

# European workers fail to hydrate properly

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Spanish construction workers having a water break. Although lots of water on

the table/agenda many of them fail to rehydrate from day to day. Credit: Andreas Flouris

A newly published scientific paper indicates that occupational safety and daily day performance in seven out of 10 workers from several European industries are negatively affected by a combination of heat stress and failure to maintain water balance. The study combines field observations and motor-cognitive testing in the lab, and was conducted by the Pan-European Heat-Shield project coordinated by researchers from Department of Nutrition, Exercise and Sports at University of Copenhagen.

The importance of preventing [dehydration](#) has received much attention in health and work safety advisories, and has been highlighted in the media during hot periods. It is therefore astonishing that seven out of 10 workers are not adequately hydrated already at the onset of work.

"The very high prevalence of dehydration was a surprise to us, and the potential influence on cognitive function and motor performance in key industries is quite problematic, because it markedly increases the risk of making mistakes and therefore threatens both safety and productivity," says professor Lars Nybo from the Department of Nutrition, Exercise and Sports at University of Copenhagen, and project coordinator for Heat-Shield.

## **A threat to productivity and safety**

During the previous two years, the Heat-Shield project assessed hydration status at the start and end of [work shifts](#) across five European industries. The study included 139 workers from four countries, Denmark, Cyprus, Greece and Spain, and respectively working as

manufacturing workers (in the aluminum industry) or as [agricultural workers](#), police officers, tourism workers and construction workers.

The study combines field data with advanced testing of cognitive and motor function, and demonstrates how the combination of dehydration and occupational heat stress is a significant threat to productivity and safety. The impaired cognitive and motor task performance will be problematic in many occupations, as they rely on healthy cognitive function, e.g., the ability to focus on tasks and react appropriately to occupational challenges.

For agricultural workers, dehydration is a problem aggravated during work shifts, but across all industries, it is mainly failure to rehydrate from day to day that causes a state of mild to moderate dehydration. This is in itself a health problem, but when combined with heat stress, it markedly influences the ability to perform complex tasks. This may influence productivity, but can also be a threat to safety in workplaces with high environmental temperatures.

## **Risk of larger problems in the near future**

Andreas Flouris, associate professor at the University of Thessaly, Greece, and head of the field studies conducted in Southern Europe emphasizes that the problem can be even bigger in the near future: "This is already a problem under the current conditions. However, facing a future with more frequent heat waves it is of utmost importance for workers to adopt better hydration habits and for companies to develop effective hydration strategies."

Considering that many occupational tasks such as handling industrial machinery, driving, harvesting, etc., rely on alertness and the ability to integrate multiple inputs and react appropriately, it is of great importance to inform workers about the consequences of dehydration

and the need for adopting appropriate prevention.

These findings suggest that prevention plans with implementation of suitable and more effective hydration and rehydration strategies are warranted at workplaces to minimize the negative effects of dehydration on workers performance, when they are exposed to occupational [heat stress](#).

**More information:** Jacob F. Piil et al, High prevalence of hypohydration in occupations with heat stress—Perspectives for performance in combined cognitive and motor tasks, *PLOS ONE* (2018). [DOI: 10.1371/journal.pone.0205321](https://doi.org/10.1371/journal.pone.0205321)

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