

Personal Safety

## Dizziness, Disorientation, Loss of Consciousness — The Dangers of On-the-Job Dehydration

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Everyone knows staying hydrated is important. But not everyone really understands what's in store for them if they let dehydration take over.

Fluids are essential for regulating body temperature, lubricating joints and eyes, facilitating proper digestion, and removing **toxins** from the body. It shouldn't come as a surprise, then, that effects of dehydration are a lot worse than just feeling a bit parched.

In this article, we'll clear things up by going over what dehydration does to your body. And we'll end with some practical tips for staying hydrated throughout the workday.

### Hydration Basics

Dehydration happens when your body uses or loses more fluid than it takes in. When it happens, your body starts running on empty and can't carry out its normal functions. Lost fluids must be replaced to avoid an imbalance of salts and sugar in the body, which can affect performance.

The average adult has about 2.6 million sweat glands, which activate when the brain determines that the body must be cooled down. This takes a real toll on those whose jobs involve physical labor. Estimates suggest that workers who wear heavy protective clothing can lose as much as 2.25 liters of fluid every hour. To replace it, **NIOSH** and the Centers for Disease Control recommend that a moderately active worker drink one cup every 15 minutes, whether they feel thirsty or not.

## How You Become Dehydrated

There are a handful of key factors that contribute to dehydration:

- Environment
- Physical activity
- Health conditions
- Diet

Strenuous work in the sun, heat, and humidity causes you to sweat and quickly depletes your body's fluids. But that doesn't mean you're safe in the winter: the same thing can happen in extreme cold (see *Hydration Is Not Just a Summer Issue* to learn more).

Dehydration can also be a constant risk for people who work indoors. Many factory, restaurant kitchen, and laundry service workers spend their days in hot environments.

Your hydration level is also affected by:

- Frequent urination (due to altitude or illness)
- Quicker breathing, which uses up more body fluids
- Vomiting and diarrhea
- Alcohol, caffeine and sugary drinks

## Symptoms of Dehydration

Okay, so you're sweating it out throughout your workday, but you go hours without taking a drink. What happens next?

The obvious symptoms are thirst and excessive sweating, but the more subtle signs of mild to moderate dehydration include:

- Dry, sticky mouth
- Tiredness
- Dry skin
- Headache
- Constipation
- Dizziness or lightheadedness
- Less frequent urination
- Dark yellow urine (pale yellow indicates proper hydration levels)
- Muscle cramps

If you suspect that dehydration is starting to set in, there's a simple way to check: the pinch test. Dehydration affects skin turgor (its ability to change shape and return to normal). With your thumb and index finger, pinch the skin on the back of your hand and hold it for a few seconds. If it doesn't bounce back right away and takes time to return to its normal position, you're likely dehydrated and need to replenish your fluids.

If not addressed, this will progress into severe dehydration, the symptoms of which include:

- Irritability and confusion
- Sunken eyes
- Low blood pressure
- Rapid heartbeat
- Rapid breathing
- Fever

- Little to no urination
- Delirium or unconsciousness (in serious cases)

## The Realities of Dehydration

Dehydration is no joke. It can lead to serious complications and can be fatal if not treated.

Here are some of the frightening consequences that can come from not providing your body with the fluids it needs.

## Heat Injury or Illness

Heat injury or illness can take hold if you don't drink enough while you're active and perspiring heavily. Injuries and illnesses range from mild heat cramps to **heat exhaustion** and life-threatening heatstroke.

## Decreased Cognitive and Motor Skills

Dehydration reduces concentration and reaction time, resulting in decreased cognitive and motor skills. Studies show that it only takes **2 percent dehydration to cause impaired performance** in tasks that require attention, motor and memory skills.

This kind of impaired performance is risky for anybody, but it poses a particularly severe risk to workers who operate or work near heavy machinery. A 2015 study out of Loughborough University found that **participants committed a significantly higher number of driving errors when they were dehydrated**. Shockingly, their performance was just as poor as that of people who complete similar tests while at the legal blood alcohol content limit.

## Urinary and Kidney Problems

Urinary and kidney issues can arise after repeated or prolonged periods of dehydration. Common issues include urinary tract infections, kidney stones, and kidney failure.

## Seizure and Loss of Consciousness

Electrolytes like potassium and sodium help transmit electrical signals between cells. If they're unbalanced as a result of dehydration, these messages can become mixed up and lead to seizures and, occasionally, loss of consciousness.

## Hypovolemic Shock

One of the most serious and life-threatening complications arising from dehydration is hypovolemic shock, or low blood volume shock. It happens when you lose more than 20 percent of your blood or fluid supply, which prevents the heart from pumping enough blood to keep the body running. It can lead to organ failure and requires immediate emergency medical attention.

## Tips to Stay Safe

The easiest way to prevent dehydration is to ensure you are consistently taking in fluids throughout the day, even if you don't feel thirsty. While the recommended daily intake varies depending on age, climate and physical activity level, workers should aim to drink about one cup of fluids every 15 to 20 minutes to replace what is being lost.

Here are some other helpful tips to help you maintain good hydration:

- **Avoid caffeine and sugary drinks.** These are diuretics and will increase urine output, which can cause greater dehydration.
- **Come prepared for the conditions.** If you're anticipating high temperatures, humidity, heavy PPE, and difficult work, come prepared with plenty of hydrating fluids.
- **Wear breathable, light-colored clothing.** This allows sweat to evaporate and keep your body temperature low. If your clothes become saturated with sweat, change into dry ones as soon as possible.
- **Eat plenty of fruits and vegetables.** These are great sources of electrolytes and fluids. Opt for fruits with high water content, like melon, pear, pineapple and grapefruit. Bananas are high in potassium and are perfect for quickly refueling.
- **Monitor your urine.** If you're properly hydrated, you should have clear to light yellow urine. Dark urine indicates dehydration and you should increase your fluid intake immediately.

If you or a co-worker exhibits signs of dehydration, call for medical assistance immediately and move to a cool place.

## How Employers Can Help

Employers must provide and maintain a safe working environment for all employees. And that includes taking steps to prevent dehydration.

Moreover, numerous studies show that *hydration levels have a strong effect on workplace productivity*. A one percent drop in hydration is enough to cause a 12 percent drop in productivity. At three to four percent dehydration, productivity plunges by an astounding 25-50 percent.

With that in mind, here are some tips employers can follow to promote proper hydration in the workplace.

- **Provide hydration education.** Teach workers to recognize the signs and symptoms of dehydration and how to combat it. Reinforce the message with ongoing training and visual reminders, like posters.
- **Keep fluids accessible and available.** Making drinks easily accessible encourages employees to stay on top of hydration.
- **Offer employee incentives.** Reusable water bottles or hydration packs may encourage employees to keep fluids with them at all times and remind them to drink regularly.
- **Choose the right PPE.** Ensure all protective gear is breathable to allow sweat to evaporate and help workers remain cool.
- **Use the buddy system.** In addition to a manager looking out for employees, they can keep an eye on each other.
- **Have an emergency plan.** A plan makes it simple and efficient to get first aid or medical treatment for affected workers. Ensure everyone knows his or her role to avoid confusion in an emergency situation.

## Conclusion

The best way to ensure you're functioning at your best is to get to know your body — and listen to it. Pay attention to signs that you may be getting dehydrated and make sure you're taking in fluids at regular intervals throughout the day. Your health and well-being truly depend on it.

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