

An Imbalance of Water and Minerals

100% Preventable — If You Know What To Do!

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Dehydration results from the loss of water and important electrolytes from the body, including potassium, sodium, chloride, and many other minerals that are often overlooked. The very functioning of essential organs like the brain, kidney, heart and nervous system can't function without sufficient water or minerals. In third world countries, millions of people die each year from dehydration, particularly susceptible are children and the elderly. But even in North America people suffer unnecessarily and even when people aren't actually ill from dehydration, it can really affect quality of life and performance.

Noteworthy is that water makes up 70 percent of our muscles and about 75 percent of our brains. Thus, it is not surprising that as minerals and water become depleted that muscle aches and cramps, fatigue and thinking can be affected. Research shows that dehydration can diminish thought processes and memory, thus adversely affecting global quality of life. This should not be surprising considering that an imbalance in just one mineral can actually lead to substantial biochemical imbalances; thus maintaining and replacing the full array of minerals and trace minerals in one's diet daily is important, let alone during times of strain on your body's systems that can cause dehydration.

There are many causes of dehydration; indeed, everyday we lose about two cups of water from just breathing, so if it is not replaced, a fluid and electrolyte imbalance will occur. Dehydration causes fall within four basic categories:

Common Causes of Potential Dehydration*

- Sweating - Fever, Exercise, Excess exposure to heat (heat exhaustion/heat stroke)
- Vomiting - Ulcers, Food Poisoning, Flu, etc.
- Insufficient Intake - This can arise from not consuming adequate quantities of water and minerals or a relative deficiency due to excess loss.

*It is essential that the cause of the dehydration is addressed.

I routinely coach my patients to focus on prevention when it comes to dehydration.

The reality is that dehydration happens more frequently than most of us realize. How many of you have suffered from dry lips and mouth, skin that is flaky, and a swimming sensation in your head when you have forgotten to drink sufficient water? Well, one or more of these symptoms are very prevalent for tens of thousands of people in the North America alone.

In fact, on a hot humid day, an active person can become dehydrated in just 15 minutes. So, how do you avoid getting dehydrated? Well, here are two specific clues:

1. Get enough water
2. Consume your minerals: sodium, potassium, chloride, calcium, and magnesium

Minerals - The Spice of Life and an Essential Consideration for Dehydration Treatment

Sodium	Salt— plain and simple; That is why after sweating you crave salty food.
Potassium	Most Americans don't get enough. The average intake is only half as much as sodium. A healthful intake is 5 times more potassium, than sodium, which is easily obtained by eating a more vegetable and fruit-based diet.
Chloride	The mate to both sodium (NaCl) and potassium (KCl), it is essential to keep these items in proper balance.
Calcium	This mineral is essential for proper cardiac and muscle function; if too low, one can get muscle cramps.
Magnesium	When low, muscle spasms can occur. This mineral is crucial for maintaining a healthy airflow and helping to keep blood pressure balanced.

Trace Minerals The forgotten minerals; just because they are trace and small, they are lost also when one gets dehydrated. Replacing them as well can help maintain overall health and optimal functioning and performance.

If you are athletically inclined, avoiding dehydration takes on additional significance.

Not only are you at a higher risk, dehydration can really decrease your performance and endurance, thus dulling your performance edge.

There are two basic levels of dehydration that might be treated at home. It is important to remember dehydration can be serious. Here are some signs of dehydration and the level of related severity:

Frequent Signs of Dehydration*

Mild - (Safe to treat at home as long as it doesn't worsen)

- Thirst
- Dry Lips
- Inside of mouth slightly dry

Moderate - (Children under 12 should see a physician immediately)

- Thirst
- Very dry mouth
- Eyes sunken
- Fontanelles sunken (The soft spots on infants' heads)
- Tenting (Pinch and lift skin slightly – it doesn't bounce back readily)
- Severe - (This requires hospitalization to rapidly reverse the dehydration via IV therapy)

All other signs of moderate dehydration

- Rapid and a weak pulse (Often over 100 beats per minute)
- Cold hands and feet
- Breathing is rapid
- Lips may be blue
- Person may be lethargic, confused, or apathetic

*When in doubt get medical attention, it is always important to be cautious.

Though the symptoms described above seem ominous, the important thing to remember is that these symptoms occur when dehydration is allowed to occur and is not treated in a rapid fashion. Remembering that the very young and older adults are more susceptible to suffering from dehydration and a more rapid and serious progression of symptoms requiring even more close attention, here are a few points of review that are helpful tips to remember:

Practical Tips to Avoid Dehydration:

- Drink plenty of fluids—consume 8 glasses of 8 ounces of water daily
- Sports drinks can provide carbohydrates, fluid and minerals
- Limit or avoid caffeinated beverages and alcohol—they both increase dehydration
- Outside clothing on warm days should be light, absorbable, and loose-fitting
- Avoid carbonated beverages that can bloat and give sense of fullness, limiting fluid intake
- Use sunblock, staycool, and seek the protection of shade whenever possible

Consuming your water and replacing your minerals is the essential first step when treating dehydration. Yet the best bet is to get your daily dose of minerals and water daily, so you will be better prepared for potential dehydration risks. Researchers have shown that pre-loading, treating during and after are the best ways to maintain proper hydration.

References:

1. Clap AJ et al., *A review of fluid replacement for workers in hot jobs. AIHAJ 63(2):190-8, 2002.*
2. *Burker LM., Nutritional needs for exercise in the heat. Comp Biochem Physiol A Mol Integr Physiol 128(4):735-48, 2001.*
3. *No Listed Authors, Position of dietitians of Canada, the American Dietetic Association, and the American College of Sports Medicine: Nutrition and Athletic Performance. Can J Diet Pract Res 61(4):176-192, 2000.*