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# Impact of Concussions

Cognitive baseline testing protects student athletes from getting back on the field too quickly after a blow to the head.

By Jon Roetman

est Potomac linebacker Matthew Voltmer ended up on the ground on Aug. 14 and he doesn't remember how he got there.

It was a morning session during two-a-day practices at the high school in Mount Vernon, and the Wolverines were engaged in a hitting drill. A collision was the culprit, but Voltmer is uncertain of the details

"I think we collided heads. To be honest, I don't remember the actual collision," Voltmer said. "I remember being about three feet away and then, next thing I know, I'm on my knees in front of him."

The junior got up, shook his head and got back in the drill.

Later that afternoon, between practices, Voltmer was watching TV when he realized the screen appeared brighter than usual. He didn't feel right, but he loves football and wanted to return for the team's second practice.

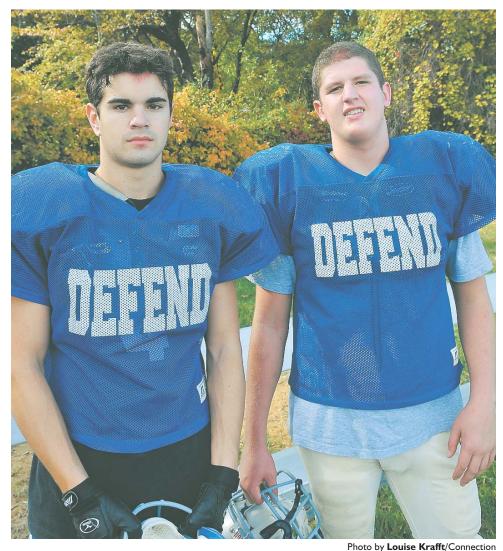
His mother had different ideas.

A teammate had informed Voltmer's mother of the hit her son took earlier in the day. After shining a light in his eyes and getting no response in his pupils, sign of a potential concussion, she took Voltmer to the hospital. Doctors performed a CAT scan and found a small bruise on his brain.

If Voltmer needed additional reason for not returning to the field promptly, it came three days later, when he took the ImPACT test.

**IMPACT IS A SOFTWARE** program geared toward managing the harmful effects of a concussion, including keeping an athlete off the field until he or she is fully recovered. Sustaining a second blow to the head while suffering from an initial concussion can cause second-impact syndrome, which is potentially fatal. According to the ImPACT Website, second-impact syndrome has led to 30-40 deaths in the last 10 years.

ImPACT provides a baseline by measuring cognitive functioning through a series of recognition tests



Matthew Voltmer and Dustin Hess, both junior linebackers on the West Potomac football team, suffered concussions in this year's preseason practices.

administered on a computer. Once a baseline is established, the test can be taken again for comparative purposes if an athlete has suffered a possible concussion. Data from the second test can help lead to a diagnosis and track

Voltmer had established a baseline when he took the test as a freshman. Two years later, the results from his second test showed a decrease in the quality brain function. Voltmer said he remembered most of what the test entailed from his freshman year, and noticed himself struggling at times when he took it a second time.

"Every single subject was lower, reaction time, memory, performance on] everything was much worse than my baseline," Voltmer said. He sat out for about two weeks and missed the season opener against Mount Vernon.

linebacker, experienced dizziness and ringing in his ears after an Aug. 17 hit during practice. He continued to participate, but after a second blow later in the evening, he decided it was time to tell someone.

"I was feeling [dizzy] after impact, but I didn't report it until the evening because I thought I'd be all right," Hess said. "Then I came out here and practiced and I hit myself again and that was the last string. I couldn't see straight."

Hess, who also established a baseline with ImPACT testing during his freshman year, took the test two days later and produced diminished results. He also missed practice for two weeks and did not play against Mount Vernon.

Hess said waiting to report his symptoms was "stupid" and he would Teammate Dustin Hess, also a junior not try to play through symptoms if

they occurred in the future.

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County uses ImPACT testing to protect student athletes with possible concussions. Jon Almquist, athletic training program administrator for FCPS, said ImPACT provides information unattainable by the naked eye or a standard evaluation. But Almquist added ImPACT is only part of the solution in terms of managing concussions.

Almquist said schools dial 911 if convulsions or vomiting is associated with a head impact. Otherwise, athletes are given a sideline exam and monitored after a head injury to determine down which path he or she is headed. Will the athlete be able to

#### "I think we collided heads. To be honest. I don't remember the actual collision,"

— Matthew Voltmer, West Potomac linebacker

go home after the event, or will he or she be in need of further medical

A full clinical evaluation is another tool, Almquist said.

An ImPACT test would likely be given 24 to 72 hours after head trauma, to test how the brain is functioning.

"It's a tool in our tool box," Almquist said of ImPACT. "No one thing across the board is the answer.

... Everything has to be together. It's kind of like parts of a formula.'

Almquist said the number of concussions recorded during the past 15 years is "much higher" than in the past, due primarily to a better understanding of concussions among medical personnel.

WEST POTOMAC head football coach Eric Henderson said he suffered at least 12 concussions during his football career at Fort Hunt High School and the University of Rhode Island. Henderson, who plaved left tackle at URI, said fighting through concussion symptoms was commonplace 20 years

"I remember blacking out in a game and playing in the second half. That's "Now, the kids are so educated on head injuries that they almost become self advocates, which is good."

— Eric Henderson, football coach

what you did: 'Oh, he's awake?' A little ammonia capsule under the nose and 'OK, there no visible blood. I think he can go back in.' That's how it was. But it was 1987.

DR. JILLIAN SCHNEIDER of Springfield, a clinical pediatric neuropsychologist who works with ImPACT, said convincing an athlete to stay off the field while recovering from a concussion can be "challenging."

"If they talk about the importance of getting

back on the field even though they're experiencing symptoms, ... I'll emphasize if they have another [head] injury [while recovering]. their symptoms are going to be worse and they might miss a season instead of a game.'

Rest is the best way to recover from a concussion, Schneider said. Patients should stay away from physical activity, which she described as anything that elevates the heart rate, and should limit cognitive stress, such as reading and studying, she said.

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#### Education Learning Fun

Fencing, Kara or Botany?

Area after-school programs provide fun and education to young students.

By Reed S. Albers

ogan Graham, 8, spends his after-school time with his friend Reggie Nelson, 7, playing on their Nintendo DS systems, working on homework and letting off pent-up energy by practicing karate.

His mother, Tina Graham, couldn't be happier with that regimen of afterschool activities.

"We've been doing [afterschool karate] for two years," Tina Graham said. "I was looking for something different for him to do. I looked at a few other after-school activities, but the results we saw from [karate] and the discipline were perfect for him."

The Enshin Karate studios, located in Burke, Springfield, Fairfax, Oakton, Annandale, Alexandria, Reston and Herndon all offer a structured after-school program.

At 2 p.m., Sensei Ali Farashkhani picks up the members of his after-school karate program and takes them to the Springfield-based

From 3 p.m. to 6 p.m., the youths enjoy working on their homework,

interacting with one another and, of course, kicking the sand bag and learning the ancient martial art of karate

The studio also offers a variety of karate training techniques and athletic games.

"It's very enjoyable for the children," Farashkhani said. "We play games a lot. If the kids play games, then they want to

"At first kids
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— Dan Taylor, Have Blade Will Travel



Courtesy Photo

Sensei Ali Farashkhani poses with his after-school program students at Enshin

with games and karate training at Enshin Karate in Springfield.

Karate in Springfield. Sensei Ali Farashkhani helps youths fill their after-school hours

Dan Taylor (center) gives youths a chance to try a nontraditional after-school sport through his Have Blade Will Travel fencing

learn more about

karate. If you just do straight training, they don't want to do it anymore after school."

A typical karate training session lasts one hour at Enshin Karate and

the remaining time is used to mentor and let the children catch up with their studies.

"We teach them about more than just karate," Farashkhani said.

For those who may not be interested in learning a hand-to-hand martial art, another option is the sport of fencing.

Fencing coach Dan Taylor, owner of the Have Blade Will Travel fencing school, has been visiting Northern Virginia grade schools since 2005 to teach children about the sport in an after-school activity session.

Despite the fact that fencing is not a mainstream sport, Taylor said children enjoy the after-school activity.

"At first kids think that [fencing] is like 'Pirates of the Caribbean,' " Taylor said. "But then they learn a lot of discipline from the sport."

In the program's four years, Taylor

said that he has never had a child suffer an injury.

"We use tempered steel foils that are meant to bend on impact and we wear all the protective equipment that you need [to fence]," he said. "We always stress safety in this sport. It's our No. 1 concern."

Children ages 4 to 7 also can also participate in fencing with Nerf swords, not fencing foils, to play with.

"We want to get the younger kids involved," he said. "It's not quite like the traditional fencing. It's a little bit more like 'Pirates of the Caribbean'

with them."

Since sports don't suit every child's interests, the Cub Rub Recreation Center in Chantilly offers some alternatives.

The recreation center, which features two pools and a weight lifting facility, also has nature classes in the spring for those who wish to learn about the world around them.

"We have our after-school nature programs in the spring and we have family programs on the weekends," Naturalist Tammy Schwab said.

Classes in the spring include "Stupendous Science," a class about animals, a survey of scientific information and "Wizard Science."

"'Wizard Science' is based on what Harry Potter would be doing at Hogwarts," Schwab said. "It covers topics such as botany and strange animals."



Students at Waynewood Elementary School in Alexandria practice fencing techniques.