

EMS Timely Tips: Pediatric Sports Injury Management

Whether it's on the practice field or under the lights on Friday night, when kids play sports, injuries can occur. Unlike adults, their brains and bodies are still growing and developing, even when they're playing sports at an elite level. The care that coaches, athletic trainers, and EMS personnel provide at the time of injury is crucial and oftentimes, emergent. Dr. Roberson will highlight ways in which effective collaboration and timely, evidence-based management of sports-related injuries correlates with positive outcomes for athletes and their families.



Featured Speaker:

Jay Roberson, MD

Dr. Jay Roberson cares for patients at the Children's Mercy Sports Medicine Center. Dr. Roberson is certified in both pediatrics and sports medicine. He earned his undergraduate at the University of Missouri, Medical Degree at the University of Kansas School of Medicine, performed his residency at the University of Florida and his sports medicine fellowship at Texas Children's Hospital.

Transcription:

Melanie: Whether it's on the practice field or under the lights on a Friday night when kids play sports, injuries can occur. Unlike adults, their brains and bodies are still growing and developing and even when they're playing sports at an elite level. That care that coaches, athletic trainers and EMS personnel provide at the time of injury is crucial and oftentimes emergent.

Dr. Jay Roberson, physician with the Sports Medicine Center at Children's Mercy Kansas City, is here to highlight ways in which effective collaboration and timely evidence-based management of sports-related injuries correlates with positive outcomes for athletes and their families. Welcome to Pediatrics in Practice with Children's Mercy Kansas City. I'm Melanie Cole.

So Dr. Roberson, I'm glad to have you join us as this is a topic I'm thoroughly interested in myself. And you and I were talking a little bit off the air because this is really an important and timely topic. Tell us a little bit about the role of the athletic trainer on scene before, during and after an emergency and some effective collaboration tips, why is it so important that athletic trainers and EMS and coaches and anyone else that happens to be on the scene collaborate with each other.

Dr. Roberson: Yeah. Well, thanks for having me. I appreciate being on the podcast. Our athletic trainers are an integral part of our sports medicine healthcare team. They're really the first line providers for all of our athletes in high school settings, club settings and middle school settings, just kind of depends on where they are employed. But I think it's really important for everyone to know really what an athletic trainer does because I'm not sure that all physicians, nurses, EMS folks really understand what an athletic trainer does.

First of all, they're very highly qualified, highly educated healthcare professionals. Over 70% of athletic trainers hold a master's degree. And for us, in our Sports Medicine Department at Children's Mercy, we have collaborating physicians that work directly with the athletic trainers. We have athletic trainers in 20

plus schools. So we have very many folks kind of reporting to and collaborating with physicians, which makes a really good healthcare team, makes a lot of decisions on the athletes a lot easier. But specifically, what we're talking about today with kind of the sideline treatments, it's important to know that athletic trainers are really trained to deal with sideline emergencies. And that goes anywhere from evaluation and treatment of orthopedic injuries, such as sprains and tears and fractures all the way up to CPR and AED use. They're usually the person at the sporting event who is tasked with knowing where the AED is and knowing how to use it. They're the first responder for any CPR that'll need to be done on the field or sometimes even in the stands. Also they recognize, treat, evaluate concussions, cervical spine injuries, heat illnesses and they again are really the first line treatment for any of these athletes with problems.

Melanie: Well, certainly it is important. And as you all work together and, you know, when physicians are working together, we call it multidisciplinary, but it really is, especially when we're dealing with injuries on the field. Can you differentiate the types of heat illness, current recommendations of treatment and things when you're talking about prehospital providers that might be applicable right there at the scene?

Dr. Roberson: Yeah. There's about four different recognized heat illnesses that we see kids get. And unfortunately, as the weather continues to be warm around Kansas City and definitely in southern states, heat illness is not just an August, July kind of issue. It even becomes a September and October issue at this point. But there's kind of two sort of lower level heat illnesses, sort of middle level and then the serious heat illness, that would be heat stroke.

So there's heat syncope and heat cramps, which are pretty good names unlike a lot of things in medicine. So heat syncope really is basically someone kind of getting dizzy, feeling lightheaded because of heat, mostly because they're sweating a lot and they've become dehydrated. And that's usually something that can be remedied very easily at the time of presentation of symptoms by taking a break, getting some fluids, kind of resting, maybe resting for the rest of the day, but potentially even getting back to play that day. Heat cramps kind of the same issue, probably has to do somewhat with the hydration. You get kids getting frequent cramps. Sometimes those cramps escalate a little bit and, occasionally, someone would need to actually go to the hospital for heat cramps if they are persistent. Those are the things that typically can be managed easily by an athletic trainer and then passed on to a parent at home for final treatment.

Then, there's heat exhaustion where someone is really getting quite exhausted from heat and exercise. And that's someone who's going to be basically taken out of play for the day. But they're not going to suffer any major complications from that. They're going to still be aware and alert.

And then you get kind of beyond those to the true heat stroke. And that's the one that we all worry about, and that's the one that is really concerning. That really has to do with the core body temperature rising. The other heat illnesses don't truly have core body temperature changes. But heat stroke is something that has killed numerous young, healthy athletes each year. It's 100% preventable. And it requires someone who's really ready to treat it and recognizes it early to prevent the major complications.

So whenever we see someone who's got some heat illness going on, who starts to become out of it,

combative, kind of wobbly, just really not acting like themselves, almost acting like someone who's been drinking, then we really worry about that. And kind of step one, though it's not always available, unfortunately, but step one is, to find out what their core body temperature is. And there's really only one good way to do that, and that's through a rectal thermometer. And again, not every person is going to have that with them, not every school is going to allow an athletic trainer to do that. But that is the best practice, is to take a rectal temperature. But if you don't have a rectal thermometer and you assume that it's heat stroke, then you need to start treating. But the thermometer kind of threshold is a core body temperature over 103 degrees Fahrenheit. If someone has that, then they need to be put immediately into a cooling tub. And this is one of the few places where calling EMS, while important and something we definitely want to do, could lead to worse outcomes if a patient is taken directly to the hospital, rather than left in the cooling tub until their core body temperature comes down below 103 degrees.

So that is one sort of disconnect that we've seen at times between EMS and athletic trainer knowledge because the EMS technicians definitely want to get people to the hospital and that's what they're trained to do. And in this case, it's something you'd want to stop, wait another 5, 10, 15 minutes, whatever it takes to really get somebody cooled down. And to cool them down, you have to put them in a cold tub, which is iced water. So the athletic trainers know this. They have the resources to do that with their ice machines and their large plastic tubs. So that is the best place to do it, because most ERs are not equipped to cool somebody. There isn't a large ice machine and plastic tub to leave somebody in. So that is the treatment. That is how to prevent death with a heat stroke, is to put somebody in a cold tub and leave them there until they're cool.

Melanie: What great information. Absolutely fascinating. So now, let's talk about some considerations in splinting or fracture management. Again, this is something that other physicians and coaches and providers don't always know about. So speak a little bit about on-scene fracture management, splinting, and even pain management.

Dr. Roberson: Yeah. So fracture Management, typically if someone has injured a lower extremity and they can, you know, keep running, keep walking, they probably have not broken something. That's not a perfect rule, but it's a pretty good rule. But if someone can't bear weight, then there's a good chance they have a fracture.

If something is displaced and ankles turning the wrong way, you feel like a bone is sticking out, you can always compare something to the athlete's other limb. So, you know, if it's the right ankle that's hurting, compare it to the left ankles, see if things really don't look right. And if that's the case, then a lot of times we'd want somebody to be seen in the emergency room that night.

If there there more pain and it is swollen and there is nothing that looks deformed at a place turned the wrong way, then a lot of times that could be iced and kind of elevated, splinted, if you got it. Some athletic trainers and some coaches have some moldable kind of metal and foam splints that they can use on a foot or an ankle or a wrist. And if those were available, it can be perfectly reasonable to wait until the next day to go get an x-ray. Pain management though is important. If the pain is severe, then that is always something that going to the emergency room or an urgent care or something that is very reasonable to do. But if you got a set of crutches, you got a little splint and the athlete is in pain, but not severe, then that would be reasonable kind of to wait till the next day.

Wrist, hand, finger, kind of the same rules apply. Obviously, you wouldn't be bearing weight on your hands, well, unless you're a gymnast. But again, if something looks displaced, deformed, then that should probably be evaluated that night, so that fracture or dislocation could get reduced. But if something is more swollen, painful, but not severe, if again if you got the resources to do a little splint, kind of immobilize as much as possible and kind of go the next day, that is reasonable. Also, you know, depending on what the family wants to do, going that night is also very reasonable.

Melanie: These are excellent best practices and standard of care. And what a great list we're compiling here. We have a couple more to go through, Dr. Roberson. So current recommendations for backboarding, as long as we're talking about that in collar use in kids and adolescents. Speak about that.

Dr. Roberson: Yeah. So, the NATA, the National Athletic Trainers Association, AMSSM, ACSM have all kind of come together and looked at backboarding and spinal cord injuries and kind of the management to do on the field. And number one most important thing to do is for your sports team, for your school to have an emergency action plan, something that the athletic director or the coaches, the athletic trainer, everybody's aware of, everybody kind of knows the rules and the plans before getting going.

And if you're in a situation where you're lucky enough to have the EMS folks come to the games, so there are some games around our city where EMS is available on the sidelines ready to go, then make sure you include the EMS folks in that emergency action plan and go over it with them as well.

And then really important to, you know, know where the AED is and know where the hospital that they'd be likely to go to is, hopefully, no one will. Parents to each of the athletes are if they're around, because they'll want to be involved in the decisions too. But sometimes parents aren't available, sometimes parents are working and things like that. So decisions do have to be made sometimes without the parent input. Ideally, the athletic director or the coach would be able to get ahold of any parent, kind of have their phone numbers and stuff too just in case they are.

And then one of the recommendations, again, if it's in the policy of the EMS folks who are there and each EMS district, each, you know, Kansas City Fire Department, Kansas City Missouri Fire Department, Johnson County Fire Department, they all have some slightly different rules and then the private company that might show up occasionally with the ambulance have their different rules. So it's important to recognize that different folks have different rules that they're beholden to.

But if possible, the ideal way to do spine boarding is out of equipment. So if you can utilize the expertise of the athletic trainer and remove the equipment. Again, this all depends on who's available, who's comfortable with it, how many people are comfortable with it, how many people are available who can help remove equipment. So it is a slightly different calculation each time.

But ideally, the athletic trainers would help to remove the helmet, the shoulder pads, things like that, whether it's hockey or football or lacrosse where you've got those kind of pieces of equipment, because the athletic trainers are very comfortable and very used to removing that equipment and they practice on it. I know personally from working in a emergency room that most doctors working in emergency room don't spend any time taking off the equipment. And we try to do some educational stuff once or

twice a year. But it's just not something that happens a lot. So I think utilizing that expertise of the athletic trainer on the sideline is very helpful.

And again, depends on what everybody's different rules are. But if you can remove the equipment safely before getting the athlete in the ambulance on the spine board and the collar for transport, then you should do that. We also know that backboarding, and this isn't just a sports medicine thing, this is an emergency thing, that trying to get people off a spine board as quickly as possible is always the ideal situation, because we know that there can be pressure sores and other injuries associated with the spine board itself. So it's very helpful for transportation. It's very helpful for lifting if again, if it's in the EMS protocol to potentially get the athlete off the spine board and just remain in a collar on a gurney is very reasonable as well.

Melanie: You've laid out the information so well for us, Dr. Roberson. Wrap it up. If you had to summarize your best advice for EMS timely tips, pediatric sports injury management, and working together, that collaboration between the athletic trainers on the scene and other providers, what would you like to tell them?

Dr. Roberson: I think number one, and I think this goes for just about everything in life, communication is the key. Everybody being on the same page, everybody being congenial, helpful to each other. Also, kind of deciding kind of who's in charge at the scene. So, sometimes EMS likes to be in charge, sometimes the athletic trainer likes to be in charge where they got a nice quick conversation about that, preferably as part of the emergency action plan is the number one thing we can do. And that way everyone kind of has the same goal, you know, get that patient taken care of, get that patient where they need to be and make sure the student athlete gets to get back on the field and play.

Melanie: That's what it's really all about because those athletes want to get back on the field and play. So thank you so much, Dr. Roberson, for joining us today. And to refer your patient or for more information, you can visit childrenmercy.org/ems. This has been Pediatrics in Practice with Children's Mercy Kansas City. Please remember to subscribe, rate and review this podcast and all the other Children's Mercy Podcasts. I'm Melanie Cole.

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