

November 19, 2005

High School Rah, Rah, EKG! Teams Fight Injuries Pro-Style

Forget the nurse -- unless she's from NASA. Schools are hustling after high-tech medical tools

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 November 19, 2005; Page P3

The numbers flashing before Dan Morton look like schoolwork, but this is no algebra test. It's a concussion quiz. The varsity football player at East Catholic High School in Manchester, Conn., has just suffered his third on-the-field head blow in less than a year. On an afternoon earlier this season, he's doing the same memory exam used by the Pittsburgh Steelers and Washington Redskins. When the test suggests he has not yet fully recovered, he agrees he should stay on the bench a bit longer.



Injury Prone: Many young athletes now concentrate on a single sport from an early age. One result: Doctors and coaches say they are seeing more repetitive motion injuries.

"I kind of need my brain this year," says the 17-year-old senior.


After years of high schools competing on everything from Ivy League acceptances to gourmet cafeteria food, the next frontier is in the gym: Athletic departments are using high-tech tools to prevent injuries on the field and detect hidden conditions that can cause sudden death. Schools say the initiatives are aimed at protecting against sports-injury lawsuits and are in response to the demands of parents clamoring for more-sophisticated medical care for their kids.

In many cases, teams are borrowing elaborate prevention and therapy tools from the pros. From Santa Ana, Calif., to Fairfax, Va., teams are putting students on treadmills and sticking masks on them to measure oxygen consumption, using hand-held computers on the sidelines to access injured students' medical records and hooking star point guards up to \$3,000 EKG machines to detect heart problems. To address repetitive motion injuries, which many doctors and coaches say are on the rise as more kids train in a single sport from an early age, schools are buying everything from exercise bands to agility ladders.

"We're in sort of an arms race," says Brian Holloway, the head trainer at Choate Rosemary Hall, a private school in Wallingford, Conn., which not long ago reopened its athletic center after a \$10 million renovation. A new hydrotherapy room uses a "hydrocollator" with steaming pads to ease sore muscles, and the workout floor was made with bouncy gel cushions to soften the blow on knees and ankles during jumping exercises. Mr. Holloway says he also gets a kick out of the new all-terrain John Deere vehicle purchased to take injured athletes off the field. "It's a golf cart on steroids," he says.

And it's not just at private schools. At Turlock High School in central California, athletes now use a new \$4,000 injury-treatment system that works on damaged tissue by compressing it and surrounding it with cold water. Developed at NASA's Ames Research Center from the technology that controls

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SPORTS INJURIES

High-tech tools used by the pros are increasingly turning up in high schools.

PRODUCT: Impact concussion test

PRICE: \$500 annual fee

WHAT IT DOES: This software shows colors, shapes and numbers in rapid sequence on a computer screen, testing memory and response times against a baseline to determine if a player is ready to play after a blow to the head. Among the users listed on Impact's Web site: 19 National Football League teams.

PRODUCT: Game Ready (pictured above)

PRICE: \$4,000 for the main unit and a few wraps

WHAT IT DOES: The machine sends ice-chilled water into a sleeve that applies varying

the temperature inside a space suit, the Game Ready is used by NFL teams such as the Minnesota Vikings and the New York Giants and is manufactured by Cool Systems, based in Berkeley, Calif. At Turlock, parents from the local booster club helped pay the bill. "It's better than sticking your foot in a bucket of ice water," says Mike Collins, the school's athletic trainer.

But at a time when public schools are strapped for cash and private-school tuition is sky-high, some coaches say the new moves are excessively expensive. Not every school can afford \$175 Schutt football helmets with shock-absorbing padding. This year, each of the 25 high schools in Fairfax County, Va., is getting a full-time certified athletic trainer -- in addition to existing part-time trainers -- at a total cost of \$1 million.

Immunity laws in a majority of states protect public schools from many lawsuits over sports injuries (less protection is offered for private schools). But that hasn't stopped some students and parents from taking legal action. Last month, a former gymnast in Sioux Falls, S.D., sued the parochial O'Gorman High School, as well as her coaches and a training facility, for a fall she suffered on the uneven bars while executing a move called a Tkatchev during practice two years ago. A lawyer for the school and the coaches says there was no negligence and the accident resulted from the inherent dangers of gymnastics.

For the cross-country team at Council Rock North High School in Newtown, Pa., all this has meant a total of 20 extra hours for health checks every season. This year, the school bought \$1,200 in heart monitors to make sure the kids aren't risking injury by overtraining. That's on top of visits to a local doctor's office where students are hooked up to a mask while running on a treadmill to help find a safe training pace. The test, which measures every kid's VO2 Max (the volume of oxygen consumed while exercising at maximum capacity), costs \$100 per runner and was funded with money from track meets.



Ann Johansson

Before the kickoff: Some 250 athletes at Mater Dei in California had EKGs over the last year, part of an attempt to detect hidden heart problems.

Now, when college recruiters call coach Dave Marrington about his top runners, he says he can answer the scouts' questions about burnout with statistics. When he hits a recruiter with a kid's stellar test results, "They'll say, 'Ooh, he's got more.' "

Elsewhere, schools are focusing on more serious injuries. At Mater Dei, a private high school in Santa Ana, Calif., students can receive free EKGs before the season to help detect any of the hidden heart conditions that can result in a young athlete's sudden death. Not everyone is signing up. Mary Crowley let her son Seamus, a varsity football player and class president, skip the test this past spring after he asked if he truly needed an EKG. "There was so much going on," she says. "It was one less thing we had to do." Over the past year about 250 Mater Dei athletes chose to take the exam offered by a

local charity group.

For Lakeland High School, this fall's football season is being won the old-fashioned way. The central Florida school doesn't have the electrical-stimulation or ultrasound machines found in swankier training rooms. And Sid Kimbrell, the athletic director, isn't planning to abandon his time-honored training method. "We just sweat," he says. "Tape 'em up and sweat."

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degrees of pressure to an injury, usually a swollen joint. Used by NFL teams like the Minnesota Vikings, and National Hockey League teams including the Philadelphia Flyers.

PRODUCT: Hydrocollator

PRICE: \$1,150 for the SS-2 Mobile from Chattanooga Group

WHAT IT DOES: A heating unit warms packs that relax players' muscles before the game and soothe aches afterward. Used by most pro teams.

PRODUCT: Refractometer

PRICE: \$99.95 for the hand-held version by Mannix Testing & Measurement

WHAT IT DOES: Measures refracted light in an athlete's urine to gauge hydration levels.

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