

Keeping Student Athletes SAFE

Cover Story By Naomi Dillon

Smart rules, knowledgeable coaches, certified trainers, and careful monitoring add up to sound school sports programs

Fred Mueller knows his findings aren't typical and he's glad for that. As head of the National Center for Catastrophic Sport Injury Research, he sees the worst-case scenarios, like the 15-year-old baseball player who died from a ruptured blood clot in his abdomen after diving for a ground ball during a 2004 game, or the 17-year-old wrestler who was paralyzed after taking a hit from his opponent earlier that year.

In reality, the vast majority of injuries suffered by student athletes are not life threatening. The National Athletic Trainers Association (NATA) estimates that about one-third of the 7.5 million students who play interscholastic sports will get hurt, but only about a quarter of those incidents will require a doctor's visit.

"Catastrophic injuries are few and far between," Mueller says. "But something like permanent paralysis is shocking to the community and to the athletes themselves."

Even more shocking, research suggests that about half of

all injuries in organized sports could be prevented. Better equipment and regulations, more training, and more qualified staff could go a long way toward that end. But for school districts already stretched thin on money, finding qualified coaches has become harder, replenishing equipment and maintaining sports grounds has become pricier, and the financial and legal risks associated with sponsoring athletic programs have escalated.

Herb Appenzeller, who has written or edited 18 books on sports-related litigation, estimates that several hundred lawsuits are filed against schools, colleges, or recreational facilities each year. Some suits are brought by overzealous parents unhappy over coaching decisions, but many seek millions of dollars in damages because of safety issues or violations that could have been prevented.

Appenzeller argues that some of the litigation has benefited sports and young athletes greatly. "We have the safest equipment we've ever had, we have access for people with disabilities, we have better rules," he says. "The threat of lawsuits has made us clean up our act as coaches and administrators."

Mueller, who also teaches exercise and sport science at the University of North Carolina in Chapel Hill, says the litigation proves that ongoing education remains key to positioning safety at the forefront of any sports program.

"It's a continual learning process," he says. "And unless you keep bringing it up, unless you stay current, you can't say you've done enough for these kids."

A whole new ballgame

Staying current can be tough in a field that constantly shifts and expands. Even as the medical community warns of an impending epidemic of childhood obesity, participation rates in organized sports have never been higher and the opportunities to play have never been greater. Such abundance has posed some problems.

Bombarded with images of wunderkind athletes like LeBron James and Michele Wie, parents are having their children begin skill development younger and younger, with some kids getting pushed into regimens as early as elementary school.

"We've got over 7 million athletes who participate in our programs, and out of that 7 million, a small percentage will move on to the college level, and an even smaller number will move on to the professional level," says Jerry Diehl, assistant director at the National Federation of State High School Associations, which sets rules for 17 different sports.

Besides being unrealistic, the push to specialize early can be harmful to the long-term health of young players. Overuse, once the bane of seasoned athletes and the elderly, now accounts for more than half of all sports injuries among middle and high school athletes. The stress of repetitive and often improper movements on bodies that are not yet fully developed has created conditions like Little Leaguer's Elbow and Swimmer's Shoulder, and has made age-related arthritis an adolescent affliction.

As a pediatric orthopedist, Greg Schmale has seen his share of kids suffering the effects of being pushed to do too much, too soon, too early. His advice is simple. "The treatment for overuse is underuse," he says. "Rest is best." But it can be hard to enforce, especially when traveling leagues and intramural teams make it possible to play one sport all year long.

While it can't control what kids do on their own, the Utah High School Activities Association ensures young athletes at least have free time when they participate in school sports. Under the "dead-period rule," each sport must take a mandatory 12-week break from practice, games, and even contact between players and coaches.

"Other states say, 'How do you make this stick?'" says Dave Wilkey, the association's assistant executive director. "But it was the coaches who came to us and said, 'This is

insanity. We want to take some time off, but we want everyone to take some time off so we don't lose our competitive edge.'"

Utah may indeed be an anomaly, as competition—always inherent in sports—has escalated in recent years. Rainer Martens, a publisher of sports and fitness materials, believes there are some benefits to this high-intensity playing field. "You don't just get an A for showing up," he says. "Success is not guaranteed, you have to commit. Those are the valuable lessons you learn in competing."

But Martens, a former sports psychologist and physical education professor, has learned a thing or two about success and knows the desire to win can be taken too far.

"Unethical behavior on the playing field, illegal hitting in football, recruiting players to move from one part of the county to another," Martens says. "Yes, that happens."

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Getting the right people

Such unscrupulous tactics and dangerous practices led Martens to found what is now the American Sport Education Program, one of seven divisions in his Champaign-Ill.-based publishing company, Human Kinetics.

"It's pretty obvious that coaches are the individuals with the greatest influence on athletes," Martens says, "and an uninformed coach is the greatest safety risk to them."

For years, school district coaches could only be licensed teachers. It was a strange custom considering that some had no interest or background in the particular sport they coached. But as unions grew and teachers' willingness to assume the extra duties dissipated, districts began looking for coaches outside the school system.

The change was both good and bad, Martens says. External candidates typically possessed great knowledge of a sport's tactical and technical aspects, but often they possessed little else. "It's a tough position because good coaches need a lot of things," says Joseph Boardwine, associate executive director of the National High School Coaches Association, which annually recognizes the top 20 coaches in the country.

Good coaches, he says, are effective communicators and teachers, mentors, and motivators. They inspire athletes who never thought they could go that fast and provide balance to those who need to slow down. They place safety and progress above winning and status. Good coaches are health promoters. Good coaches aren't, however, health practitioners.

"To find a coach who is well-versed in first-aid and CPR

and AED [Automated External Defibrillator] certified is rare," says Jon Almquist, a certified athletic trainer with Virginia's Fairfax County Public Schools. "But [coaches] definitely have their work cut out for them and to add on another profession is not realistic."

That is why the field of athletic training has exploded in

the last several decades, increasing by more than 500 percent in the last quarter-century, according to NATA. True Jacks and Jills of all trades, certified athletic trainers help prevent sports injuries, treat them when they do occur, and employ methods to safeguard against their return.

"We can take an injury that would keep [an athlete] out

AN OUNCE OF PREVENTION

Fact: Injuries do and will occur in sports.
Fact: A substantial percentage of those injuries are preventable. Don't let an ambulance siren be the wake-up call you need to create a safe environment for student athletes. Apply some of these best practices beforehand, and you'll ensure that sports continue to be a healthy and enjoyable way for kids to exercise, make friends, and learn valuable skills.

■ **Know the athlete's physical condition.** Before a young athlete can step on the field, he or she must furnish the school with results from a physical exam that checks height, weight, and vital signs, among other things. Stress the importance of obtaining thorough physical screenings as part of an effective sports safety and response program.

The most important piece of this evaluation is a medical history, which Seattle-based pediatric orthopedist Greg Schmale calls "the number one factor in a sports physical that's effective." Parents can share pre-existing medical conditions that the student may not be aware of. Although routine physical exams don't always detect potential medical problems, parents should accompany their kids to these exams. Unfortunately, Schmale says, that's often not the case.

■ **Have an emergency plan.** The worst situation is wondering what to do next during an emergency, when minutes and sometimes seconds can be the difference between life and death. Prepare for every possible scenario, and share the plan with everyone, including students.

"The emergency plan is the 'what if' situations," says Jerry Diehl, assistant director of the National Federation of State High School Associations. What if some-

one goes down with a serious injury: Is someone CPR certified? Do you know who to call for help? Do you have access to a phone? Do you know the address to give directions to emergency personnel?

"Cross-country running always scared me as an athletic administrator because kids are scattered all over the place," Diehl says. "What happens if they run into an obstruction? What if they have a medical condition? How long do you wait before you look for them?"

■ **Enact policies that support safety.**

When brainstorming ways to keep student athletes safe, don't just think about what happens on the field or during game time. Expand your vision to include post-game procedures and try-out policies. In Fairfax County, Va., the school board gives equal authority to coaches, athletic trainers, physicians, and parents when deciding if an injured student can return to the game.

"If everyone says he can go back into play, he goes back into play," says Jon Almquist, who manages the district's athletic trainer program. "But if one person says no, he's out."

Unfortunately, Arizona's Tucson Unified School District didn't prepare for the worst and is paying dearly for it. A high school basketball star was left crippled when zealous fans rushed the court after his dunk in the final seconds of a championship game. In April, he settled for \$3.5 million. The district, which has to cough up \$2.9 million of the damages, argued unsuccessfully that it could not have known such a thing would happen. "But if they had had policies and procedures in place, they could have had a chance," says Herb Appenzeller, an authority on sports law.

■ **Don't play jeopardy.** Students aren't the only ones who assume some risk when participating in sports. Schools that sponsor these extracurricular activities face huge financial liabilities when something goes wrong. Protect yourself by having an outside firm scrutinize your athletic program for safety and fairness.

One of the first places Appenzeller goes when he conducts sports risk assessments is the soccer field. "You can't imagine the number of children and even adults who reached up and pulled on these soccer goals and have been paralyzed because [the goal wasn't] weighted down and it fell on them," he says.

■ **Stay informed.** Did you know that half of all catastrophic sports injuries for girls occur in cheerleading? You wouldn't know if you didn't stay abreast of new trends and studies.

"Youth sport injuries is a changing environment," says Tom Kaminski, chair of the National Council for Sports Health Care, an offshoot of the National Association for Sport & Physical Education. "We're learning more and more every day."

Sadly, that research and accompanying best practices aren't trickling down enough to school districts. "If the education is not required, it's not taken," says Rainer Martens, founder of the American Sport Education Program, which provides training for coaches, athletic administrators, officials, and parents. A little more than a year ago, Martens placed his coaching education program online, and the response has been phenomenal.

"Our high-tech world is making education more and more accessible," Martens says. "Schools really have no more excuses."

for two weeks into one that will keep them out one or two days,” Almquist says. “Now that’s big because those are days they would’ve missed from school, too.”

Unbelievably, most interscholastic sports don’t require medical professionals to be on hand during practice or even games. “We have 14,000 high schools playing football,” says Diehl. “That’s 7,000 games on any given night, and trying to find 7,000 medical people to be on the sidelines is just not practical.”

Considered allied health professionals, athletic trainers must attain undergraduate degrees that typically traverse pre-med disciplines like kinesiology, anatomy, and epidemiology. To be licensed or certified, a regulation enforced in 44 states, athletic trainers must also pass an exam and obtain 80 hours of relevant education every three years.

“If I had one take-home message for board members, it would be that getting a certified athletic trainer is a good insurance policy,” says Tom Kaminski, chair of the National Council for Sports Health Care, a branch of the National Association for Sport & Physical Education.

Though the presence of athletic trainers within school settings has grown exponentially in the last two decades, less than 40 percent of high schools actually employ them. “I know it has to do with funding, but if you did a cost analysis, it would be worth it,” Kaminski says.

Pushing for standards

In Fairfax County, Almquist oversees the district’s athletic

trainer program, a group of 24 professionals who implement various injury prevention and rehabilitation programs, develop emergency plans, and provide counseling in the district’s 12 high schools. Through its trainers, the district has become a leader in the collection of injury statistics.

“What we collect is more detailed than any school district in the country,” Almquist says, noting the district’s efforts helped influence a recent rule change that now requires girls’ lacrosse players to wear goggles. “We want to know what happened, where it happened, what the player was doing, what the conditions were, what the outcome was, what the treatment was.”

While individual school districts and isolated states like Utah have systems in place for reporting sports injuries, no national standard exists. Dawn Comstock is working to change that.

“All too often [people think] that being injured is just part of the game,” says Comstock, an injury epidemiologist at the Center for Injury Research and Policy at Columbus Children’s Hospital in Ohio. “We know that isn’t true. We know that all injuries follow patterns and by detecting these patterns we can prevent them.”

Through a grant from the Centers for Disease Control and Prevention and the National Center for Injury Prevention and Control, Comstock is wrapping up a year-long national research project on high school sports injuries, the first such study of its kind. Relying on athletic trainers at 100 randomly selected high schools, Comstock is looking at nine different sports, replicating the National Collegiate Athletic Association’s system.

Though the data is raw and subject to change, Comstock says, the researchers have been surprised by what they’ve seen so far. The injury rate in girls’ and boys’ soccer, for instance, is the same, debunking the common belief that boys’ sports are always rougher than girls’.

Comstock’s work has focused on making sports as safe as possible. Her research on high school rugby a few years back revealed that nearly 5 percent of all injuries were due to foul play. Strict enforcement of rules soon reduced those numbers. “That’s the strength and the value of a reporting system,” Comstock says. “We can spot trends and see where things went wrong and correct them.”

Staying ahead of the game

If there’s ever a profession that recognizes the importance of continuous improvement, it is education. But self-monitoring and learning the latest developments in the field are practices that don’t seem to extend into many athletic departments. And that’s scary given the number of changes that have occurred in sports exercise and medicine within the last decade and even within the last several years.

In 2004, the high school federation strengthened its stance against spearing—a tackling maneuver in which a football player drives his helmet into his opponent—by

SELECTED ONLINE RESOURCES

- American Sport Education Program: www.asep.com
- Fairfax County Public Schools program for athletic trainers: www.fcps.edu/supt/activities/atp/index.htm
- From the Gym to the Jury: www.gym2jury.com
- National Association for Sport & Physical Education: www.aahperd.org/NASPE
- National Athletic Trainers Association: www.nata.org
- National Center for Catastrophic Sport Injury Research: www.unc.edu/depts/nccsi
- National Center for Sports Safety: www.sportsafety.org
- National Federation of High School Activities Association: www.nfhs.org
- National High School Coaches Association: www.nhsca.com
- Sports Spine & Industrial: <http://ssi-physicaltherapy.com/index1.htm>

making it illegal whether it was intentional or not. Spearing has resulted in fatal or irreparable brain, neck, and spinal cord injuries.

Despite a heavy campaign against such dangerous tackling techniques, the number of concussions has risen among young athletes. In 2005, the Brain Injury Association of Arizona reported that more than 62,000 concussions occur annually in the state's high school sports, with football to blame for two of every three of those injuries.

"People think you need to be knocked unconscious to have a concussion," Mueller says. "But it just takes a little hit, maybe you feel a little woozy. The problem happens if you go back out there before you're fully healed." And the brain's ability to heal can be impeded by mental, as well as physical, exertion.

While the prescription for some injuries is rest, others need more attention. Amanda Somers, a physical therapist and owner of Sports Spine & Industrial, a performance training center and clinic based in Greer, N.C., works with young athletes and sees her fair share of ankle injuries.

"They'll walk on an ankle sprain after two weeks, but unless they retrained it, they'll turn their ankle all the time," she says, noting the same thing happens with tennis elbow. "Anytime something swells it makes the muscle weaker and you don't just want to let it rest. You need to rebuild and retrain those strength, flexibility, and balance reactors."

Somers offers 12-week sports and general conditioning programs for young athletes and says preseason training is one of the most important things you can do to prevent injuries. "It's preparing for what you're going to do," she says. "In football, they start practicing during the hottest



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— Tom Kaminski

month of the year. If you've been sitting on the couch all summer, you're going to get hurt or fall out."

Preventing the preventable

Heat-related ailments are among the most common sports emergencies, despite being the most preventable. Heat stroke is the perfect example of why it is so important to keep up with the latest research. Once defined as when the body's sweating mechanism shuts down and observed as hot, dry skin, heat stroke is now known to occur when the body's core temperature reaches 104 degrees.

"For a coach who's still [using] an old-school definition and tells the kid who is sweating to just sit on the sidelines, well, the majority of individuals who have died have been sweating," Almquist says.

April Morin, executive director of the National Center for Sports Safety, remembers one such case involving a university football player who collapsed during practice in 2000. Though telephones flanked the field, they did little good. It was anyone's guess when they had been disconnected. As a handful of staff

scrambled to find help, practice resumed. The player eventually died of heat stroke.

"That just shows you if it can happen at that level, at a university where all these resources are available, it can happen in a high school setting," Morin says.

For Mueller, these deaths are the hardest ones to take. "This is a medical emergency. Someone needed to get them to the hospital, but in so many instances too much time passed."

Naomi Dillon (ndillon@nsba.org) is associate editor of *American School Board Journal*.

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