



# Hydration<sup>®</sup>

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## Oral Rehydration: When to Use It?

Dehydration from diarrhea and vomiting causes thousands of people of all ages to go to their doctors or to emergency rooms every year. The troops in the military have the same problems all those others face. For over forty years the medical community has known about Oral Rehydration Therapy (ORT), a proven simple, inexpensive and effective way to prevent most of these emergency visits and usually can prevent the need for painful and invasive intravenous therapy, if ORT is started early before the patient loses too much fluid.

ORT has a robust scientific foundation and is credited with saving three to four million lives every year. It is best used at home or in the field (for the military) as soon as possible, and certainly after two or three episodes. If medical officers and individuals have the ORT in their medical kits, they

can start this life-saving treatment before the patient needs to go to an emergency room. Starting the ORT early usually means a less severe illness, too.

A number of reports indicate that ORS is underutilized and IV Therapy is overused, according to McKenzie and Barnes in the British Medical Journal, some medical staff do not realize that ORT is less labor intensive than IV therapy and that ORT can actually deliver the hydration more effectively and faster than IV. There is considerable evidence, including in cholera cases, that ORT is a safe and effective treatment for severe as well as mild and moderate dehydration.

### ORS Products

The table below compares the formulas of the WHO/Unicef and other ORS preparations available in the U.S. Note the differences between products with regard to glucose/carbohydrate, sodium and osmolarity.



Photo courtesy of US Dept of Defense

- ▶ CeraLyte 50 and 70 have the lowest osmolarity. Even CeraLyte-90 has osmolarity lower than blood osmolarity, so it will be effectively absorbed.
- ▶ CeraLyte-70 has a greater amount of carbohydrate than other ORS solutions and more than IV. Its mixed chain carbohydrate will slowly release double the glucose molecules and it has a similar sodium content to the WHO ORS formula.
- ▶ CeraLyte has more energy for recovery (160 calories) and slightly more sodium to replace salts lost than Pediatric electrolyte solutions and thus can be more effective in a wider variety of diarrhea cases.

### Administration of ORS

- ▶ ORT is recommended for minimal mild dehydration

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## Oral Hydration

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- and moderate dehydration. ORT is “Oral Rehydration Therapy” and includes the ORS (the oral rehydration solution) and a program for feeding. Foods recommended include complex carbohydrates and proteins, but not sugary foods or drinks which can make the problem worse by pulling more fluid out of the gut.
- ▶ ORS with 70mEq/L sodium can be used for both rehydration and maintenance in nearly all patients, even those who present with hypo- or hypernatremia.
  - ▶ ORS with 90mEq/L of sodium is recommended for patients with severe watery diarrhea, as in cholera (and some high output diarrhea, such as in short gut);

- ▶ Vomiting does not rule out using ORS; very small amounts of liquid can be given frequently (5-10ml every 1-2 minutes) by teaspoon or sips.
  - ▶ Oral rehydration is not recommended and is contraindicated if there is intestinal obstruction, shock, or an impaired consciousness.
  - ▶ Recommended foods for ORT, to give along with ORS, include cereals, potatoes, rice, crackers, and bananas.
  - ▶ Patients should AVOID sugary foods or sugary drinks when diarrhea or vomiting and continue ORS until the diarrhea is fully stopped.
- ▶ Provides more energy from complex carbohydrates
  - ▶ Safety: less worry about mixing errors as rice-based ORS has larger molecules and lower osmolarity than glucose-based ORS (no insulin spikes);
  - ▶ A solution lower than blood osmolarity also means better absorption;
  - ▶ Rice-based ORS always works as well as glucose-based ORS but, with the extra energy (provided by the carbohydrate), it is more effective in severe or high output diarrhea;
  - ▶ Rice-based CeraLyte ORS can be mixed into hot or cold water.
  - ▶ Rice-based CeraSport and CeraLyte ORS tastes better !

Dehydration can be prevented by starting to drink ORS early, before the problem gets severe.

ORS can improve the health and well-being of individuals suffering from chronic diarrhea, such as from cancer, or other illnesses where the medications cause the diarrhea.

ORS can also help with the diarrhea caused by post-antibiotic diarrheal illness (c.difficile, for example).

**When choosing an ORS product, keep in mind that rice-based oral electrolyte solutions not only hydrate but are superior in reducing volume and duration of diarrhea.**

## Benefits of Rice-based Oral Rehydration (IV versus Oral):

- ▶ Cost Effective, no hospital needed
- ▶ Easy to use; little to no complications
- ▶ Lack of Pain (versus needle sticks);

### References

1. Water with sugar and salt. Lancet 1974; 2:200-301
  2. Santosham M. Oral rehydration therapy for diarrhea: an example of reverse transfer of technology. Pediatrics 1997;100(5):e10
  3. Listernick R, Ziesler E, Davis T. Outpatient oral rehydration in the United States. Arch Pediatr Adolesc Med 1986;140:211-15
  4. Kelly DG, Nadeau J. Oral rehydration solution: a “low-tech” oft neglected therapy. Practical Gastroenterology 2004;27:51-62
  5. Faes MC, Spigt MG, Rikkert MGM. Dehydration in Geriatrics. Dehydration in Geriatrics. Geriatrics Aging 2007;10:590-96
- Additional references are available upon request; also look at the rice-based bibliography on the [www.ceraproductsinc.com](http://www.ceraproductsinc.com) website.*

## Comparison of ORS Product Compositions

	Carbohydrate (gm/L)	Sodium mEq/L	Potassium mEq/L	Base mEq/L	Osmolarity mOsm/L
<b>CeraLyte 50</b>	(rice-based) 40	50	20	30	<220
<b>CeraLyte 70</b>	(rice-based) 40	70	20	30	<235
<b>CeraLyte 90</b>	(rice-based) 40	90	20	30	<270
<b>WHO/Unicef ORS</b>					
“Standard Formula”	(glucose) 20	90	20	30	310
“Reduced-Osmolarity Formula”	(glucose) 13.5	75	20	30	245
<b>PediaLyte®</b>	(glucose, fructose) 25	45	20	30	250
<b>CeraSport</b>	(rice-based) 40	20	5	5	<150
<b>CeraSport EX1</b>	(rice-based) 20	35	10	15	<200
<b>Sports Drinks</b>	(sucrose, glucose-fructose) 56-68	20	3	3	330-380