

# Dehydration

Dehydration is the reduction of water and fluid from the body, to a level below that required for proper functioning.

## CAUSES

Dehydration occurs when there is excessive fluid loss from the body, or when loss of normal fluids is not adequately replaced.

- Loss of fluids occurs in vomiting, diarrhea, excessive sweating, excessive urine output, or excessive loss of fluid from the lungs (as occurs in fever or in patients on a ventilator).
- Inadequate fluid replacement occurs when nausea causes decreased eating and drinking, with decreased intake due to other illness, or with mouth, tooth, or throat problems that cause decrease in oral intake.

## SYMPTOMS

### ➤ MILD DEHYDRATION

- Thirst (infants and young children may not be able to tell you they are thirsty).
- Dry lips.
- Slightly dry mouth membranes.

### ➤ MODERATE DEHYDRATION

- Very dry mouth membranes.
- Sunken eyes.
- Sunken *fontanelle* (soft spot) on infant's head.
- Skin does not bounce back quickly when lightly pinched and released.

### ➤ SEVERE DEHYDRATION

- Rapid, weak pulse (more than 100 at rest).
- Cold hands and feet.
- Loss of ability to sweat in spite of heat and temperature.
- Rapid breathing.
- Blue lips.
- Confusion, lethargy, difficult to arouse.

## DIAGNOSIS

Your caregiver will diagnose dehydration based on your symptoms (above) and your examination. Blood and urine tests will help confirm the diagnosis. The diagnostic evaluation should also identify the cause of dehydration.

## PREVENTION

The body depends on a proper balance of fluid and *electrolytes* (salts, such as sodium and potassium) for normal function. Adequate fluid intake in the presence of illness or other stresses (such as extreme exercise) is important.

## TREATMENT

**Mild dehydration** is safe to self-treat at all ages as long as it does not worsen. Small amounts of water or clear fluids should be taken frequently. Large amounts at one time may not be tolerated. Commercial ORS (oral rehydrating solutions) are available at pharmacies and grocery stores. They replace water and important electrolytes in proper proportions. Sports drinks are not as helpful, and may be harmful due to sugars worsening diarrhea. Plain water may also be harmful in infants and the elderly. Contact your caregiver for even mild dehydration in infants and the elderly.

As a general guideline:

- Children less than 22 pounds should be given 60-120 mL (2-4 ounces) for each episode of vomiting or diarrheal stool.
- Children greater than 22 pounds should be given 120-240 mL (4-8 ounces) for each episode of vomiting or diarrheal stool.
- If your child is vomiting, start with smaller amounts of ORS. Start with 5 ml or 1 teaspoonful every 5 minutes. Gradually increase the amount taken.
- *Kaolectrolyte* (carbohydrate and electrolyte powder packets) is the product that most closely follows the World Health Organization and American Academy of Pediatrics guidelines on oral re-hydrating solutions. They come in small, easily transportable packets and dissolve in 8 oz. of water in seconds.

In teenagers and adults with **moderate dehydration**, careful home treatment (as outlined above) can be safe. Phone contact with a caregiver is advised. Children under 10 with moderate dehydration should see a caregiver first.

If you are **severely dehydrated**, go to a hospital for treatment. Intravenous fluids (IV's) will quickly reverse dehydration and are often life-saving in young children and infants, and in older persons.

### HOME CARE INSTRUCTIONS

- Infants: use Pedialyte<sup>®</sup>, Infalyte<sup>®</sup>, Resol<sup>®</sup>, or suitable alternatives for fluid restoration. After correction of dehydration, other clear liquids that are appealing to the child may be added.
- For children less than one year of age, give two to three teaspoons, or one half ounce, every half hour for one to two hours. Increase to one ounce every one to two hours if tolerated. If after six hours fluids are not vomited, fluids may be taken as desired.
- For children over one year, double all above amounts. Start with one ounce every half hour.
- Anti-diarrheal medications are not recommended for infants and children.
- Record fluid intake and urine output. Dry diapers for longer than usual may indicate dehydration. Diet may be advanced as tolerated.
- Checking weight 2 to 3 times per day in babies and children will help make sure that fluid replacement is adequate. Your caregiver will tell you what amount of weight loss should be reported.
- Children and adults should drink small amounts of fluids frequently. Adults may drink two to three ounces every half hour for one to two hours and increase to three to four ounces every half hour for one to two more hours. If there is no vomiting in six hours, drink as desired.
- You may use clear liquids for 24 to 48 hours, then resume regular diet or as tolerated.
- Aspirin, Tylenol<sup>®</sup>, or ibuprofen (Advil<sup>®</sup> or Motrin<sup>®</sup>) may help with pain or fever. You may wish to use Tylenol<sup>®</sup> if aspirin or ibuprofen aggravate the nausea. **Do not give aspirin to children because it may cause Reye's Syndrome.**
- ORS (as above) is best. Otherwise (and for adults) drink clear liquids only. That is anything you can see through such as water, broth, jello water, apple juice, 7-Up<sup>®</sup>, or other soft drinks. Carbonated soft drinks should be allowed to go "flat" before drinking. Watch for worsening of diarrhea from the sugar in soft drinks.
- Once clear liquids are tolerated, you may progress to full liquids, soups, juices, and ice cream or sherbet. If they are well tolerated, add bland foods to your diet.

### SEEK IMMEDIATE MEDICAL CARE IF:

- You are unable to keep fluids down or other symptoms or problems become worse in spite of treatment.
- Vomiting or diarrhea develop and become persistent.
- You develop an oral temperature above 102° F (38.9° C) for over 3 days.
- You or your child develop a rash, stiff neck, severe headache, or become irritable or *lethargic* (sleepy and difficult to awaken).
- You or your child develop excessive weakness, dizziness, fainting, or extreme thirst.
- There is no urine output in 6-8 hours or small amount of very dark urine.
- There are repeated episodes of vomiting despite small frequent feeds.

- There is vomiting of blood or bile (green material).
- There is blood in the stool or the stools are black and tarry.
- There is new or worsening abdominal pain.