



HOLY HYDRATION:

AN ERGODYNE WHITE PAPER

Good ole water. The substance that makes up 70 percent of planet Earth and 60 percent of you. We lose this essential nutrient through basic acts like getting out of bed and breathing. Multiply that by a hard day on the job and you can easily find yourself in the danger zone – especially if you’re not consciously putting in what’s coming out. There’s no question, hydration is a key component to overall health – perhaps the *most* critical.

RISKS OF DEHYDRATION

In any environment, lack of adequate water can lead to serious health problems, including the most severe consequence of death. Athletes and workers in hot environments have long recognized the need to stay hydrated through drinking plenty of water.

The more obvious heat-related illnesses, including: heat rash, heat cramps, heat syncope (fainting), heat exhaustion, and heat stroke are closely associated with a worker’s level of hydration. Since heat stress is a widely recognized hazard, several states, including California and Washington, established requirements for drinking water in potential heat stress situations. OSHA standards as well as various safety guidelines mandate that all jobsites provide adequate drinking water for workers under Standard 1926.51(a)(1-4).

That being said – it’s not just hot environments or the most extreme jobs where danger exists. Many experts caution that workers in cold environments and workers with an average level of exertion, often do not drink enough water to stay properly hydrated throughout their workday.

Cold environments present their own challenges as cool, dry air rapidly absorbs moisture from our breath and perspiration may be less obvious as it evaporates quickly. A key risk factor in this scenario is hypothermia, another potentially fatal event. Unfortunately, the urge to drink may be less obvious in this environment and that’s where conscious drinking comes into play.

If in a new environment, the acclimatizing period should always be taken into account. Workers may need some time to adjust to a new climate (hot or cold) or a new task to learn how their body reacts and adapts.

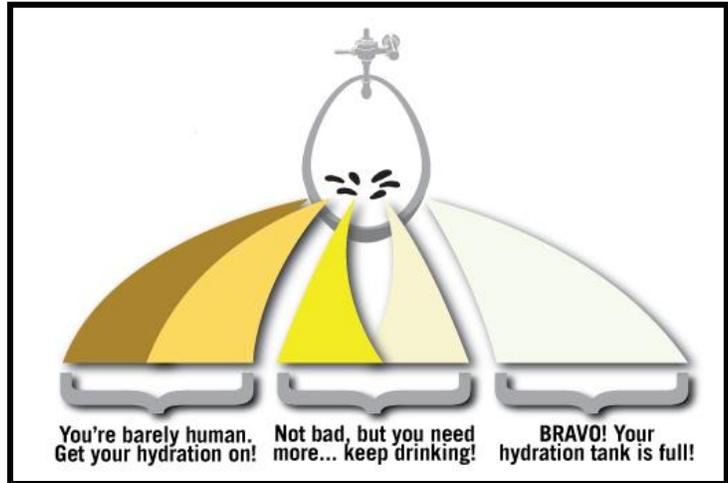
HYDRATE BEFORE YOU GET THIRSTY

Most health and safety experts recommend drinking water before exertion or exposure to hot or dry work environments and for workers to be trained to spot the key signs of potential dehydration, including:

- >> Thirst
- >> Fatigue
- >> Muscle Cramps
- >> Nausea, Dizziness, or Confusion
- >> Excessive Perspiration
- >> Hot, Dry Skin (Unable to Perspire)

Since every worker is different, it is important for you to recognize changes from your 'normal' condition, as well as be aware of the effects of prescription medications, medical conditions such as heart disease or diabetes, and your own tolerances.

A simple indicator of dehydration is a change in urine patterns. Since water is the main component of urine, not urinating as frequently as usual – or urine that is darker in color, are both signs that the person needs to be drinking more water.



HOW MUCH IS ENOUGH?

So how much water does a person actually need? The exact amount will depend upon the individual: their size, age, physical condition, level of exertion, the work environment, and job demands.

Published guidelines generally recommend a quart of water per hour of active work or exercise for an average adult. Many suggest distributing this intake amount over an entire workday. For example, drinking a cup of water every 15 minutes or so will ensure your body maintains a healthy level of hydration and helps to avoid a bloated feeling.



Plain, cool water is the first choice of most hydration experts. Sweetened or caffeinated drinks are simply not as effective at replenishing lost fluids and will actually increase a person's dehydration rate. Many hydration programs also augment water with electrolyte solutions to help replenish the body more quickly.

CONSCIOUS HYDRATION

Employers can promote proper, conscious hydration through a number of simple strategies, including:

1. **ACCESS TO WATER.** The most basic control and compliance in regulations is providing a readily accessible supply of cool, portable

water. At fixed locations, installation of water fountains, bubblers, or coolers near break areas will encourage employees to drink more frequently. At remote locations, insulated coolers or a supply of bottled water should be provided. For those in mobile applications or working at heights, portable hydration packs ensure workers stay hydrated while performing their tasks.

2. **PROVIDE AN INCENTIVE.** Additionally, employers can provide reusable water bottles as a convenient, constant reminder.
3. **SET UP SHELTER AND ENFORCE BREAKS.** Providing refuge from the elements is another strategy to reduce fluid loss. This could involve shade for workers, fans to circulate air, cooling stations, heaters, and hydration stations. Changing work-shift schedules so employees do not work during the hottest or coldest part of the day can reduce the risk of dehydration. In cold environments, “cooling down” isn’t necessary – however, simply setting designated time to hydrate and rest is critical.
4. **APPROPRIATE PPE.** Wide brimmed hats that block strong rays from the sun and loose fitting or vented clothing keep workers cool and reduce perspiration. Absorptive or evaporative cooling aids, such as vests, bandanas, and helmet liners will also aid in combating dehydration in hot environments. Layering in cold environments can help reduce in fluid loss as well. Wearing a moisture wicking base layer would help as well.
5. **EDUCATE YOUR WORKERS.** Training and awareness are essential. By understanding the risks of dehydration and taking preventative action, employers can put in place emergency procedures for someone who may be suffering from any condition associated with dehydration.

STAY HYDRATED. STAY PRODUCTIVE. STAY ALIVE.

The key to maintaining a healthy and productive workforce is to take preventative action and understand the warning signs of dehydration. Do not wait until thirst sets in. Conscious hydration is key to keeping the delicate ecosystem of our bodies in check.

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Resources for More Information:

OSHA-NIOSH INFOSHEET: Protecting Workers from Heat Illness
<http://www.cdc.gov/niosh/docs/2011-174/>

NIOSH: Preventing Heat-related Illness or Death of Outdoor Workers
<http://www.cdc.gov/niosh/docs/wp-solutions/2013-143/>

NIOSH Safety and Health Topic: Heat Stress
<http://www.cdc.gov/niosh/topics/heatstress/>

OSHA Safety and Health Topics: Heat Stress
<http://www.osha.gov/SLTC/heatstress/index.html>

Holy Hydration: An Ergodyne White Paper

OSHA Technical Manual: HEAT STRESS

http://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_4.html

State of Washington: Outdoor Heat Exposure

<http://www.lni.wa.gov/Safety/topics/atoz/heatstress/default.asp>

State of California: Heat Illness Prevention

<http://www.dir.ca.gov/DOSH/HeatIllnessInfo.html>

Mayo Clinic: Water: How much should you drink every day?

<http://www.mayoclinic.org/water/ART-20044256>

WebMD: The Wonders of Water

<http://www.webmd.com/a-to-z-guides/features/wonders-of-water>

University of Maryland Medical Center: Hypothermia

<http://umm.edu/health/medical/altmed/condition/hypothermia>