

## Heat Stress Awareness Is Critical With Increased PPE



### Hot Months and Increased Use of PPE Require Heightened Awareness of Signs of Heat Stress

In 2020, our Summer jobsites are going to look a little different than previous years. Working in the heat during the pandemic will require us to redefine our safety measures as temperatures start climbing. Workers putting in a full shift wearing a mask or face covering are going to get hot and sweat more than usual. We need to make sure all workers are staying properly hydrated throughout their shifts.

### How Electrolytes Can Boost Productivity

We can all picture athletes chugging down sports drinks to replenish their lost electrolytes. But, athletes aren't the only ones who need to keep their bodies hydrated and fluid levels balanced. The demands of construction can really throw workers' bodies off balance both physically

and mentally. Understanding the importance of hydration for construction workers keeps us safe and ultimately more productive. During the summer months we need to find effective ways to beat the heat and get the job done!

### Even Slight Dehydration Causes A Drop In Productivity

A 1% drop in hydration can decrease a worker's productivity by 12%, and they may begin experiencing decreased cognitive abilities, lower concentration and alertness, and slower reaction times. As a worker becomes more dehydrated their effectiveness drops rapidly. A 3-4% decline in hydration can result in a 25% (or more) drop in productivity.

### Delayed Reaction Time

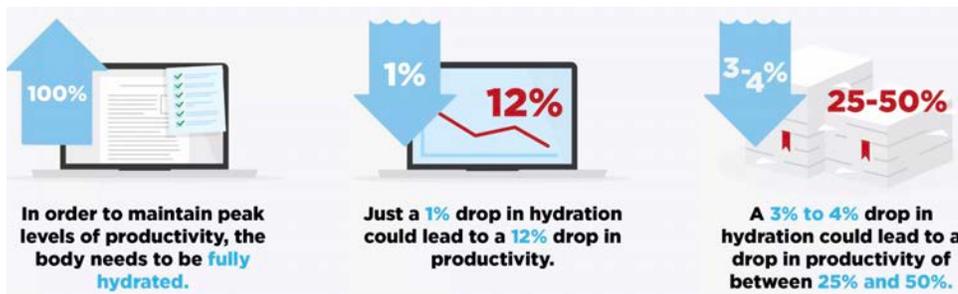
At 3% dehydration, a worker's reaction time is equivalent to someone with a blood alcohol content of .08%. At that blood alcohol level, you are about 5X more likely to cause an automobile accident. So at 3% dehydration not only does productivity suffer drastically, but accidents are likely.

A new study in the April issue of *Medicine & Science in Sports & Exercise* shows that:

"... athletes can stave off fatigue 37% longer if they drink sports drinks — the kind with electrolytes and carbohydrates in them. They also run faster, have better motor skills, and are mentally sharper".

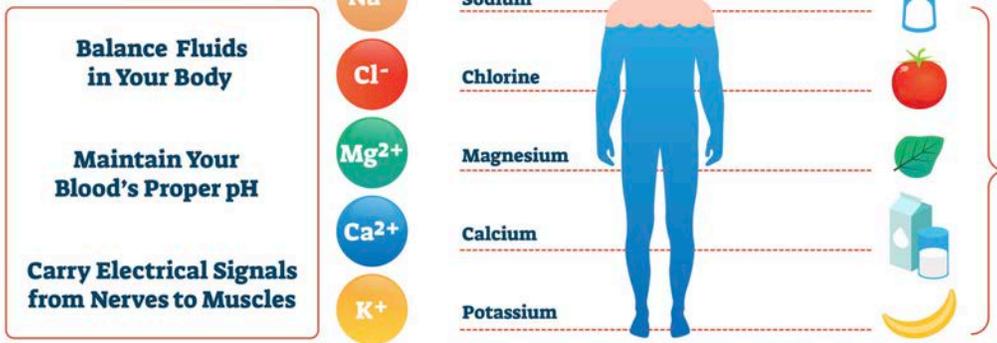
### How Do Electrolytes Work?

Electrolytes are chemicals that form electrically charged particles, or ions, in body fluids. Since electrolytes form ionic minerals they possess a positive or negative charge. This electrical energy is needed for all sorts of bodily functions and processes. All bodies at work or play need electrolytes to keep the nervous system and muscles functioning properly at optimal levels.



Infographic from TheDailyMBA.com "Why hydration is essential for your employees"

## The Main Electrolytes In Body Fluid



battle with electrolyte loss, especially in the summer, or in areas with hotter climates. Keeping jobsite productivity up when we're out in the heat means being aware of signs of lost electrolytes and knowing how to replenish them efficiently.

## How To Know When You're Getting Low

### The five key electrolytes are:

**Sodium** – helps maintain the balance of water in and around your cells. It's important for proper muscle and nerve function. It also helps maintain stable blood pressure levels.

**Chloride** – is a negatively charged ion that works with other electrolytes, such as potassium, sodium, and bicarbonate, to help regulate the amount of fluid in the body and maintain the acid-base balance.

**Magnesium** – helps to maintain normal nerve and muscle function, supports a healthy immune system, keeps the heart beat steady, and helps bones remain strong. It also helps regulate blood glucose levels and aid in the production of energy and protein.

**Calcium** – essential for bone development and also nerve transmission and muscle growth

**Potassium** – helps regulate fluid balance, nerve signals and muscle contractions, and the pH level in blood (should be 7.35-7.45, slightly alkaline). Also can lower blood pressure.

The problems begin when the sweating starts. Excessive sweating during exercising—or when pouring concrete, hanging sheet rock, fitting pipe, or swinging a hammer—is what leads to dehydration and subsequent electrolyte loss. When bodies sweat, they lose both water and electrolytes, particularly sodium and chloride.

### Not Just For “Athletes”

No matter what our task at hand is, chances are it's going to involve sweating. Put that job outside in the heat and exposure to the elements, add in hard hats and Hi-Viz apparel worn over our clothes, and it's easy to see why the heat is usually on for construction workers.

So, while weekend warriors may face electrolyte loss a couple times a week, construction workers face a daily

Working through the conditions of dehydration is not only physically uncomfortable, but can be downright dangerous when operating heavy equipment and working with tools. For our safety, and everyone on our crew, the need to replenish electrolytes is vital.



### Signs Of Dehydration

- Low blood pressure
- White fingertips
- Fast heartbeat
- Skin that takes longer to return to its normal shape after you pinch it

### Symptoms Of Electrolyte Loss

- Muscle cramping or twitching
- Fatigue, dizziness, nausea
- Irregular heartbeat
- Numbness or tingling
- Loss of focus or confusion
- Headache

Even mild dehydration can have negative effects on physical and mental performance. It can result in reduced energy levels, reduced endurance, and can even harm brain function. A familiar reaction to electrolyte loss is cramping. But by the time cramping sets in the body is

already out of electrolytes. Cramping is the body's way of indicating it is on empty. The goal in replenishing electrolytes is not so much to prevent cramping, but to maintain specific bodily functions at optimal levels.

Needless to say, if you, or a coworker is experiencing any of the above symptoms, it's time to find some shade, and replenish. Always better to take a break rather than risk possible injury.

**EVEN BETTER is to stay ahead of these symptoms. Studies confirm that keeping your electrolyte levels up allows you to stay focused, and work in the heat for longer periods between breaks.**

## Best Ways To Replenish

Water can fend off dehydration but water alone won't replenish lost sodium, chloride, potassium and other minerals. Just drinking sports drinks isn't the only way to replenish electrolytes.

### Sports Drinks

Sports drinks are full of electrolytes and carbohydrates – which bind to electrolytes and water, delivering water and nutrients to your muscles faster. If you are working hard all day, this level of sugar is not problematic. If you are working at a low to moderate intensity level then a good rule of thumb is to drink less sugar or include some sugar free versions.

### Enhanced Water

Adding electrolyte packets to your water is an economical and effective way to replenish lost electrolytes. These drink mixes are enhanced with minerals necessary to replenish sodium, potassium and other lost minerals, and are beneficial to keep workers going and energy levels up. Some brands of water contain added electrolytes, but most people drink more water when it's flavored.

### Coconut Water

Packed with nutrients and low in sugar, coconut water is a great way to rehydrate and replenish electrolytes, especially potassium—which can prevent muscle cramping.

### Natural Rehydration

A natural rehydration drink with electrolytes includes water, salt and sugar. Mix water with a 10-1 ratio of sugar (or honey) to sea salt. This will do the trick if you need to avoid, or reduce your sugar intake.



By the way, probably a good idea to ease off of the coffee on hot days. Coffee, and other caffeinated drinks, acts as a diuretic – which causes your body to produce urine and speeds up dehydration.

## Proper Diet Goes A Long Way

Healthy Food: Maintaining a healthy diet will also restock electrolyte reserves. In fact, the main sources of electrolytes are fruits and vegetables. (Were you secretly hoping I was going to say “Burgers and Curly Fries”?)



### To replenish minerals through food consider adding:

**Sodium** through Pickled foods, cheese and salt

**Chloride** through table or sea salt

**Potassium** through avocados, bananas and other fruits and vegetables

**Magnesium** through seeds and nuts, spinach

Some advocate for the use of salt tablets for electrolyte replenishment, however, they only provide two of the electrolytes your body requires—sodium and chloride—where there are others a body needs to work properly. Additionally, they can supply too much sodium and overwhelm the body's complex mechanism for regulating sodium.

## Why Not Just Drink More Water?

In the heat of the job, sweating is the biological reaction to cool core body temperature. It seems logical that drinking water would replace water lost through sweating. However, drinking more water without replacing lost electrolytes can cause dilution and deplete what little remaining electrolytes are left. So while drinking water is a requirement in preventing dehydration, workers also need to replenish electrolytes. Having both water and sports drinks available onsite for workers is a good rule of thumb



to prevent and treat dehydration.

## Keep The Crew Hydrated

Just like elite athletes, contractors need to keep their hardworking bodies hydrated, and preventing electrolyte loss is better than treating it after cramps or other symptoms have had a chance to set in. It's worth emphasizing in the next safety meeting just how important replenishing electrolytes is for worker health, safety and productivity. On your jobsites make sure to set up shade areas with popups or E-Z Ups and provide

a hydration station with some options. 5 or 10 gal. igloo coolers, cases of water with electrolyte packets, frozen Sqwincher Squeeze® Pops, etc, are always great ideas.

### For more info on Electrolytes and Hydration:

<https://www.thedailymba.com/2016/12/21/infograph-why-hydration-is-essential-for-your-employees/>

<https://www.webmd.com/diet/features/5-hydration-dos-and-donts#1>

<https://nuunlife.com/blogs/nuuniversity/sugars-in-sports-drinks>

---

### To view the online article go to:

<https://news.whitecap.com/heat-stress-awareness/>