PhD student builds bridges with construction industry to prevent heat-related illnesses

College of Health Solutions PhD student and professor translate athlete nutrition expertise to real-world implementation for thousands of construction workers across the nation

By Gabriella Kemp, ASU News
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It is no secret that Arizona State University has innovative researchers working to help solve everyday problems.

According to a new preliminary report issued by Maricopa County, there were more than 600 heat-related deaths identified in 2024. And all of those, they say, could have been prevented.

ASU researchers have answered the call to help relay their hydration knowledge and nutritional expertise to one of the most vulnerable populations susceptible to heat-related illnesses: those in the ever-expanding construction industry.

When Holder Construction's assistant safety director, Robert Chapman, was looking for new ways to resonate with workers, he reached out to Mesa Community College first and was quickly referred to ASU, where a team of scholars under the direction of AthleatThe "e-a-t-" in "Athleat" is a nod to the lab's focus on nutrition. Field Lab Director and College of Health Solutions Assistant Professor Floris Wardenaar are feverishly working on ways to improve athlete nutrition and hydration.

"We are trying to improve things on a physiological level, and here we have an active population pushing boundaries; it's similar to athletes," Wardenaar said. "Even if people are not pushing hard, the Phoenix-area heat pushes on the body. We want to translate what we know from athletic populations to a broader population, and the most important thing is to stay healthy so we can age

well.”

For Chapman, it was a game changer.

“Everyone took it and ran with it. Before you knew it, our little food truck had run out of fruits and we had to restock more quickly than ever before because our workers learned that they could get hydration through nutrition,” Chapman said.

Holder Construction is a general contractor with almost 100 projects across the country and nearly 1,500 employees, including thousands of subcontractors. Chapman noted that, many times, workers don’t live where they work, so educating them on the dangers of heat in high-risk environments is extremely valuable. Many of the workers work long, odd hours, and monitoring themselves is crucial.

“They taught our workers how to look out for visual cues in their urine, and as nontraditional as that is, that — and the on-site hydration tests — had a profound and monumental effect," Chapman said.

Educating workers on what urine should look like is essential. “I was hoping they wouldn’t look at me like I was crazy, carrying around urine-colored jars in my backpack,” said Kinta Schott, a College of Health Solutions PhD student. The jars were actually mason jars with food coloring intended to demonstrate the difference between a well-hydrated urine sample and one that needs more hydration.

“I wasn’t graced with this information when I was an athlete," the former lacrosse player said. She had to learn it herself, which inspired her to make it available to other populations that may not readily have it in place.

Creating a simple yet effective fact sheet on hydration for the everyday athlete, she was invited to attend Holder’s all-hands construction meeting last year, where she was able to speak with hundreds of employees and leave behind the information that could transformatively save lives.

Chapman has distributed Schott’s fact sheet to all of their subcontractors, effectively reaching thousands, to make sure everyone is well-informed and able to stay safe on the job and beyond.

“To have someone come on site and share this knowledge is invaluable. We saw a decrease in heat-related illnesses," Chapman said, noting that even though workers have primary care physicians, many don’t use them.

Chapman hopes this is the beginning of a long-lasting relationship: "It completely changes the culture, 100 percent. We are more than just builders; we really do care and don’t mind taking time out to focus on nutrition and health.”

“Where I want to make a difference is in the field," Wardenaar said. “Sports science is important to improve human health on the broader level.”

About this story

There's a reason research matters. It creates technologies, medicines and other solutions to the biggest challenges we face. It touches your life in numerous ways every day, from the roads you drive on to the phone in your pocket.

The ASU research in this article was possible only because of the longstanding agreement between the U.S. government and America's research universities. That compact provides that universities would not only undertake the research but would also build the necessary infrastructure in exchange for grants from the government.

That agreement and all the economic and societal benefits that come from such research have recently been put at risk.

Learn about more solutions to come out of ASU research at news.asu.edu/research-matters.

This story originally appeared on ASU News.

[1] The "e-a-t-" in "Athleat" is a nod to the lab's focus on nutrition.

Main image



A wildland firefighter uses a urine color chart as a practical way to measure their hydration status during a previous hydration study. Photo courtesy of Kinta Schott

Gallery


HOLDER

PhD student Kinta Schott on site with Holder Construction.


HOLDER
SAFETY

The sun rises as a Holder Construction worker gets ready to attend a meeting about hydration monitoring.


EXIT
FIRE
OMRON
OMRON

PhD student Kinta Schott gives two thumbs up to accurate hydration monitoring.



Kinta Schott educates wildland firefighters during a previous hydration study on how to use the lab's created 3D urine color scoring charts.



Example of a field study setting while testing for adequate hydration levels for wildland firefighters in Tonto National Forest during a previous hydration study.