

How a gizmo the size of a 10-cent piece could revolutionise concussion testing

February 6, 2016 - 4:23PM [Adrian Prosenko](#) Chief Rugby League Reporter

<http://www.smh.com.au/rugby-league/how-a-gizmo-the-size-of-a-10cent-piece-could-revolutionise-concussion-testing-20160206-gmndkj.html#ixzz3zRNKIQbW>

It's about the size of a 10-cent piece, features technology similar to that in a smartphone and could just be the answer to sport's concussion conundrum.

Australian franchises are beginning to follow the lead of their US counterparts by trialling the X Patch, an impact sensor that straps onto the back of player's necks to record the number and force of each collision.

The Randwick rugby club began using the technology last season, resulting in 45 players registering more than 100,000 impacts during their Shute Shield campaign.



Concerns: League legend Mario Fenech. Photo: James Brickwood

The gizmo – produced by X2 Biosystems and used in American sports, including the NFL, MLB, NHL and Major League Soccer – measures the impact of rotational and G-forces on the base of the skull via a gyroscope and accelerometer.



Dr Adrian Cohen, the former chief medical officer with the Westpac Rescue Helicopter Service and the founder of NeckSafe, believes the technology provides accurate data in a field that, to this point, is largely subjective.

"This is objective, scientific information about what is happening out on the paddock when playing and training," Cohen said of his work with the Galloping Greens.

Sensor: The device that records impacts on players. Photo: Supplied

"Muhammad Ali punched at 60g. We've recorded 180g, three times that amount in footballers.

"Interestingly, we've had players who have walked off the field and been completely OK at 180g, where all of the cognitive and baseline tests have come back normal.

"We've had other players knocked out at 40g. Everybody is different, every impact is different and the rotational component and force behind it is different.

"What we're trying to find are some generic, safe limits. Typically, 100g is considered a force enough to cause injury. It won't guarantee you have an injury, just like three beers doesn't guarantee you will blow 0.05.

"Most people will blow 0.05 and most people will be impaired when they do. But until we have the numbers we are just guessing and that's what it's been for a long time."

The concussion issue is a timely one, particularly in impact sports. Former Rabbitoh Mario Fenech has opened up about the brain injuries he sustained during his league career, while Newcastle's James McManus will sit out the year given fears for his long-term health.

Overseas, BMX icon Dave Mirra took his life amid concerns repeated concussions played a role, while the NFL will review its concussion protocols in the off-season after settling a \$US765 million lawsuit over its handling of the issue in the past.



The upcoming Hollywood movie *Concussion*, a biopic in which Will Smith portrays Dr Bennet Omalu's fight against the NFL's bid to suppress his research on brain damage suffered by footballers, will further highlight the issue.

Cohen, an expert in neck injuries who provided medical coverage during the filming of reality TV show *NRL Rookie*, hopes rugby league and other collision sports follow the lead of Randwick.

"There's so much subjectivity and guesswork around this issue and it's important to put some numbers on it," he said.

"We might end up having something like the pitch count in baseball so you know how much is too much.

"The mantra we use is if we can measure it, we can monitor it. That gives you the opportunity to make some sensible decisions."

Cohen, who is hosting a preview charity screening of *Concussion* at Bondi on February 17, is also advocating the use of the King-Devick test – in addition to the traditional SCAT3 variety – for sideline players tests.

"It's a two-minute iPad test now being used in the NFL and the NHL," he said.

