by Brian Logue, Lacrosse Magazine Online Staff

Two days after helping the Colorado Mammoth to the 2006 National Lacrosse League championship, Jay Jalbert was laying in a hospital bed recovering from what a specialist would later say was his seventh concussion.

Four weeks after taking a routine shot off his facemask, Denver Outlaws goalie Trevor Tierney was still feeling the effects of what he says was his sixth or seventh concussion.

Jalbert and Tierney aren't alone, and concussions in lacrosse don't just happen to professional players. Youth players suffer concussions too.

"There's evidence that the younger the player is, the more vulnerable the brain is to a concussive injury, and that it takes longer to clear up," said Vito Perriello, a pediatrician from Charlottesville, Va., who serves on the executive committee of the US Lacrosse Sports Science and Safety Committee.

And they don't just happen to male lacrosse players. Micky Collins, assistant director of the University of Pittsburgh Medical Center Sports Concussion Program, said that roughly half of the concussions he sees from lacrosse players in his office are female.

In a sport that is comparatively safer than other sports, concussions are a cause for concern to the US Lacrosse Sports Science and Safety Committee.

According to a recent report in the Journal of Athletic Training, analyzing data from the NCAA's Injury Surveillance System from 1988 to 2004, concussions were the third most common injury in men's and women's lacrosse games, trailing knee and ankle injuries. Additionally, only ice hockey, football and soccer had higher rates of concussions than either men's or women's lacrosse.

Earlier this year, US Lacrosse took a significant step towards addressing the issue by forging a relationship with ImPACT, a national concussion management firm that helps doctors and players manage concussions when they do happen.

One major concern regarding concussions is when players return too early, which may lead to prolonged
post-concussion symptoms or more severe brain injury if another head injury occurs before complete healing from the first (second impact syndrome).

Another significant concern for players like Jalbert and Tierney, who have suffered multiple concussions, is determining the cumulative damage and how many concussions is "too many."

Avoiding Concussions

Most concussions are essentially the result of an accident, so avoiding them within the confines of a sport is not an easy task.

"The most important steps to preventing concussions or minimizing their impact are wearing well-maintained equipment that is properly fitted and having proper rules enforcement," said Perriello.

Zero tolerance for late hits, checks to the head or hits from behind are important because of how concussions can occur.

"Most concussions happen when the player is not expecting to get hit," said Collins. "Their attention and vision is focused somewhere else. If they have time to brace for the hit, their neck muscles absorb some of the force."

Managing Concussions

While avoiding the initial concussion is not always possible, the proper treatment of concussions is becoming much clearer.

"Our knowledge and management of concussions has changed dramatically in the last three to four years," said Perriello.

"The whole thing with concussions is, if you let them resolve appropriately -- and the brain will recover -- then we can really prevent problems by avoiding two things," said Collins. "To begin with, if you're recovering from a concussion, the first thing you don't want to happen is to get hit in the head again, because getting a second blow to the head before the first one is resolved can result in a more significant set of difficulties.

"The second thing you don't want to do is increase exertion or increase demands on the brain -- either physical exertion or even cognitive exertion in the case of a high school or college student-athlete. That can make the symptoms worse and prolong how long it takes to recover from the trauma."

The ImPACT test is one tool that medical professionals can use to help determine when an athlete is ready to come back from a concussion. Athletes take a baseline cognitive test at the start of the season and then retake the test if a concussion occurs. Medical professionals can analyze the results to determine if the brain is functioning normally.

Through ImPACT’s relationship with US Lacrosse, members can sign up to take the test for just $5. ImPACT has an expanding national network of clinicians that can facilitate the program. Information about the program is available on the US Lacrosse Web site by clicking on the "Sports Science and Safety" link or the ImPACT link on the left side.

Having quantitative data is essential for doctors, because relying on an athlete to report symptoms is unlikely to be effective. As soon as players begin to feel better, they want to play right away. They might not know that the brain is not completely healed.

"When you have one, you want to go out and play again," said Tierney. "It's not like having a broken arm or
For Jalbert, it wasn't one concussion, but a series of concussions that led to his problem. He suffered a concussion in the Mammoth's final regular-season game in 2006, but continued to suit up through three playoff games. On the field he was successful, scoring three goals and adding 10 assists during the playoffs to help the Mammoth to the championship.

Off the field he knew something wasn't right.

"I just kept playing when I knew there was something wrong," said Jalbert. "I had trouble concentrating. That was the most glaring thing in my case."

Simple things, like typing, also proved difficult. But the lure of the team was enough to make him look the other way.

"I walked into the locker room and seeing all the guys...there was no way I wasn't going to play," said Jalbert.

His team won the championship that night, but two days later he woke up and was stumbling around. He went to the hospital and stayed for two days. The symptoms weren't going away. Going out for a jog would result in pounding headaches.

It took nearly two months for Jalbert to return to the field, this time as a member of the U.S. team competing in the International Lacrosse Federation world championship. Once again, his on-field play showed little effects of an injury. Jalbert scored 15 goals in the tournament and was named as the outstanding midfielder on the all-world team. But as the games wore on, he knew he was watching the end of his lacrosse career.

"I'm back to normal now," said Jalbert. "I knew I wasn't going to be able to play anymore, and I have to live with it."

But that doesn't mean he didn't learn from his choices. He knows he got lucky. When Tierney, a teammate of Jalbert's on the U.S. team, was dealing with his latest concussion during this summer's Major League Lacrosse season, he called Jalbert.

"He left me a voicemail, and I could tell from the concern in his voice that he was in a state I had been in," said Jalbert.

Discussions with Jalbert and Tom Ryan, another player who suffered multiple concussions, helped Tierney to decide to retire from lacrosse following this year's MLL season.

"The past two summers I had gotten those 'mild' ones more easily and the symptoms stayed for a longer period of time," said Tierney, who suffered painful headaches. "It screws up your life."

That's why deciding just how long someone needs to sit out is such an important decision, one that shouldn't be made by a coach or player. ImPACT is a critical tool for medical personnel to have at their disposal.

"If the instrument is used properly, it can be very helpful in minimizing the risk of players returning early," said Perriello. "Sometimes it allows us to return a player sooner. It allows us to make our decision with more confidence."

The value of the tool is a major reason that US Lacrosse formed a relationship with ImPACT. The alliance also aims to better educate the lacrosse community about the concerns with concussions and to make sure that the membership base is making informed decisions regarding the health of themselves and their children.
"I serve on many national and local sports medicine committees, and I think what US Lacrosse is doing is very exemplary for other governing bodies to follow," said Perriello.