

INJURED MINDS

Penn State athletes deal with concussions

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In January, Matt Albrecht practiced on the high bar. The Penn State men's gymnast did a release move, showing off some flips in the air and missed the bar on the way down causing him to slam onto the mat below, leaving him feeling nauseous.

This summer, Penn State women's soccer player Maddy Evans was fighting for the ball in a club match when she slammed heads with the opposing team's goalkeeper, leaving her with a huge bump on her head and sending the goalie to the hospital for stitches.

While each athlete felt the repercussions of their hit, they didn't think it was anything too serious right away. It wasn't until a day or two later when they still had headaches and felt out of sorts that they realized their hits did a lot more than expected — they left the athletes with concussions.

According to the Sports Concussion Institute, Albrecht and Evans account for two of the estimated 1.6-3.8 million sports-related concussions that happen in the United States each year.

"It's a huge national awareness," said kinesiology professor Dr. Semyon Slobounov, who also runs a concussion research lab at Penn State. "It's an epidemic by definition for the growing concern. We don't know the mechanism, but it's a huge, huge issue nationwide, especially in contact sports."

With more and more studies coming out in recent years about the severity of concussions and the effects they can have on people later in life, both Penn State and the NCAA are doing what they can to make the injuries as untraumatic for their athletes as possible.

Athletes like Owen Thomas from the University of Pennsylvania have helped spur national awareness about deaths believed to be related to concussions. Thomas, who committed suicide in his on-campus apartment in April, had the early stages of chronic traumatic encephalopathy (CTE), according to a study conducted by doctors from Boston University.

CTE, along with depression, has both been found in former NFL stars and has been connected to head-related injuries. If these hits had been taken care of, their effects could have been lessened. In a Sept. 13 article in the New York Times, Thomas's family and friends said he showed no signs of depression and never complained of any injury.

In April, the NCAA announced a concussion management plan that requires schools to have a plan of action on file for how to handle such head injuries. The policy also requires an athlete to sit out the day of the injury and be cleared by a team physician — not coach — before returning to action at a later date.

And the U.S. House of Representatives passed a bill in September requiring high schools nationwide to set guidelines on concussion treatment and management to prevent the long-term effects of the injuries. That bill is the first of many to likely be passed, with other concussion-related issues still pending in Congress.

Penn State is also taking the issue seriously, as it has many doctors, trainers and coaches on staff who know the implications of concussions. With research being done at Rec Hall in the kinesiology department, the school is taking a proactive approach on head-related injuries.

"Things do occur occasionally," men's gymnastics coach Randy Jepson said. "We're fortunate here at Penn State because we've got some research going on right here with our sports medicine people that is cutting edge. We're right out in front with the topic that way and we get great treatment that way."

Fact of the (grey) matter

The brain has been a topic of interest for a number of years. The way it works has always fascinated mankind, and the damage that can be done to it is no exception.

A concussion is caused by a blow or hit to the head, causing the brain to rattle inside a person's head and function abnormally.

Doctors admit concussions are still a huge unknown in medicine, with several of their effects to the brain still unclear. But with more and more studies and guidelines coming out each year, the unknowns are decreasing.

But there are many things doctors are aware of — one being the immediate effects of a concussion.

Headaches are the most common symptom associated with a concussion, but Dr. Roberta Millard, a team physician at Penn State, said loss of memory and concentration, lack of balance, grogginess, sensitivity to light and nausea are other symptoms an athlete might experience.

When an athlete endures a blow or hit to the head, a team doctor or physician will examine them immediately on the sideline, seeing if these symptoms or others are present. If the athlete is suspected to have been concussed, they will be taken off the field immediately.

"We'll ask them a couple of questions like what the date is, what's the score, who their opponent is and whatnot," said Dr. Philip Boshia, another team physician for Penn State. "This will give us a feel for how with it they are. Most sports you'll have a couple of minutes to look at the athlete and see if there's a concussion or not."

Once an athlete is determined to have a concussion, the recovery process starts. When healing from their injury, the athlete is asked to relax and isn't allowed to do anything that strains the brain — like watching TV, playing video games or even reading.

Once their symptoms start to subside they take a series of tests, which will then be compared to their baseline.

Baseline tests are given at the beginning of every season to get a normal reading of an athlete's brain. They are administered in Slobounov's lab in Rec Hall. The test consists of various things such as an electroencephalogram (EEG), balance tests, memory and attention tests and reaction time tests.

An athlete will take those same tests post-concussion so medical professionals have a basis for comparison.

"Athletes are tested post-concussion and if their symptoms

appear to be resolved we do some of these repeated tests and compare them to baseline," Millard said. "We might be able to say that, 'Well, yes in fact you have recovered and you're back to your baseline and you can return to play.' Or, 'No, you're significantly impaired as compared to your baseline.'"

Once an athlete has been concussed, they may be sent to Slobounov's lab to take the various tests. There, the tests will be administered and the results will be sent back to the trainers and doctors to be examined.

Slobounov said the point of his research is to "find abnormalities in patients with concussions that can't be seen in a clinical way of assessment." In other words, the tests provide answers that go beyond the physical symptoms an athlete might experience.

"We're not just looking at one aspect," said Katie Finelli, an understudy to Slobounov. "Their memory might be good, but the EEG will indicate they're not fully recovered. It shows us the whole spectrum."

Finelli said the goal of Slobounov's studies is to make sure an athlete doesn't return to play before they are fully recovered. If that happens they could experience a wide range of problems in both the near and far future.

In the short term, an athlete's reaction time could be slowed on the playing field, making them susceptible to other injuries. They might also have a lack of balance that could cause problems.

In the long term, all three doctors agreed that concussions could lead to chronic headaches, clinical depression, Parkinson's Disease, Alzheimer's Disease, amnesia and cognitive slowing.

With the testing options available at Penn State, the school is trying to ensure its athletes don't experience those effects later in their lives.

"We're trying to decrease how much this happens," Boshia said. "We really don't have a great way of knowing when a concussion is fully resolved, but we're usually keeping a very close eye on the athletes and leaning on the side of conservative to getting them back to full activity."

A look into their minds

Initially, Albrecht didn't think anything of his nausea following his fall from the high bar. The senior gymnast said he usually feels kind of sick on the bus ride home from competition, so he attributed his upset stomach to that.

However, when he continued to feel nauseous three and four days after the meet, and constantly felt groggy and as if he was "walking through a fog," he knew something was wrong.

Albrecht ended up missing three weeks of the season as he recovered from his concussion, and he admitted that time out wasn't easy.

"I really wanted to be back in the game and I didn't want to take time out," Albrecht said. "I was told by so many people that this is my brain and I only get one of them, so yeah it sucks you might have to sit out an extra couple of weeks. But if you keep pushing yourself you're going to lose this season and possibly anywhere you want to go with the sport after that because you won't be able to stand the pressures of the sport anymore."

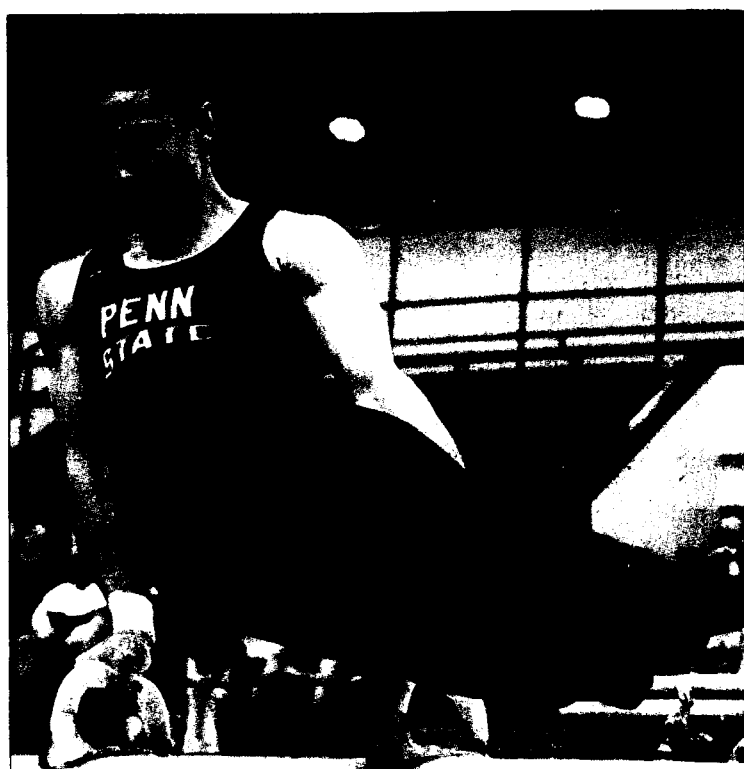
So Albrecht did whatever his trainer told him to do. He had to limit his time in front of computer and TV screens and was allowed to leave class if his symptoms took over and he wasn't allowed to practice until he was symptom-free.

During his time away from his sport, he could feel the effects of the injury had on his brain. One of the weirdest things for Albrecht was his struggle to concentrate. No matter what he was trying to read or pay attention to, his mind would escape him and it would take him nearly twice as long to do a simple task.

"You had no control over it. It wasn't like you were trying or your mind was wrapped around other things at the time," he said. "It would just start to wander once I sat down and tried to get stuff done."

Once Albrecht had clear symptoms for three days, he was allowed to gradually work his way back into his sport. He would start on the exercise bike and work his way up to sprints and eventually work his way back up to gymnastics activities.

All in all, Albrecht missed three meets in the beginning of the 2010



Collegian File Photo

Senior Matt Albrecht performs on pommel horse in a meet in 2009.

season because of his concussion. But both he and his coach, Jepson, agreed the injury was handled well by the trainers and doctors involved.

"It's nice to know we have people that can keep on top of guys," Jepson said of the training staff. "Our trainer has done a great job and he's really on top of it. He's a guy you can really trust. He's created a great situation for us."

Evans, too, feels her coaches and trainers handled her injury well, but her experience was a different one from Albrecht's.

The Penn State women's soccer player admitted she didn't realize the severity of her injury until the next morning, even though she got taken out of the game when the collision happened.

Because the game didn't get over until around 9:30 p.m. and the hit happened late in regulation, she just felt "out of it" until she went to bed late that night.

When she woke up the next morning she said she had a terrible headache, felt a little bit of nausea and was "in a fog." She said she couldn't quite explain the weirdness she felt, but she knew it wasn't right and went to see her trainer thinking she had a concussion.

"I assumed that's what it was, but I'd never had anything like that before," Evans said. "I'd gotten hit in the head plenty of times, but I knew this was different."

Most of Evans' symptoms went away almost immediately, except for the headache. She initially missed three weeks and was told by her team trainers and physicians to take it easy and "be a vegetable basically."

Once she started to feel better she was allowed to go on a walk, then a jog, then a run. Eventually she was able to practice without contact and shortly after that she was in game situations again at the end of July.

However, once Penn State's season started at the end of August, Evans' headaches started to come back. The symptom concerned her and she went to her trainer only to find that she would have to miss more time because of her concussion, as it hadn't fully cleared up yet.

"It was a dull headache, but it was consistent and constant," Evans said. "Once I got the headache symptoms I was back to doing nothing and had to go through the same process again."

This time Evans was out for two weeks, missing the first part of her sophomore season.

While she is fully recovered now, she admits her time out was sometimes frustrating and she was anxious to get back on the field. But now that the injury is past her, she said it was handled perfectly by everyone involved.

"Looking back on the situation, I was really glad they were so serious about the situation because if I had come back too early it would've been even a longer process," Evans said of her trainers. "I'm glad they took the time to make sure I was fully back. I think it helped a lot. It paid off."

Mind over matter

While Albrecht and Evans were fortunate enough to have training staffs that were supportive and understanding of the severity of concussions, not every athlete has those resources.

With the serious long-term effects of concussions coming more into the forefront with studies done by the NFL, as well as the labs at Penn State among many others, it is becoming more and more obvious that not only do peo-

ple in the medical professions need to know about the treatment and management of concussions, but athletes of all ages must know the severity of the injury as well.

"Educate people, educate coaches and educate the athletes," Slobounov said. "I'm not saying we need to make them paranoid and afraid of doing their sport, but at least we should be aware if something suspicious happens and [not to] overlook these kinds of injuries."

For trainers and doctors it is important to understand the symptoms and care that goes into concussions. However, for the athletes it is the knowledge of these symptoms that are important.

If an athlete has a headache, they need to understand they can't return to action and they need to be honest with themselves and the people working with their recovery. If that is not done, the athlete is submitting themselves to potential long-term effects.

"It's really important for the athlete to understand that because they're going to be the only one to really know what they're feeling or if they feel like they're back to where they were," Boshia said. "The trainer can ask all sorts of questions, but if the athlete is saying they feel fine and want to get back to play there's not really a whole lot you can do about that."

Albrecht, a kinesiology major who has intensively studied concussions in some of his classes, suggested inviting trainers or doctors into the first team meeting of a season to go over the seriousness surrounding concussions.

He said this way, the medical professionals could be upfront with the athletes and the athletes in turn would understand what they needed to be aware of and that they needed to be able to be honest with themselves if they were ever concussed.

His coach agreed with that suggestion, and added that coaches need to be upfront with their athletes about safety in their respective sports. Jepson said the gymnastics coaches often tell their team how important each turn is, because it's the one athletes may not focus on that is going to cause them problems.

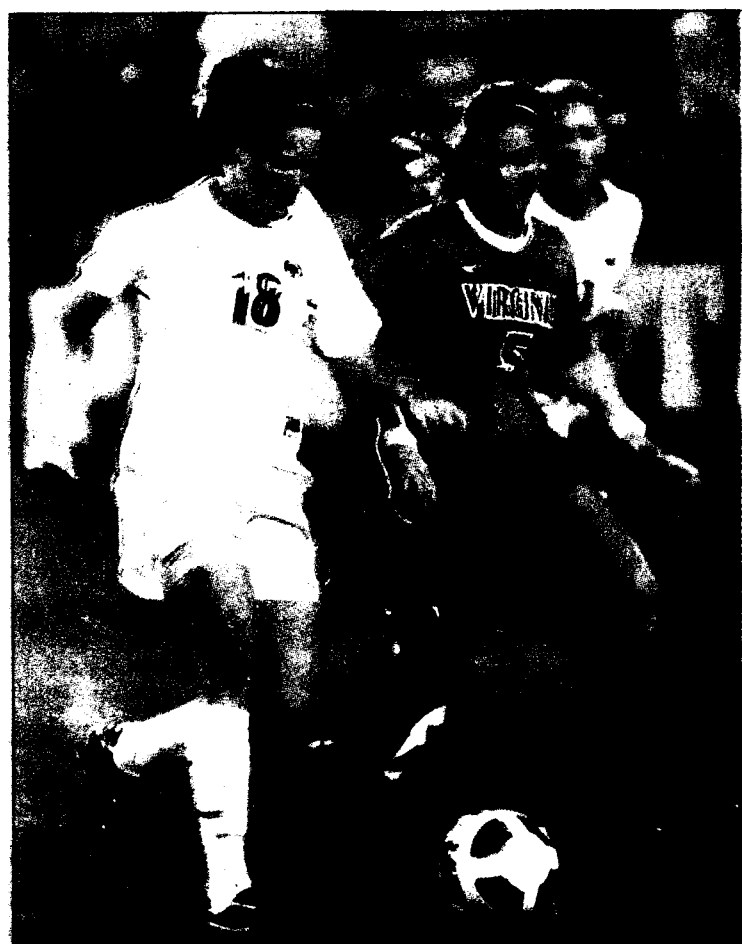
"Accidents happen," Jepson said. "But it's that one turn where you took it for granted where you broke your finger or under located and hit your head and you have a concussion. You wish you got that turn back because if you had done that turn better, you wouldn't be in that situation. Don't take things for granted because the one you take for granted is the one you want back."

Dan Vallimont was a member of the Penn State wrestling team for five years. Though he never experienced a concussion first-hand, he saw numerous teammates sit out portions of each of the five seasons he was there.

Being in a contact sport he knew what a concussion could do to an athlete, and he urged his teammates and fellow athletes to truly think about the injury before they try to rush their recovery. He hopes people understand how a concussion could change their lives.

"It's really important because, in the end, sports are just a game," Vallimont said. "It's not worth risking your mental health the rest of your life. You need to be able to draw that line of how much you want to risk. With a concussion, you don't really want to take too many chances."

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Sarah Finnegan/Collegian

Sophomore Maddy Evans (left) runs down a ball in a game against Virginia earlier this season. Evans suffered a concussion this summer.