

Saliva Testing to Assist Diagnosis of Concussion in Sports Head Injuries

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The development of a highly accurate saliva test to diagnose concussion in elite male rugby players has been labelled "*game-changing*" by Professor Antonio Belli, Chief Investigator of the study SCRUM (Study of Concussion in Rugby Union through MicroRNAs).

Having previously identified that the "*... concentration of specific molecules in saliva changes rapidly after a traumatic brain injury*", the test was focussed specifically on elite rugby players to see if on-field concussion could be identified. Testing saliva is particularly suitable for pitchside assessments as it is thought to receive "*... cellular signals directly from cranial nerves in the mouth and throat, and so can rapidly register traumatic brain injury*" (British Medical Journal).

This is an exciting new development to work alongside current head injury assessment procedures to help reduce the risk of missing head injuries in sport. It starts a new chapter in assisting with the proper treatment and protection of sports participants who sustain head injuries on the field of play.

It is hoped that data for a similar test for women players can be obtained during the Premier 15s and postponed World Cup. Several additional studies are ongoing for young athletes and community sports players as the ramifications go far beyond elite rugby.

As referenced by our colleagues, Gareth McAloon and Alex Denton, in their recent disease blog 'Proposed Claim on behalf of Ex-Rugby Players with Early Onset Dementia' (see [here](#)), a lawsuit is underway against the RFU, WRU and World Rugby by ex players suffering from early onset dementia. Whilst consent to some risk of injury is implied by participation in contact sport, there remains a potential liability issue for sport's governing bodies that any injury sustained on the field of play, or resulting from subsequent sub standard care off the field, can give rise to litigation. This breakthrough study and the resulting test, which was found to be 94% accurate, goes a long way to identifying head injuries early so that all reasonable and proper treatment can be provided. As a result, the risks to current and future players that a concussive injury could be missed are dramatically reduced.

The scope of a test such as this for contact sports and beyond is, according to Dr Simon Kemp, the RFU's medical services director, "*far bigger than rugby*" and it "*sits across all head injury*".

The Premier League is conducting their own studies into dementia and, in the wider world of personal injury work, this new technology could potentially be used in circumstances where a concussive injury requires establishing. For example, as Professor Belli identified, the opportunity to diagnose brain injuries in road traffic accidents, where a large proportion go undiagnosed, "*... could potentially change the outcome for that patient.*"

The hope and expectation is that this exciting development will lead to a handheld pitchside device which will assist in quickly diagnosing concussion during a game and it is also clearly a test with the potential for much broader application leading to a safer future for all those who have sustained a head injury.

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