Doctor yes

By Peter Keating
ESPN The Magazine

"THERE'S GOING TO be some controversy about you going back to play."

Elliot Pellman looks Wayne Chrebet in the eye in the fourth quarter of a tight game, Jets vs. Giants on Nov. 2, 2003, at the Meadowlands. A knee to the back of the head knocked Chrebet stone-cold unconscious a quarter earlier, and now the Jets' team doctor is putting the wideout through a series of mental tests. Pellman knows Chrebet has suffered a concussion, but the player is performing adequately on standard memory exercises.

"This is very important for you," the portly physician tells the local hero, as was later reported in the New York Daily News. "This is very important for your career."

Then he asks, "Are you okay?" When Chrebet replies, "I'm fine," Pellman sends him back in.

YOU GET KNOCKED DIZZY, maybe you black out, you slowly come to your senses. You feel strangely removed from your surroundings, maybe you have a seizure, maybe you puke. But you put your helmet back on as soon as you can walk straight. Any behavior, no matter how bizarre, becomes routine if someone repeats it often enough. And for decades, professional football players have adapted to concussions, shaking them off, calling them "dings," laughing about how they can't remember the number of blows to the head they have taken.

Only in recent years have scientists started to understand exactly what happens inside a brain when a head gets smashed and to explore why some players get hurt worse or cope better than others. The NFL is among those looking for answers, with good reason: According to league data, about 100 players a year suffer concussions from hits that average 98 times the force of gravity.

Pro football's powers-that-be began to study the subject formally in 1994. Following a rash of head injuries to stars such as Troy Aikman and Steve Young, then-commissioner Paul Tagliabue established the Mild Traumatic Brain Injury (MTBI) Committee. He named Elliot Pellman, M.D., its chairman.

Congressional Call

Michael V. Kaplen, president of the Brain Injury Association of New York State, has called upon Congress to conduct hearings regarding the medical research on concussions relied upon by

determining when players who suffered concussions can return to play.

Kaplan, an attorney who represents victims of concussions and traumatic brain injury, called for the hearings, citing recent stories in ESPN The Magazine, Outside the Lines and SportsCenter that raised question about the qualifications of Elliot Pellman, the Jets' team physician who oversees NFL research on concussions, and the conclusions of several NFL studies on the long-range ramifications of concussions.

Since it first published research results in 2003, Pellman's committee has drawn a number of important conclusions about head trauma and how to treat it that contradict the research and experiences of many other doctors who treat sports concussions, not to mention the players who have suffered them. For example, Pellman and his colleagues wrote in January 2005 that returning to play after a concussion "does not involve significant risk of a second injury either in the same game or during the season." But a 2003 NCAA study of 2,905 college football players found just the opposite: Those who have suffered concussions are more susceptible to further head trauma for seven to 10 days after the injury.

Pellman and his group have also stated repeatedly that their work shows "no evidence of worsening injury or chronic cumulative effects of multiple MTBIs in NFL players." But a 2003 report by the Center for the Study of Retired Athletes at the University of North Carolina found a link between multiple concussions and depression among former pro players with histories of concussions. A 2005 follow-up study at the Center showed a connection between concussions and both brain impairment and Alzheimer's disease among retired NFL players.

Several former NFLers who took fierce hits to the head during their playing days have testified to the lasting effects of concussions. "I can't help but look at the concussions I sustained as a reason for the headaches, the depression, the blurred vision, the slurred speech that I might have at some times," Hall of Fame linebacker Harry Carson told *Outside the Lines*. Carson, who played for the Giants from 1976 to 1988, continued, "When I look back at the many hits I inflicted on people and at some of the hits I have gotten, it becomes clear to me that not only was I abusing my body, I was also abusing the gray matter in my skull."



Former fullback Merril Hoge, who played from 1987 to 1994, had his career ended by repeated concussions. "Six weeks after I was forced to retire, when I had started to feel better, I had an appearance at a wine-tasting event," says the ESPN analyst. "The moment the wine touched my lips, I went blind for the most terrifying 10 seconds of my life. My doctor later explained I had probably suffered trauma in the vision area of my brain. I think that speaks to the cumulative effects."

AP Photo/Gerald Herbert

Elliot Pellman has been with the Jets since 1988.

There are various reasons that the Pellman committee's

findings might clash with these accounts and with other research. Recently active NFL players, whom the committee is studying, could differ from the subjects of other studies in some important way, such as their health or their protective equipment. Or one or more of the studies could be flawed. Concussions, after all, are a tricky subject, both because players don't like to report them and because they involve the complicated inner wirings of the brain. But Pellman is steadfast in his unwillingness to accept the work of others. "Pellman's committee has repeatedly questioned and disagreed with the findings of researchers who didn't come from their own injury group," says Julian Bailes, chairman of neurosurgery at West Virginia University. (Tagliabue declined to comment on Pellman or his research, and the NFL referred all questions for this story to Pellman.)

The NFL allows each team to manage concussions as it sees fit. When a player is injured, the team doctor, sometimes with input from trainers and specialists, decides when he can return to the field. In practice, according to Pellman's committee, 51.7% of players who suffer concussions -- including a quarter of those who are knocked out -- return in the same game. Pellman has written that "many NFL players can be safely allowed to return to play on the day of injury" and that "the current decisionmaking of NFL team physicians seems appropriate for return to the game after a concussion."

Not according to the consensus of experts outside the NFL, it doesn't. The Second International Conference on Concussion in Sport met in Prague in 2004 and released the following statement: "When a player shows ANY symptoms or signs of a concussion ... the player should not be allowed to return to play in the current game or practice ... When in doubt, sit them out!" That's what the first conference (in Vienna in 2001) found too. All standard U.S. guidelines, such as those first set by the American Academy of Neurology and the Colorado Medical Society, agree that athletes who lose consciousness should never return to play in the same game.

NFL won't bite

A small-town dentist says he can help the NFL's concussion problem. This past February, ESPN The Magazine's Peter Keating looked at why the league isn't biting. Story

Sports doctors generally believe concussions make people more vulnerable to future damage, especially in the period closely following the injury. That's because head trauma sets off a storm of chemical changes in the brain that can affect reflexes even if outward symptoms have subsided. And plenty of players know what it's like to be vulnerable. "I took a blow to the head during a Monday-night game for the Bears against the Chiefs, and I had amnesia on the plane ride home five or six hours later," Hoge says. "That's when the team doctors decided my return-to-play date. Four days later I was practicing, and I realized I was struggling with learning new plays." Five weeks into the 1994 season, Hoge took another hit, walked off the field and into the locker room, and passed out. For about 15 seconds, he even stopped breathing. "I had to learn how to read again," he says. "You could take me around the block and I'd never get home." (Hoge sued John Munsell, then Chicago's team doctor, and won $1.55 million in 2000, a verdict that was later overturned.)

Several of the country's preeminent neurosurgeons and neuropsychologists have grown increasingly concerned that the league is putting players at risk by following Pellman's

lead. They've had their doubts since the early days of his appointment to lead the committee. For one thing, Pellman is a rheumatologist by training -- a specialist in the treatment of joints and muscles -- not a neurologist. For another, when he started out, he often professed ignorance about the subject in question. "I would hear him say things in speeches like, 'I don't know much about concussions, I learn from my players,' and, 'We as a field don't know much about concussions,' and it used to bother me," says one doctor. "We knew what to do about concussions, but he was acting like it was new ground." Their dismay has only increased since *The New York Times* revealed last year that Pellman attended medical school in Guadalajara, Mexico, and does not hold a medical degree from SUNY Stony Brook, as he once claimed. "When neuropsychologists sit around telling jokes, we call him 'Mr. Pellman,' " says a colleague.

As a biology major at NYU, Pellman worked his way through college, holding jobs at his family's flower shop in the Bronx and as a cabdriver. Low grades led him to go to medical school at the Universidad Autonoma de Guadalajara in 1975. After a one-year residency at Stony Brook, Pellman received his medical degree from the New York State Department of Education. He was hired by the Jets in 1988 and has been medical director of the Islanders since 1996 and of Arena Football's Dragons since 2000. The NFL named him medical liaison to the commissioner in 2001, and two years later, MLB hired him as its medical adviser. The gregarious 52-year-old also runs ProHealth Care Associates, a private medical practice in Lake Success, N.Y.

Now there are questions not only about Pellman's résumé and conclusions but about his methods, too. It turns out that when he and his collaborators assembled data for a crucial part of their ongoing study, they didn't include results from hundreds of NFL players, some of whom had had concussions. Says Kevin Guskiewicz, director of the Sports Medicine Research Laboratory at the University of North Carolina at Chapel Hill: "The data that hasn't shown up makes their work questionable industry-funded research."

WILLIAM BARR is a neuropsychologist, which means he studies the relationship between how the brain functions and how the mind works. He's also a lifelong Detroit sports fan who keeps a photo of Gordie Howe on his office wall. In 1992, Barr was running a lab at Long Island Jewish Hospital in New Hyde Park, N.Y., when his phone rang. It was Elliot Pellman.

"I don't know who any neuropsychologists are, I've never worked with one," Barr recalls Pellman saying. "But somebody said Al Toon should see a neuropsychologist, so I asked around and I'm calling you."

Barr had treated plenty of brain injuries. He thought it was pretty cool that his medical and sports interests might converge, so he agreed to see the Jets receiver, who had suffered a series of serious head injuries. After testing by Barr and encouragement by Pellman, Toon retired.

In 1995, Pellman called Barr again, this time to see Boomer Esiason after a skull-crunching hit by Bruce Smith. With that, Barr became the Jets' neuropsychology consultant. Over the next nine years, he saw a series of Jets with concussions and conducted baseline tests on 382 players.

Baselines are a series of mental tasks, such as remembering words or designs, that an athlete completes while he is in an uninjured state. A doctor can then compare a concussed player's performance on the tests to his initial results. "After" scores make sense only in the context of "before" scores.

As Barr collected his data, Pellman told him there was one rule: "Don't talk to the press."



Evan Pinkus/WireImage.com

Wayne Chrebet is helped off the field after taking a hit against the Chargers on Nov. 6, 2005.

A couple of days after Wayne Chrebet is knocked senseless by the Giants, he is sluggish and tired, and his head aches. "It was stupid, trying to get back out there," he says. "That's just me trying to convince them and myself that everything is all right." The Jets staff, including Pellman and Barr, diagnose Chrebet with postconcussion syndrome. Ten days after the game, the Jets place Chrebet on injured reserve.

Pellman makes no apologies. "Wayne returned and was fine," he tells the media. "He did not suffer additional injury. If he had suffered additional injury, his prognosis would be no different.

"Let's say I didn't allow him to return to play, and he played the following week," he continues. "The same thing could have happened. The decision about Wayne returning to play was based on scientific evaluation. As we stand now, that decision made no difference as to what's happening today.

"This decision is so that I can sleep well at night and so Wayne's wife can sleep well at night," he says about ending Chrebet's season. "Nobody gets second-guessed."

IN OCTOBER 2003, Pellman and members of his committee published the first of a long-running series on concussions in *Neurosurgery*, a scholarly journal edited by Mike Apuzzo, the New York Giants' neurosurgical consultant. The committee's earliest studies used crash test dummies to reenact helmet blows. Later, the group decided to explore the ill effects of multiple concussions, and Pellman charged one of its members, Mark

Concussion Program, to oversee the collection and analysis of leaguewide data. Pellman chose Lovell because he had conducted neuropsychological tests for the Steelers as early as 1993. And in 1995, Lovell began to run the NFL's neuropsychology program, which encouraged teams to gather data to help decide when to return players to games.

Using the information they would obtain, Pellman, Lovell and the committee planned to look at baseline results and identify a normal range of scores for uninjured NFL players. Then, comparing postinjury scores to baseline data would show the effects of concussions. Comparing data from players with multiple concussions to that of all injured players would show whether concussive effects changed as injuries accumulated.

NFL statement on concussions

NFL Vice President of Public Relations Greg Aiello e-mailed the following statement about consussions to ESPN The Magazine, but too late for publication:

"We have published many papers in Nuerosurgery [sic] and there have been and continue to be many opportunities for people to review and comment on them. This is a work in progress that we continue to support."

A lot was riding on the analysis. The committee had never imposed recommendations on team medical staffs. But this was the first study ever to analyze the brain function of NFL athletes. If it showed that concussions were significantly impairing players, the league might be forced to institute new rules for evaluating and treating head injuries. Pellman and Lovell both say they invited all teams to participate in the research (Lovell says 11 teams elected to join the study) and tried to collect as many results as they could. As Lovell puts it, "More data is always better."

Several of the doctors involved, however, tell a different story. Barr, for example, conducted 217 baseline tests from 1996 to 2001. Periodically, he forwarded results to the league, but at the time Barr learned the committee was planning to publish its results, he had sent only 149. Barr remembers finding Pellman in the Jets' training room in 2003 and saying, "Elliot, I haven't sent data for a year." According to Barr, Pellman didn't want the additional tests. "I don't want the data to be biased because I'm with the Jets," Barr recalls him saying, suggesting that additional results would skew the data because the Jets would be overrepresented in the sample. That made no sense to Barr. A scientific study should include, or at least address, all available data.

Pellman denies this conversation ever took place. "Bill Barr was a consultant for the Jets who tested individual players to help us make decisions," he says. "I did not discuss the committee's research with him." Whoever is right, the fact is the group didn't have all of Barr's data for its paper.

Barr's wasn't the only research that didn't make the cut. Over the period covered by the committee's research, Christopher Randolph, a Chicago neuropsychologist, collected baselines for 287 Bears players. He says Lovell never asked for his data, either.

Nor did the committee seek complete data from John Woodard, neuropsychologist for the Falcons and associate psychology professor at the Rosalind Franklin University of Medicine and Science in North Chicago. According to Woodard, in December 2003, Lovell said the league was pressuring him to compile team results. "I was asked to

provide data on only concussed players," Woodard says. "I had data for slightly more than 200 baseline evaluations. I don't know why I was not asked for them."

In 2004, Lovell also asked Richard Naugle, consultant to the Browns and head neuropsychologist at the Cleveland Clinic, for data on just the players who had already suffered concussions, according to an e-mail Naugle wrote to a colleague in March 2005. Naugle declined to comment for this story, citing a confidentiality deal between his medical group and the NFL, but The Magazine has obtained a copy of that message. "I don't have that sorted out from the results of other testing," Naugle wrote of the request. "I explained that and added that if he could name players, I could send data on those individuals. I recall sending him data on two or three players ... I have a few hundred baselines."

This means Pellman, Lovell and their colleagues didn't include at least 850 baseline test results in their research -- more than the 655 that ultimately made it into their 2004 *Neurosurgery* paper. At best, their numbers were incomplete. At worst, they were biased. "That's news to me," Lovell says now. "My job was to collect as much data as I could."

In an Oct. 22 letter to The Magazine he wrote that "at no point was there ever an attempt to exclude teams from participating. Not only is this counterintuitive with regard to the goals of the project, but this assertion seems to suggest that there was an effort to suppress the collection of data for the study." The letter continues, "This is completely baseless. If there is data that was not included, I either did not know about its existence, the team and/or neuropsychologist did not want to participate, or the data fell outside the time parameters."

Barr also claims that in December 2003, Pellman asked him for data on specific Jets. "One day he doesn't want my data, the next he does," Barr thought at the time. He feared that Pellman might be "trying to fill certain cells and not others." According to a fax Barr sent Pellman on Dec. 4, 2003, Pellman had inquired specifically about Fred Baxter, who last played for the Jets in 2000; about Kyle Brady, who hadn't been with the team since 1998; and about Keyshawn Johnson, whose last season as a Jet was 1999. It's hard to see how Pellman could have wanted the three records for anything that had to do with ongoing care because he was no longer treating those players. Rather than collecting all available information to see where it led, Barr was concerned that Pellman might be picking and choosing what to include to get results that would downplay the effects of concussions.

Pellman denies it all. "Team doctors talk to specialists and ask them for results all the time," he says. "It's part of their job."

PELLMAN, LOVELL and their colleagues published their sixth paper in Neurosurgery in December 2004. It examined baseline data on 655 players and results for 95 players

NFL players did not show a decline in brain function after suffering concussions. Further analysis found no ill effects among those who had three or more concussions or who took hits to the head that kept them out for a week or more. The paper didn't explain where the players in the groups came from specifically or why certain players were included and hundreds of others were not. Neither Pellman nor Lovell has provided those details since.

Like most academic journals, *Neurosurgery* publishes work that has been peer-reviewed. Other scientists evaluate the design and execution of the studies, though they don't vouch for the accuracy of the data presented. Unlike most academic journals, though, *Neurosurgery* allows those peers to print their comments directly following the studies. In the case of the committee's sixth paper, even without any evidence of missing tests, the reviews were harsh. "When you look at the comments, what's striking is how strongly they are worded," says Chris Nowinski, author of *Head Games: Football's Concussion Crisis*. "They're full of phrases like 'perplexing,' 'obvious problems' and 'overinterpreted.' But the media reports what studies find, not what reviewers write."

The decision to publish the paper was controversial. "I highly doubt this study would have seen the light of day at this journal were it not for the subject matter of NFL players," says Robert Cantú, chief of neurosurgery and director of sports medicine at Emerson Hospital in Concord, Mass., and a senior editor at *Neurosurgery*.

Heading off trouble

The International Rugby Board has particularly strict rules for handling concussions: Players must sit out three weeks (although recently, some have come back earlier after getting cleared by doctors). Here's how other contact-sports organizations handle the issue of getting concussed players back onto the field:

The NCAA says neuropsychological testing has "utility" but that "further research is needed to understand [its] complete role." Return-to-play decisions in college sports are made on a case-by-case basis, but NCAA guidelines say "it is essential" that no athlete come back when "any symptoms, including mild headache, persist." They also recommend athletes not return to play on the same day if they suffer from significant symptoms, long-lasting symptoms or memory problems.

"The extremely small sample size and voluntary participation suggest there was bias in choosing the sample. The findings are extremely preliminary at best, and no conclusions should be drawn from them at this time."

One of the scientists who reviewed the committee's work is equally blunt. "They're basically trying to prepare a defense for when one of these players sues," he says. "They are trying to say that what's done in the NFL is okay because in their studies, it doesn't look like bad things are happening from concussions. But the studies are flawed beyond belief."

The NHL has mandated baseline neuropsychological testing since 1997. All players suspected of having a concussion are made to undergo further tests, and teams have to notify the league of all concussions. An informal "seven-day rule" proposes that players with serious concussions sit out at least a week.

The NFL has encouraged (but not required) teams to use neuropsychological testing since 1994 to help team doctors decide when injured players can return. The committee created by the league to research concussions does not "impose guidelines or recommendations on the clubs' medical staffs regarding concussion evaluation, testing, treatment or return-to-play criteria."

The same month the sixth paper was published, Barr gave a lecture at a conference sponsored by the Brain Injury Association of New York at Madison Square Garden. By then, he had joined the Comprehensive Epilepsy Center at NYU. In addition to his work there and with the Jets, he recently had been part of a research team that looked at concussions in nearly 3,000 college athletes. At the Garden, Barr talked about some of the findings from that NCAA study. He said the research indicated that the best time to do neuropsychological tests on players with concussions was after their symptoms had completely cleared, usually five to 10 days after the trauma.

A week or so later, Barr says Pellman called him and said, "I understand you're bad-mouthing the league." Barr realized Pellman was referring to the remarks he had made at the conference. Although that speech had been about college athletes, Pellman didn't like Barr's recommendations. NFL teams, Barr understood, preferred testing players just one to two days after a concussion, allowing for quicker diagnoses and returns to play.

"In the future," Barr says Pellman told him, "if you have anything to present or publish about sports concussions, you will have to put it through me." Barr protested that as a professor and a scientist, he couldn't be expected to clear material that wasn't Jets-related with Pellman.

"Then your time with the Jets is over," Pellman said. And, Pellman added, if Barr ever tried to publish any of his NFL data, he would hear from the league's lawyers. Barr was so concerned about the conversation that on April 29, 2005, he detailed it in a two-page letter to Richard Levin, his dean at the NYU School of Medicine.

Pellman heatedly denies Barr's account. "I never, never, never told Bill Barr he would have to clear all his work through me," he says. "I have people working for me all over the country, and I haven't put restrictions on them like that. It's ridiculous." Pellman confirms that he fired Barr but won't say why. "He was terminated because of certain events, which I will not go into other than to say he was a good neuropsychologist," Pellman says. "I do not need to air my dirty laundry in public."

But others too have felt Pellman's wrath. In November 2003, UNC's Guskiewicz was scheduled to appear on HBO's Inside the NFL to discuss his research that showed a link between multiple concussions and depression in 2,488 former pro football players. Pellman, who was also going to be on the show, called Guskiewicz. "I had never spoken with him before, and he attacked me from the get-go," Guskiewicz says. "He questioned whether it was in my best interest to do the show. He was a bull in a china shop."

On the program, Pellman said flatly, "When I look at that study, I don't believe it." Later, however, Pellman announced the league would begin to look into the long-term effects of concussions. "It's typical for them to say they will do their own study," says West Virginia's Bailes. Adds one of the scientists researching the long-term effects of concussions: "It has to be Elliot's idea for it to be a good idea."

In January 2005, Pellman's committee published its seventh research paper on concussions. It stated: "Return to play does not involve a significant risk of a second injury either in the same game or during the season."

Back at NYU, Barr was disappointed. "Their conclusions were totally at odds with my experience," he says. "I can't believe you could have Wayne Chrebet on your team and conclude there is no increased risk of concussions." Barr is criticizing the committee publicly now for the first time because he thinks its recommendations are dangerous. "I believe the findings of the NFL, as published, are definitely putting players at risk," he says. "The wrong message is getting out."

Wayne Chrebet's head whiplashes and smashes into the ground after he makes a six-yard catch on third and five in the fourth quarter of a tight game, Jets vs. Chargers on Nov. 6, 2005, at the Meadowlands. He has a faraway look in his eyes as he hobbles off the field. After the game, a trainer has to help him take off his uniform. A day later, the Jets put Chrebet on IR again. The injury is at least the sixth time in his NFL tenure that Chrebet has taken a blow to the head serious enough for him to miss a game.

By 2006, Chrebet will own a bar across the street from the Jets' practice field and do postgame analysis for Jets games on local cable.

But he never plays again.

PELLMAN'S COMMITTEE is up to 13 papers now, and the league continues to disregard what other researchers are finding. "If the NFL ever had to bring their practices in line with the rest of the literature, they'd have to change everything about the way they operate," says Head Games author Nowinski. "They could no longer make heroes of the guys who go back in after getting concussions. It would turn their game on its head."

Meanwhile, players risk serious, lasting head injuries each week. Last year's Wayne Chrebet is this year's Dan Morgan. The NFL has to decide how much longer it can afford to send players back into games after they've been knocked out. How much longer it wants to tell players that multiple concussions pose no threat to their future mental health. And how much longer it wants to keep relying on Elliot Pellman's research to make its calls.

Watch Outside the Lines tackle football's concussion problem on ESPN, Oct. 29 at 9:30 a.m. ET. Send your questions and comments to Peter at pkeating.nj@verizon.net.