

Pro Football

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Roethlisberger Case Stirs Debate Even After He Passes Concussion Tests

By [LEE JENKINS](#)

PITTSBURGH, Nov. 1 — For Ben Roethlisberger, the most important X's and O's are the ones highlighted on a computer screen in his doctor's office.

The image on the screen looks like a football play gone wrong. About 20 X's and O's are jumbled together in no apparent order, three of them illuminated in bright yellow.

After a few seconds, they all vanish from the screen, replaced by red circles and blue squares. Then the red circles and blue squares disappear, replaced again by the X's and O's. The computer asks the user which X's and O's had previously been highlighted in yellow.

This is a small part of the cognitive test given to every member of the [Pittsburgh Steelers](#) who sustains a concussion. Only a player whose post-concussion test results closely match his pre-concussion test results is cleared for the X's and O's of a real game plan.

Because Roethlisberger has sustained two concussions in the past five months — one from a motorcycle accident and another from a helmet-to-helmet hit — the test has become a regular part of his practice routine.

It is composed of six sections and takes about 20 minutes to complete. Different sections measure memory, speed, brain processing and visual motor skills. Users are asked to remember words, letters and shapes. They are asked to distinguish colors and numbers. They are asked to work as quickly as they can.

Results of the test are not made public, but Roethlisberger apparently is passing, because he is still the Steelers' starting quarterback.

When Bill Cowher, the Steelers' coach, was asked why Roethlisberger continued to play football this season, despite the repeated head trauma he had sustained, Cowher explained that Roethlisberger had performed sufficiently well on the test.

His performance on the field, however, has not stacked up. Roethlisberger's record this season is 1-5. He threw four interceptions last week at Oakland, an indictment of his decision-making. He looked reluctant to run, an indictment of his instincts.

If Roethlisberger had a sore shoulder or a twisted knee, it would be easy to blame his struggles on injuries. But evaluating the brain is not so simple. No one can say for sure whether concussions are playing a role in interceptions.

"That's a real hard question to answer," Cowher said. "It's all speculation."

Some of the doctors investigating this gray matter happen to work across the parking lot from the Steelers' practice field, at the University of Pittsburgh Medical Center's Center for Sports Medicine. Within the center is a sports concussion program, led by Dr. Mark Lovell, the neuropsychologist who helped develop the mind-bending test.

If Lovell had never experimented with hitchhiking when he was 18, the test might not exist. After climbing into a stranger's car one day in Grand Rapids, Mich., Lovell noticed that the driver was flanked by empty beer cans.

A couple of miles down the road, the police started following the car. A chase developed, ending with an accident. At the hospital, doctors took an X-ray of Lovell's skull. Then they sent him home. They did not know enough to treat his concussion.

"I still can't remember a lot of what happened in my senior year of high school," Lovell said. In 1998, Lovell helped introduce the Steelers to the Post-Concussion Assessment and Cognitive Test, now known by football players everywhere as ImPACT. Software for the computerized test is used by 24 teams in the National Football League, more than 250 colleges and about 1,000 high schools.

On a typical fall Monday at the Center for Sports Medicine in Pittsburgh, the test may be taken by 20 high school athletes, a couple of college football players and the Steelers' starting quarterback. Sometimes, they even share the same waiting room.

Nick Madeira, a 13-year-old quarterback at Seneca Valley Middle School who has been nursing a concussion since September, took the test for the third time Wednesday. "My dad thinks I'm just like Ben Roethlisberger," Madeira said.

Not long ago, there was no greater compliment for a budding quarterback in western Pennsylvania. Roethlisberger won 14 games in his rookie season, won the Super Bowl in his second season and had a brand of beef jerky named in his honor.

The fates have pulled even since the Super Bowl, when Roethlisberger completed fewer than half of his passes, threw two interceptions, needed a receiver to toss the key touchdown, and still wound up a champion.

"Last year we won a Super Bowl," Roethlisberger said. "I think."

The ring already looks a little rusty, and the Steelers are 2-5. Roethlisberger's motorcycle accident was followed by his appendectomy, which was followed by his concussion, which was followed by taunts from the Atlanta Falcons about the motorcycle accident.

Roethlisberger lost a running back to retirement (Jerome Bettis), a receiver to free agency (Antwaan Randle El) and now he may lose his coach to a long vacation. Cowher's contract expires after this season, and he has shown little interest in extending it.

The [Denver Broncos](#), beaten by the Steelers in last season's American Football Conference championship game, can knock them into oblivion with a victory Sunday at Heinz Field.

Those who were angry that Roethlisberger did not wear a motorcycle helmet are now enraged that he will not switch to a more protective football helmet. And those who thought he was rushed after the appendectomy think he has been abused since the concussion.

"He may have passed all the Steelers' tests," said Christopher Nowinski, a former professional wrestler and the author of "Head Games: Football's Concussion Crisis." "But the No. 1 test is throwing a football where people who haven't been concussed are trying to intercept it. I can't believe they played him. I can't believe they took that risk."

Lovell does not talk about specific patients, but he did explain how he clears an athlete coming back from a concussion. The athlete must take a magnetic resonance imaging exam, take an ImPACT test, go through cardiovascular exercise, report no symptoms and then repeat the entire process multiple times. While bones generally heal at a predictable rate, Lovell has found that brains do not. He said that some people can recover from a concussion in less than a week, while others need months. Lovell's data show that a pro football player, like Roethlisberger, tends to come back faster than a teenage football player, like Madeira.

The pro football player also tends to receive earlier treatment. After a routine practice in mid-September, Madeira said he started feeling tired and nauseated. He was sent home with the flu. A week later, he fell on his head during practice and told his mother he felt dizzy. She wondered if he had hit puberty. The next day, during his second-period class, Madeira started sobbing. This is a common symptom associated with concussions. Even 300-pound linemen, when struck in the front of the helmet, will often weep for no reason.

Madeira went to the Center for Sports Medicine on Oct. 2 and took his first ImPACT test. A 99th-percentile student, Madeira scored in the 9th percentile for reaction time. Dr. Micky Collins, who works alongside Lovell, told Madeira to cut out all physical activity and take half-days at school for two weeks. Now, Madeira is back in the 90th percentile for reaction time. Collins has cleared him to go to school and run on a treadmill at home, but he is not allowed to ride his dirt bike or play football. So Madeira watches Roethlisberger on television and hopes they can both get their heads back in the game.

"He has an excuse," Madeira said. "But when you throw four interceptions into triple coverage — there's no excuse for that."