



# Dehydration and Oral Rehydration Solutions

## Health Professional Training Guide



Hydralyte is suitable for the whole family

Replacing lost fluid and electrolytes with an oral rehydration solution (ORS) is the most important aspect of managing dehydration.

**Hydralyte** is a scientifically formulated ORS based on the World Health Organization criteria for oral rehydration therapy. The solutions contain the correct balance of glucose and electrolytes to allow for rapid and effective rehydration.

## Fluid regulation in the body

Fluids and solutes, along with nutrients and waste products constantly shift within the body's compartments from cells to interstitial spaces, to blood vessels, and back again.

Water is moved as needed to keep the amount in each area relatively constant, thus enabling the body to function optimally:

- When water loss is severe, the amount of water in the bloodstream decreases. The body moves water from inside the cells to outside the cells, and into the bloodstream until it can be replaced through increased fluid intake.
- When the body has excess water, the amount in the bloodstream increases, so the body moves water from the bloodstream into and around the cells. This ensures blood volume and blood pressure can be kept relatively constant.

## Fluid imbalance

To maintain a euhydrated state (optimal fluid balance) – water intake must equal water loss. Fluid imbalance occurs when there is a:

### FLUID DEFICIT

**Active fluid loss:** hemorrhage, diarrhea, excessive sweating.

**Inadequate fluid intake:** poor thirst mechanism, mobility issues (i.e. in seniors).

**Regulatory mechanism failure:** renal impairment, medical conditions (such as diabetic ketoacidosis) and medications (such as diuretics).

### FLUID SURPLUS

Excess fluid intake (without electrolyte replacement).

Regulatory mechanism failure, medical conditions (such as congestive heart failure).

Fluid imbalance can be associated with: **dehydration, hyponatremia, heat cramps, heat exhaustion and heat stroke.**

## Risk factors for dehydration

### Vomiting & diarrhea

- Large loss of fluid and electrolytes.
- **FACT:** Dehydration is the biggest health risk associated with vomiting and diarrhea.

### Travel

- Travelers' diarrhea.
- Increased physical activity and exposure to the sun (excess fluid and electrolyte loss through sweat).



### Heavy sweating

- Heat exposure and vigorous physical exercise usually increases the sweat rate.
- Fluid and electrolytes are commonly lost through sweat.
- **FACT:** Prolonged heatwaves often put the health of children and seniors at risk of mild to moderate dehydration.

### Clinical conditions

- Certain medical conditions and procedures can increase the risk of dehydration e.g. colonoscopies (due to bowel preparation procedures), chemotherapy and radiotherapy, lack of food and fluid intake during periods of illness (such as fever), pregnancy related dehydration due to morning sickness or nausea (often leading to reduced food and fluid intake).



## SIGNS AND SYMPTOMS of dehydration:

Increased thirst

Fatigue / Lethargy

Dizziness

Headaches

Dark yellow urine, or decreased urine output

Sticky or dry mouth

Loss of skin elasticity

Irritability

## A focus on DEHYDRATION

Dehydration is the significant depletion of body water and electrolytes.

Dehydration results from increased fluid loss, decreased fluid intake, or both.

Mild to moderate dehydration is commonly defined as 2–6% of body weight loss through fluid.

## How to manage dehydration

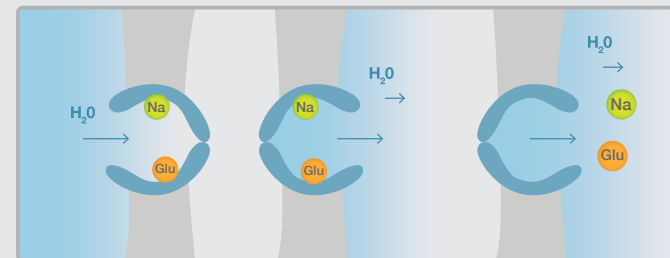
Replacing lost fluid and electrolytes with an oral rehydration solution (ORS) is the most important aspect of managing dehydration. **Hydralyte** is a scientifically formulated ORS based on the World Health Organization criteria for oral rehydration therapy.<sup>1</sup> The solutions contain the correct balance of glucose and electrolytes to allow for rapid and effective rehydration.

## Oral rehydration solutions (Hydralyte) – The science

The most important physiological features are:

1. **Correct balance of sodium and glucose** leads to the activation of the sodium-glucose co-transporter in the small intestinal lumen – this allows for rapid absorption. Sodium and glucose bind to the transporter protein – driven by high sodium concentrations in the small intestine. This dual binding causes the transport protein to change shape, delivering sodium and glucose to cell internals. At the same time, water moves into the cell internals by osmosis.

Sodium and glucose are both actively transported out of the cell into the blood, along with water.



2. **The solution is hypotonic** – this allows for effective rehydration while minimizing potential side effects such as unnecessary calories or a feeling of fullness/bloating.

**It is important to know that water alone or sugary drinks (i.e. soda or sports drinks) do not contain the correct balance of sodium or glucose to allow for rapid hydration.**

## Hydralyte products

### Oral Electrolyte Solution

No error in mixing.  
Convenient pre-made drink.  
Extended shelf life after opening – bottles last up to 1 month once open in the refrigerator. Ideal for families with vomiting and diarrhea.



### Effervescent Electrolyte Tablets

Compact in size to fit in luggage for traveling families, sports bags, backpacks, and diaper bags for moms on the go.

Easy to use formulation – dissolve 2 tablets in 7 fl oz of water – no stirring required!



### Oral Electrolyte Powder

Easy to prepare format, compact and portable for travel and on the go.

Packed with a measuring cup to allow for accurate dosing.

Ideal for first aid kits.



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<sup>1</sup> World Health Organization. Oral Rehydration Salts – Production of the new ORS. 2006. Available at: [http://whqlibdoc.who.int/hq/2006/WHO\\_FCH\\_CAH\\_06.1.pdf](http://whqlibdoc.who.int/hq/2006/WHO_FCH_CAH_06.1.pdf)

## Ingredients

**Hydralyte electrolyte powder** – Dextrose (anhydrous), citric acid, sodium chloride, potassium citrate, natural flavor (orange flavor), natural and artificial flavor (berry flavor), sucralose, β-carotene (orange flavor), grape skin extract (berry flavor)

**Hydralyte electrolyte solution** – Water, dextrose, citric acid, sodium chloride, potassium citrate, natural flavor, sucralose, sodium benzoate & potassium sorbate (to prevent spoilage), Yellow 6 (orange flavor), Red 40 & Blue 1 (berry flavor)

**Hydralyte effervescent electrolyte tablets** – Dextrose (anhydrous), citric acid, sodium bicarbonate, maltose, potassium chloride, sodium chloride, natural flavor (orange flavor), natural and artificial flavor (berry flavor), mannitol, polyethylene glycol 6000, sucralose, β-carotene (orange flavor), grape skin extract (berry flavor)

## Hydralyte formulation

Ingredient	Function	Hydralyte per Liter (1.1 QT)	Sports drink (per Liter – approximate values)
<b>Sodium</b>	Helps body to retain fluid	45–60 mEq	12–23 mEq
<b>Potassium</b>	Essential for nerve and muscle function	20 mEq	4–9 mEq
<b>Chloride</b>	Helps body to retain fluid	35–45 mEq	NA
<b>Primary sugar</b>	Assists with absorption of fluid and electrolytes	0.6 oz (glucose)	2.1–2.6 oz (glucose/ fructose/ sucrose)
<b>Osmolality</b>	WHO recommendation = 245 mOsm/L	245 mOsm/L	Variable – not standardized
<b>Calories per Liter (1.1 QT)</b>		80 (powder, solution) –110 (effervescent tablets)	260–320

## FAQs for Health Care Professionals

- Q** Is Hydralyte suitable for people with diabetes?
- A** Hydralyte products contain up to 2 g of glucose per 3.4 fl. oz. For people with diabetes, this is a small amount of glucose and is considered safe as part of a healthy, balanced overall diet. When unwell with vomiting and diarrhea, it is important to supply the body with some glucose, even for people with diabetes. Monitoring of blood glucose levels at this time is integral.
- Q** Are there any precautions or contraindications for Hydralyte?
- A** Use with caution in patients with kidney disease or a kidney condition, or those taking heart or blood pressure medication.
- Q** Does Hydralyte contain?
- |                           |    |
|---------------------------|----|
| <b>A</b> Isomalt          | No |
| Saccharin                 | No |
| Aspartame                 | No |
| Salicylates               | No |
| Gluten                    | No |
| Wheat                     | No |
| Yeast                     | No |
| Nuts                      | No |
| Animal products           | No |
| Lactose or dairy products | No |

- Q** Is Hydralyte suitable to use in pregnancy and breastfeeding?
- A** Yes, however, pregnant women should seek medical advice if they experience vomiting or diarrhea.
- Q** Is Hydralyte fructose-friendly?
- A** Hydralyte does not contain any added fructose. However, the flavors in the product may contain minute quantities of fructose. If a patient suffers from dietary fructose intolerance (malabsorption), Hydralyte will generally be well tolerated. Should any unpleasant symptoms arise, the patients should cease taking the product. If a patient suffers from hereditary fructose intolerance, they are advised to consult their healthcare professional before use, as the answer will vary on an individual basis.
- Q** What is the sweetener used in Hydralyte?
- A** Hydralyte contains sucralose – a modified form of table sugar.
- Q** What is the source of glucose in Hydralyte?
- A** The source of glucose in Hydralyte is corn (also called maize).

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