	90	20	30	265-280
PediaLyte®	(glucose,fructose)	25	45	20	30	250
Gatorade®	(sucrose,glucose-fructose)	58	20	3	3	330-380
CeraSport®	(rice starch)	40	20	5	5	125
CeraSport EX1	(rice starch)	20	35	10	15	150

- CeraSport and CeraSport EX1 hydration drinks are an excellent choice for preventing dehydration because the rice-based carbohydrate and essential electrolytes are delivered, along with the water mixed into them, more efficiently than with a simple-sugar-based product. This is because the natural rice-based carbohydrate is a large molecule blend that enhances absorption of the fluid and salts, helping to prevent and correct dehydration effectively and efficiently. CeraSport has more rice substrate while CeraSportEX1 has more salts.
- CeraLyte ORS is an excellent choice to put in medical kits where only one ORS can be used. Its composition includes more rice substrate, and more electrolytes than any sport product, and this is what may be needed in a trauma situation. The dual action properties of CeraLyte ORS replace and reduce fluid loss; preventing and correcting dehydration from illness or trauma. It can be mixed with more water for a sweat replacement, although the CeraSport and the CeraSportEX1 taste best, the CeraLyte can be used in lieu of an IV in many cases.

ORS Administration

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double the amount of electrolytes compared to standard CeraSport, and works well in high heat and high stress conditions for sweat loss.

When should CeraSport verses CeraSport EX1 be used?

CeraSport is best used for lengthy endurance events and/or training regimens where carbohydrate consumption before, during and after activity is essential in order to help maintain blood sugar and prevent fatigue.

CeraSport EX1 is recommended for use during shorter events or bouts of physical activity in hot and humid environments. In these conditions sweat rate increases, and a stronger electrolyte replacement is needed.

Some individuals combine one 20 gram packet of CeraSport mixed with one 12.5 gram packet of CeraSportEX1 in 1 liter of water for long endurance events.

Hydration and Trauma Patients

The Tactical Combat Casualty Care Committee TCCC Guidelines:

Since 2003, the Tactical Combat Casualty Care Committee has recommended the administration of oral fluids to casualties with penetrating trauma. Prolonged transportation, dehydration from environmental extremes, and prolonged periods casualties are kept NPO prior to surgery contributed to this decision.

The Committee felt this dehydration could adversely affect the casualty's chance of survival and also felt the observed risk of emesis and aspiration remarkably low.

Under the 2003 guidelines, PO fluids are recommended for all casualties with a normal state of consciousness, including those with penetrating torso trauma.

CeraLyte ORS (available through the GSA/FSS or DAPA MED/SURG or CEC programs), are approved for field hospitals by the Joint Deployment Formulary and are a good addition to any IFAK. ORS packets provide the right mix of electrolytes and carbohydrates for rehydration and can be mixed with water to avert dehydration, as advocated by the TCCC in its guidelines.