

# Marching band kids at risk from heat illness, case study shows

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The Redcoat Marching Band performs during the Duke's Mayo Classic game versus Clemson in Charlotte, North Carolina, on Sept. 4. Credit: Andrew Davis Tucker/UGA

This time of year, you hear a lot about heat-related illnesses in athletes.

Thousands of student-athletes are sidelined by heat illnesses each year, and some don't recover.

But while guidelines exist to help coaches and trainers keep their students safe, there's another group on the field that's still at risk: Students in marching bands.

"You read all these stories in newspapers about marching band members experiencing [heat-related illnesses](#), but no one's pulled together a comprehensive study of how often those illnesses occur, what the affected students were doing," said Andrew Grundstein, a professor in the University of Georgia's Franklin College of Arts and Sciences. "There are no [national standards](#) for keeping marching band members safe like there are for other active populations."

Working with Rashawn Merchant, an undergraduate in the College of Agricultural and Environmental Sciences and lead author of the study, Grundstein and his team set out to fill that gap.

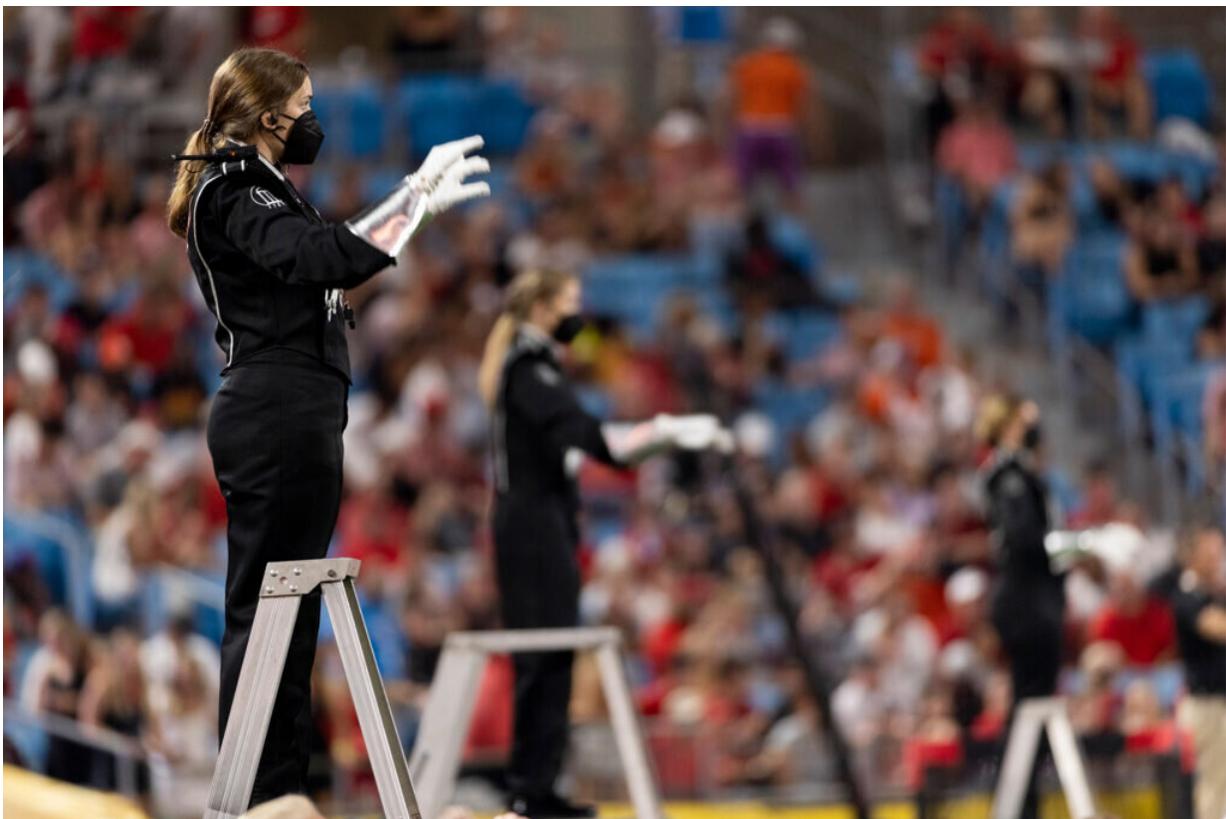
## Heat illnesses

Published in the *International Journal of Biometeorology*, this study analyzed news reports of band members suffering [heat](#)-related illnesses from 1990 to 2020 and found almost 400 band students who overexerted themselves and became ill due to heat exposure. About half of these students were treated on site and didn't require hospitalization, but 44% wound up in the hospital for treatment before being released the same day. The others suffered from heat stroke, requiring more than just one day in the hospital.

Most of the 34 events that caused the heat illnesses were high school-level rehearsals, parades and competitions, including one band event that drew over 30 different bands from Indiana and resulted in 35 heat-

caused illnesses. Fifteen of those sick students were taken to local hospitals, and another 20 were treated at the site of the competition. Because there aren't typically on-field medics for band events, nine ambulances were needed to tend to all the ill students.

"Think about what they do," said Grundstein, corresponding author of the paper. "They go out there, and they often wear these really heavy wool uniforms. They practice many times for hours and hours outside. Some of them are carrying heavy instruments, and they're moving around a lot. There are a lot of risk factors that come into play for marching band members that people generally don't really think about."



Drum majors direct the band as the Redcoat Marching Band perform. Credit: Andrew Davis Tucker/UGA

## **Heat health hazards**

At the competition in Indiana, multiple factors made the situation incredibly dangerous. The event started at 1:30 p.m., right in the middle of the day when the sun's rays are at their strongest. The bands were in full uniforms, and they performed on artificial turf, which gets significantly hotter in the summer sun than grass.

And to top it off, the weather that day was both hot and humid, starting at around 87 degrees and rising to above 90 degrees. Skies were clear, so there was no cloud cover to escape the heat.

Students were in the sun for over an hour before officials finally moved the competition indoors.

"Think about the strain that puts on your medical resources, especially if you're around small towns," Grundstein said. "It's not like it's Atlanta where you probably have a pretty big base of those health care resources. And you had to call in nine different ambulances."

## **Safety measures**

Because the study relied on data from news reports, the number of total cases is likely an underestimate.



The Redcoat Marching Band performs during the Duke's Mayo Classic game versus Clemson in Charlotte, North Carolina, on Sept. 4. Credit: Andrew Davis Tucker/UGA

"This is a bare minimum of cases, but it still shows a real problem," Grundstein said. "In sports, you have an athletic trainer or coaches who receive some training in heat safety. They're keeping an eye on the athletes to make sure they're doing OK, and they're trained to spot problems. But the music director of a marching band probably hasn't had that training."

To better protect students, schools and organizations can implement similar guidelines to those used in the sports world. Things like giving students more breaks, encouraging them to drink water throughout

practice to stay hydrated and letting them wear lighter-weight clothing for practices would make a big difference.

Gradually increasing the amount of time students practice outdoors over several days, a process called acclimatization, would let their bodies slowly adjust to being in the heat as well.

School officials should also consider safety trainings on how to spot and treat heat-related illnesses.

"Heat is going to become a bigger issue over time. We're already seeing these massive heat waves that hit the western U.S. this year," Grundstein said. "I think it's always been a hazard for marching band members, but it's going to be more of a hazard for all of us. Our paper can raise awareness about this problem so that officials can come up with better safety policies so that we're more prepared for the future."

**More information:** Rashawn K. Merchant et al, Exertional heat illnesses in marching band artists: a case series, *International Journal of Biometeorology* (2021). [DOI: 10.1007/s00484-021-02183-0](https://doi.org/10.1007/s00484-021-02183-0)

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