By Tom Farrey



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Micky Collins is the Larry King of sports medicine, the man who never tires of asking questions. They tumble out of him in rapid-fire succession, delivered with plaintive eyes.

What's your memory of the incident?

Any memory loss?

So we're talking 5 seconds of memory loss?

Collins will ask a hundred of these questions every couple of hours, usually from a swivel stool in his bustling sports medicine clinic at the University of Pittsburgh Medical Center. The 2,000 or so athlete patients he sees each year range from the famous -- Tim Tebow, Clinton Portis, Brian Westbrook, Zach Thomas -- to the adolescent, most of them looking for answers as to when they can return to play after a concussion.

Any loss of consciousness?

Any immediate headache?

Which was worse, light or noise?

Collins figures that if he asks enough little questions, players and fans can avoid asking themselves the bigger one: Is football a menace to the human head? As researchers and society have become more aware in recent years of the consequences of brain injuries to former and even current players, it's no longer just protective moms wondering as much.

"It's a violent sport," says Collins, a member of the Pittsburgh Steelers' medical staff and a consultant to several NFL clubs. "Force equals mass times acceleration, and athletes are getting bigger and faster. Injuries are going to occur and no helmet will prevent a concussion. But the risk can be mitigated with proper management of the injury. I am certain of that."

He has staked his professional career on that idea. Long before concussion prevention became a hot topic at all levels of football, Collins, 40, began studying the effects of head trauma on players. The author of more than 50 research articles in medical journals, he helped create the Center for Disease Control's "Concussion Tool Kit for Physicians."

Asking many considered, observant questions is key to averting the often more serious damage that can come with returning to play before a brain injury has healed, he says. Unlike with a broken bone, no X-ray can confirm the existence of a concussion -- CT scans are often ordered but show only whether bleeding has occurred under the skull. Concussion is a metabolic event in which potassium leaks out of neurons in the brain and is replaced with calcium, creating a state of what Collins calls "hyper-vulnerability" to further injury.

Diagnosing concussion involves looking for any of 22 symptoms that Collins has helped the CDC identify. They range from vomiting to dizziness to headaches associated with light or noise sensitivity.

"It's difficult," says Collins, whose operation is the largest clinical and research-based concussion program in the U.S. "If you walk into a locker room after a high school or college football game, and you asked the athletes to tell you the truth and you said how many of you are having headaches right now, there'd probably be a fair number of people raise their hands. So it's a challenge to manage this. But if you actually understand the way a concussion headache presents, and how to assess that headache the right way, it becomes far less of a challenge."

So Collins hunts around, like an archaeologist at a dig site.

Was your vision affected?

Did you feel a sense of fatigue?

Out of curiosity, did you deny symptoms to your athletic trainer?

On a March morning at his clinic, all of the above questions get put to Danny, a sleepy-eyed high school sophomore who concedes to Collins that, yes, he lied to his trainer when asked if he was feeling OK after getting kneed in the head in a recent basketball game. Like athletes in all sports, he dreaded the possible result of disclosing an injury.

"I just wanted to get back in the game and help my team win," he tells Collins.

"Understood," Collins responds.

Collins played college baseball, and hated to sit for any reason. "I'd lie, cheat and steal to stay in the game," he says. But as a medical professional, he recognizes the hazards of failing to identify concussions promptly, and resting the player until the brain heals. The CDC estimates that between 1.8 million and 3.6 million concussions are suffered annually across sports and all age levels. For many years, the standard way to treat concussed athletes was to remove them from play for a week. But Collins' research shows that only 40 percent of athletes recover within a week.

One in five athletes still experiences symptoms three weeks later. Collins defines members of that group as suffering from post-concussion syndrome, which can lead to functional impairment in their schoolwork or daily life, with potential long-term deficits.

The risks of asking too few questions are immense. Collins was an expert witness in a lawsuit filed in 2007 by former college football player Preston Plevretes, who sued LaSalle University for negligence after he suffered a concussion and was allowed to return to play too soon. Upon telling the team trainer that his head hurt in an October 2005 game, the freshman linebacker was sent to a nurse at the campus health clinic -- not a doctor or clinician trained in concussion management. He was cleared to play after sitting one game, and three weeks later nearly died after taking a hard blow to the head.

The Pittsburgh neurosurgeon who saved Plevretes' life that day -- by removing the left side of his skull -- notes that the hit he took was legal. "As a neurosurgeon, football in my mind is a dangerous sport," said Dr. Eric Altschuler of Mercy Hospital. "I don't recommend it."

But Collins testified that Plevretes was the victim of playing with a concussion. He said he suffered from second impact syndrome, among the most immediate and devastating forms of brain injury. Four and a half years later, Plevretes struggles to walk and talk and needs round-the-clock care. LaSalle has admitted no wrongdoing, but settled the lawsuit last November for \$7.5 million.

Within weeks of the settlement, an NCAA committee recommended that concussed athletes be cleared to play only with the consent of a doctor, or the doctor's designee, who is trained in concussion management. Last week, the NCAA panel went a step further and called on schools to draw up comprehensive plans on how to care for concussed athletes.

"The culture's changing, that paradigm shift is happening," Collins said. "But it takes time, and unfortunately it takes examples like Preston."

Second impact syndrome has been found only in athletes under the age of 23, as brains that are young and still forming are more prone to cerebral swelling, Collins said. It's a rare injury, affecting no more than a handful of high school and college athletes each year, but it highlights the fact that young athletes are more vulnerable to the repetitive effects of concussions than adults playing in the NFL, NBA or other professional leagues.

So when Danny, a sophomore and straight-A student, reported that he wasn't able to read without getting headaches, red flags went up for Collins. He was already concerned after reading Danny's scores on a computer software program, ImPACT, that helps assess and measure the effects of concussions by having athletes answer a series of questions. It's a tool Collins helped develop and is now widely used by pro and college programs, and about 30 percent of high schools. Danny's school is one of them.

"Let me show you some data," Collins says to Danny, retrieving a printout. "You're very bright. When you took the baseline test, your memory abilities were at the 91st percentile. Now, you're at the first percentile, which means 99 out of 100 kids do better than you."

The decision is made. Danny will sit for the state playoffs, which are about to begin.

"You'll live to fight another day, OK?" Collins says.

Danny is crestfallen, but grateful he isn't making the call. It'll be easier to tell his coach.

"I give you my word that all will return to normal," Collins assures him.

On occasion, he has cleared athletes prematurely and come to regret it. They returned to play, promptly got concussed again, and suffered further damage, "though nothing like that of Preston Plevretes," he says. He's not about to risk such a scenario with Danny, who hasn't even been able to return to class since the original injury a week earlier.

"I'll go to bed feeling very happy about that case," he says later that March day.

A month later, Collins is feeling even better about his call. Danny still hadn't returned to school. It's late April and only now, with physical therapy and medication, are symptoms starting to subside. Danny, whose team went on to win state without him, could have been another Preston Plevretes.

Collins will see plenty more athletes like him in the coming months, as football season begins. Football players make up half of the patients he sees. It's high season for head trauma.

"There are inherent risks in this sport," Collins says. "You're going to get hit in the head again. It's our job as clinicians to make sure that when that event does occur that the outcomes aren't going to be any worse than the initial trauma."

That the game can be made safe for brains is about the only thing he doesn't question.