

# Study finds hockey players often underhydrated

March 3 2016

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One might not think of hockey as a sport that tends to cause dehydration in its players. But a University of Kansas study shows that not only are hockey players at high risk of dehydration, but plans specifically designed for individuals to keep them properly hydrated during activity might not be enough.

Dawn Emerson, acting assistant professor of health, sport and exercise science, co-authored a study in which researchers measured hydration in [hockey players](#) before and after one-hour practices. While the majority of hydration studies focus on football and soccer, which often are played in hot, outdoor climates, hockey players should also be cognizant of hydration.

"It's a population most people don't think of having hydration issues, because they play in the cold," Emerson said. "But they have a lot of risk factors. They're playing at high intensity, wear a lot of gear and can be at risk for dehydration, especially in the southeast, where rinks can get very humid."

The National Athletic Trainers Association has recommended developing individual fluid plans, or IFPs, for athletes. The plans measure how much an individual sweats during a workout and determines how much fluid he or she should drink during activity to maintain adequate hydration. A longtime hockey fan, Emerson and colleagues tested how well such plans work compared with ad libitum hydration—or simply taking drinks of water at random intervals—in

minor professional hockey players.

Somewhat surprisingly, they found that individualized fluid plans did not work better, and athletes in both groups were still dehydrated at the end of practices. However, all athletes in the study regularly showed up for practice already underhydrated, and neither approach prevented further dehydration. The findings suggest proper hydration throughout the day, not only during physical activity, is necessary to prevent dehydration during physical activity such as hockey.

Emerson and colleagues worked with 11 players on a minor professional hockey team in North Carolina. They took baseline hydration and electrolyte measures over two practices before assigning players to a control or intervention group. Those in the former were instructed to drink water or a carbohydrate electrolyte beverage such as Gatorade ad libitum during practice. The latter received an IFP and were instructed to drink water and a specially designed carbohydrate electrolyte beverage to match sweat and sodium losses during practice. The researchers took a number of hydration measures both before and after practices including urine specific gravity, urine color, urine sodium concentration and percent body mass change.

The researchers determined how much the players would sweat during a typical workout and how much sodium their body would lose. The idea of the IFP is to develop a plan tailored to an individual to replace the amount of fluids he or she loses.

"Everyone is different. Some people sweat more than others, and some of the hockey players lost two or three liters in a practice, which is a lot of fluid to try to drink during activity," Emerson said. "Part of the reason we think they were always dehydrated is it's hard to drink that much fluid."

Perhaps a larger contributor to the problem, however, was that all players routinely were hypohydrated before practices even began.

That finding suggests the problem lies largely within the lifestyle of the players. Whether they are not drinking enough water throughout the course of a day, or have other parts of their lifestyle contributing to dehydration, neither approach was enough to stave off further dehydration. The finding of hypohydration was consistent with previous research that has shown athletes in other sports such as football and basketball frequently are underhydrated prior to physical exertion.

The risks of [dehydration](#) are great to athletes and non-athletes alike. Being underhydrated can lead to cramping, injury, fatigue, cardiovascular problems and a host of other issues. The athletes in the study took notice.

"These were professional athletes, and hockey was their livelihood," Emerson said. "They generally want to do whatever they can to increase their performance."

The findings, which Emerson and colleagues presented at the American College of Sports Medicine conference, suggest clinicians, team athletic trainers and athletes should focus on hydration and lifestyle instead of simply focusing on hydration during practice and competition. Emerson said it also supports the idea that body mass loss should not be the only measure clinicians rely on when determining hydration measures.

"It's not just about body mass loss, it's a question of 'are you even hydrated to begin with?'" Emerson said. "One of the big things with our intervention not working is, we think, they couldn't handle drinking that much fluid. You shouldn't just focus on hydration during exercise, although that is very important. You should focus on hydration throughout the entire day."

Emerson and colleagues are focusing future research on the role of athletic trainers in athletes' hydration. They've conducted surveys with both collegiate and professional [athletic trainers](#) in ice hockey to gauge their knowledge on hydration, how their athletes hydrate during practice, what fluids are available to them during practice, games, traveling and if they understand the effects substances such as sodium, alcohol and caffeine have on hydration. The goal is to learn more about the culture of hockey at different levels and what barriers may exist, while bringing awareness about the importance of hydration and encouraging education on the topic.

"We want to know what kind of hydration is available to the players throughout the day, in the locker room or while they're on the bus and how hydration is measured," Emerson said. "I think education on lifestyle and not just focusing on hydration during practice is very important."

Provided by University of Kansas

Citation: Study finds hockey players often underhydrated (2016, March 3) retrieved 27 April 2024 from <https://medicalxpress.com/news/2016-03-hockey-players-underhydrated.html>

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