

# HOW IT WORKS - ORS SCIENCE DECADES OF RESEARCH BEHIND ORS





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ORS was developed by the World Health Organization (WHO) to reverse dehydration when IV administration was impractical or cost prohibitive.

Its remarkable effectiveness is why it is used in sports drinks, pediatric electrolytes, and IV hydration to save millions of lives every year

#### ORS works because of the Sodium Glucose Co Transport System

- The jejunum contains SGLT 1 transporter proteins.
- If 2:1 ratio of Na+ and glucose is consumed, SGLT 1 actively transports both across epithelial wall.
- Osmotic imbalance is created.
- Water is immediately pulled into vascular system (260 molecules/ SGLT 1 cycle, 9000/sec).
- Fluid and electrolytes instantly replenished, avoiding most of GI tract.
- ORS contains this precise ratio of ingredients.





## ORS IS RECOMMENDED BY

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### Benefits of ORS

- Studies (listed slide 5) demonstrate successful treatment of mild and moderate dehydration with ORS.
- In a 2 year study involving over 20,000 patients, ORS was the sole treatment successfully used in lieu of IVT for 71% of moderately dehydrated patients.
- ORS does not involve risks of injection.
- H2ORS can be self administered.
- ORS can be used to proactively prevent dehydration.
- ORS starts yielding results within minutes of consumption.
- ORS is fast to administer: a patient can drink 500mL of ORS in less than a minute.
- Scientific studies have demonstrated that ORS is safe for all age groups, including infants.



# American Academy of Pediatrics



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# KEVEE SMART REHYDRATION DRINK IS BASED ON ORS

- KEVEE's formula is based on WHO's Reduced Osmolarity ORS.
- ✓ Added vitamins B and C.
- Vith natural blueberry flavor.





# Reference articles and studies



1. Oral Rehydration Therapy as an Alternative to Intravenous Therapy in Dehydrated Older People.

Fatima Sheikh , MD, MPH. Jessica Colburn , MD, Adrienne E. Shapiro , MD, PhD , William B. Greenough III, MD, FACP

Annals of Long Term Care: Clinical Care and Aging. (2016)

Conclusion: Authors suggest that the use of ORT in older individuals could reduce the need for IV therapy and total parenteral nutrition and the complications associated with them. The clinical case presented suggests that ORT is a practical and safe alternative to IV therapy.

2. Usefulness of oral rehydration solution for hydration in cancer chemotherapy : toward the application of outpatient chemotherapy with high dose Cisplatin therapy. Sato J, Kudo K, Hino K, Takahashi K.

Abstract: http://www.ncbi.nlm.nih.gov/pubmed/21918344

Conclusion: These results suggest that ORS is more effective for the prevention of CDDP induced nephrotoxicity than normal water . Therefore, ORS may be a useful tool to help promote outpatient cancer chemotherapy using CDDP.

3. Oral versus intravenous rehydration of moderately dehydrated children: a randomized, controlled trial.

Spandorfer PR, Alessandrini EA, Joffe MD, Localio R, Shaw KN.

Pediatrics (2005)

Abstract: http://pediatrics.aappublications.org/content/115/2/295.abstract

Conclusion: This trial demonstrated that ORT is as effective as IVF for rehydration of moderately dehydrated children due to gas troenteritis in the emergency department.

ORT demonstrated non inferiority for successful rehydration at 4 hours and hospitalization rate. Additionally, therapy was initi ated more quickly for ORT patients. ORT seems to be a preferred treatment option for patients with moderate dehydration from gastroenteritis

4. A randomized trial of oral vs intravenous rehydration in a pediatric emergency department.

Atherly John YC, Cunningham SJ, Crain EF.

AMA Pediatrics (2002)

Abstract: http://www.ncbi.nlm.nih.gov/pubmed/12444837

Conclusion: Reported barriers to ORT were not supported by our data. Moreover, ORT performed better than intravenous therapy on all measured outcomes



# Reference articles and studies

5. Pilot study of a pediatric emergency department oral rehydration protocol.

Boyd R, Busuttil M, Stuart P.

Emergency Medicine Journal (2005)

Abstract: http://emj.bmj.com/content/22/2/116



Conclusion: Adoption of a pediatric rehydration protocol significantly reduces admission rates and total time spent in hospit al for children presenting to the emergency department with symptoms of gastroenteritis. The mean time spent in the actual emergency department does not significantly in cre ase. The rate of unscheduled returns does not change.

6. Preoperative fluid and electrolyte management with oral rehydration therapy. Taniguchi H, Sasaki T, Fujita H, Takamori M, Kawasaki R, Momiyama Y, Takano O, Shibata T, Goto T. Journal of Anesthesia (2009)

Abstract: http://www.ncbi.nlm.nih.gov/pubmed/19444561

Conclusion: The results suggest that the oral rehydration therapy with an oral rehydration solution before surgery is superior to the current preoperative intravenous therapy for the provision of water, electrolytes, and carbohydrates, and this therapy should be considered as an alternative to the intra ven ous therapy for preoperative fluid and electrolyte management in selected surgical patients in whom there is no reason to suspect delayed gastric emptying.

7. Intravenous rehydration for gastroenteritis: how long does it really take?

Bender BJ, Ozuah PO.

Pediatric Emergency Care. (2004)

Abstract: http://www.ncbi.nlm.nih.gov/pubmed/15057174

Conclusion: Contrary to our hypothesis, mean treatment time for IV therapy for mild to moderate dehydration exceeded the 4 hour period recommended by the American Academy of Pediatrics for oral rehydration. The data did not support the perception by emergency physicians that children tre ate d with IV hydration spend significantly less time than 4 hours in the ED. These findings have implications for addressing one of the major barriers to the use of oral rehydr ation therapy in the ED setting.



## Reference articles and studies

8. Oral rehydration of infants in a large urban U.S. medical center.

Tamer AM, Friedman LB, Maxwell SR,

Cynamon HA, Perez HN, Cleveland WW.

Journal of Pediatrics (1986)

Abstract: http://www.ncbi.nlm.nih.gov/pubmed/4009330

Conclusion: We concluded that oral therapy is safe, less expensive for patients, and more convenient for the medical and nursing staffs.

9. Mild dehydration affects mood in healthy young women.

Armstrong LE, Ganio MS, Casa DJ, Lee EC, McDermott BP, Klau JF, Jimenez L, Le Bellego L, Chevillotte E, Lieberman HR.

Journal of Nutrition (2012)

Abstract: http://www.ncbi.nlm.nih.gov/pubmed/22190027

Conclusion: In conclusion, degraded mood, increased perception of task difficulty, lower concentration, and headache symptoms resulted from 1.36% dehydration in females. Increased emphasis on optimal hydration is warranted, especially during and after moderate exercise

10. Oral rehydration therapy with OS 1 for advanced and recurrent gastrointestinal cancer patients

Gan To Kagaku Ryoho. 2010

Nishimura T; Sakata K; Nakamura M; Okada T; Fukuda Y; Tanaka S; Seiki M; Takemura Y; Yamashita S, Dept . of Gastrointestinal Surgery , Shimonoseki Kousei Hospital Abstract: http://www.ncbi.nlm.nih.gov/pubmed/21368538

Conclusion: ORT with OS 1 may contribute to improve QOL of the terminal patient with chemotherapy

11. Replacement of intravenous therapy by oral rehydration solution in a large treatment centre for diarrhea with dehydration

Bulletin World Health Organization. (1998)

A.R. Samadi , R. Islam, and M.I. Huq

Article: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2536095/pdf/bullwho00099 0098.pdf

