



Why CeraLyte ORS?

Introduction:

CeraLyte is a unique Oral Rehydration Solution (ORS) available in both powder and ready-to-drink forms. It is based on a long-chain rice carbohydrate, and comes in a variety of sodium strengths and flavors.

The important question:

Why use CeraLyte for adult and pediatric patients, rather than other products on the market, such as 'Gatorade', 'Pedialyte', popsicles, juices or soft drinks?

Related questions:

Why rice-based instead of glucose?

Why a range of sodium strengths rather than one 'all-purpose' solution?

Why not homemade rice-based ORS?

The answers:

- **CeraLyte is a patented long-chain rice carbohydrate electrolyte solution.** Other electrolyte products are based on simple sugars such as glucose (Gatorade, Pedialyte, Pediatric Electrolyte), rice flour, or are predominantly simple sugars with a little rice flour or gruel added.
- **CeraLyte is cost effective.** Its rice-based complex carbohydrates allow delivery of more carbohydrate per ml (often twice the amount of competitors') without osmolarity penalty. This is important because osmolarity is a key factor in the rate of fluid absorption from the small intestine, and carbohydrates are required for electrolyte absorption.¹
- **CeraLyte is convenient.** It is available in both powder and ready-to-drink formats, and comes in sweet and savory flavors. It can be served hot (as soup or tea), cold or even frozen as an 'ice-pop.' Giving CeraLyte with a teaspoon or as an 'ice pop' is particularly effective for those who are vomiting. Thus, CeraLyte offers versatile solutions for all situations -- at home, assisted living and nursing home facilities, and in the hospital.
- **CeraLyte is pre-measured.** It has consistent electrolyte, carbohydrate and osmolarity properties. Homemade rice ORS is inconvenient to make, and the resultant solution can vary significantly in osmolarity. It is also subject to human errors in mixing and measuring.
- **CeraLyte has a unique dual action.** CeraLyte not only replaces lost fluids, it reduces on-going fluid losses.^{2,3} The mechanism for this action is believed to be a protein inherent in rice, as well as its absorption efficiency. Therefore, this dual action is not seen with glucose ORS. In fact, juices, soft drinks and sports drinks may actually *increase* diarrhea through their high osmolarity.
- **CeraLyte provides faster and more effective absorption of electrolytes.** Partly due to its low osmolarity, CeraLyte quickly reaches the small intestine, promoting early recovery and faster restoration of blood volume.⁴ The higher level of carbohydrates in CeraLyte (40g vs. 20-25g in typical ORS products) also gives greater absorption power, since carbohydrate is required for the electrolyte co-transport mechanism that drives water absorption to work effectively.

- **CeraLyte is especially effective in the most severe cases of diarrhea.** Rice-based ORS has been shown to have a significant advantage (20 to 50% better) in conditions where purging is severe - where people lose many liters of fluid a day. CeraLyte has been shown to decrease the amount of fluid loss, shorten the length of the illness, and promote recovery. The difference in mild diarrhea is not as dramatic, but may be as much as 18% better.^{2,3}
- **CeraLyte acts like a “time release” system.** CeraLyte has a variety of chain lengths, including very short chains. Therefore, some solution is absorbed immediately, while the longer chains are being metabolized. These long chain metabolites are then absorbed into the body at the brush cell border, together with more electrolytes and water. This multi-step process seems to restore blood volume and electrolyte levels more effectively.⁴ In contrast, since all the molecules in glucose-based solutions are the same length, they are "dumped" in front of the co-transporters all at once. That which cannot be absorbed is excreted in the stool (more diarrhea). This is one of the reasons why colas and juices, which are high in sugars, do not work well.
- **Cera Lyte comes in multiple sodium strengths (50 mEq, 70 mEq, 90 mEq).** This allows the health care practitioner to physiologically match rehydration fluids specific to the patient's type of fluid loss, and accommodate for a patient's other medical conditions such as renal disease.
- **CeraLyte is better tasting than most oral electrolyte solutions.** It does not have the after-taste found with most glucose ORS. It has no artificial colors, flavors or additives.

Background

- CeraLyte was developed in cooperation with leading experts worldwide in diarrheal disease, including physicians at Johns Hopkins Hospital. CeraLyte was first used in clinical studies at Johns Hopkins and other sites, including the International Center for Diarrhoeal Disease Research, Bangladesh (ICDDRDB) where oral rehydration was discovered and first applied. CeraLyte was developed after over 40 years of research, and many years of experience worldwide in cooperation with doctors now playing a major role in U.S. medical centers.
- CeraLyte is listed on the formularies and in use at the Johns Hopkins Hospital, Mayo Clinics in three locations, NY Presbyterian Hospital, Columbia Hospital for Physician and Surgeons as well as many other hospitals and medical systems nationally, including the National Institutes of Health (NIH), and over 70 travel clinics in the USA.
- CeraLyte has been shown to be more effective than standard glucose Oral Rehydration Therapy, especially in severe cases of diarrhea from cholera.
- CeraLyte is especially helpful in Crohn's and Short Gut related diarrhea, but can be used for any age and most conditions where diarrhea is present.
- CeraLyte is included in a protocol for tube flushing following enteral feeds to reduce osmotic diarrhea, and can be mixed with seltzer water to assist with unclogging feeding tubes.

1 Wright EM, Loo DD. Coupling between Na⁺, sugar, and water transport across the intestine. *Ann N Y Acad Sci.* 2000;915:54-66. Review.

2 Sarker SA, Mahalanabis D, Alam NH, Sharmin S, Khan AM, Fuchs GJ. Reduced osmolarity oral rehydration solution for persistent diarrhea in infants: a randomized controlled clinical trial. *J Pediatr* 2001 Apr;138(4):532-8

3 Zaman K, Yunus M, Rahman A, Chowdhury HR, Sack DA. Efficacy of a packaged rice oral rehydration solution among children with cholera and cholera-like illness. *Acta Paediatr* 2001 May;90(5):505-10

4 Unpublished data (University of Iowa)