

MEDICAL BREAKTHROUGHS **RESEARCH SUMMARY**

TOPIC: SPIT TEST: CATCHING CONCUSSIONS AT THE GAME
REPORT: MB #4862

BACKGROUND: Concussions occur as the result of an impact or physical injury to the head. Concussions are classified as a traumatic brain injury that affects brain function and can temporarily affect balance, memory and coordination. Some concussions can result in loss of consciousness; however, most do not. Signs and symptoms of concussions can be subtle, may not show up immediately, and can last for days, weeks or even longer. The most common physical symptoms of a concussion are headache, ringing in the ears, nausea, vomiting, fatigue or drowsiness, and blurred vision. Cognitive symptoms may include confusion or feelings of brain fog, amnesia surrounding the traumatic event that caused the concussion, and dizziness or 'seeing stars'. In rare cases, a hematoma, or dangerous collection of blood, may form on the brain and squeeze the brain against the skull. Signs and symptoms of this more dangerous complication are one pupil being larger than the other, drowsiness or loss of consciousness, persistent and worsening headache, slurred speech, weakness, or numbness, unusual behavior, increasing confusion, or agitation. If any of these signs are noticed patients should be taken to an emergency department immediately.

(Source: <https://www.mayoclinic.org/diseases-conditions/concussion/symptoms-causes/syc-20355594#:~:text=A%20concussion%20is%20a%20traumatic,a%20blow%20to%20the%20head>)

DIAGNOSING: Concussions may include short-term symptoms such as headaches, dizziness, and confusion. In order to diagnose a concussion, physicians currently use symptom scales and neurocognitive tests to assess the patient. Testing may also be repeated and compared to previous tests to detect changes. The diagnostics can include clinical reaction time assessments to test for an extremely common cognitive sequelae of concussion—impaired reaction time. However, researchers are concerned about the reliability of these methods as they are subject to both patient and physician bias such as underreporting symptoms to keep an athlete in play. Symptoms may also be subtle or have delayed onset which can lead to further complications with immediate diagnosis.

(Source: <https://www.sciencedaily.com/releases/2020/11/201109132431.htm>,
https://www.physio-pedia.com/Concussion_Assessment)

NEW TECHNOLOGY: Now, a new method of diagnosing concussions is being developed in the form of a saliva test by analyzing microRNA profiles found in a patient's spit following a head trauma. Assessing the microRNA in the saliva is a non-invasive way to test for concussion without the bias and influence of a patient's feelings or motives. In a clinical study conducted by Penn State, researchers studied 538 participants across 11 clinical sites. Half of participants had a reported concussion within two weeks of the start of the trial, the other half did not, but had conditions that mimic concussion symptoms like anxiety, depression, ADHD, or chronic headaches. Using RNA sequencing to evaluate participants' samples, researchers found that the combination of saliva biomarkers and patient-reported symptoms proved to be 92.5 percent accurate in differentiating patients with and without a concussion

(Source: http://medicine.buffalo.edu/news_and_events/news/2020/12/leddy-haider-concussion-12323.html, <https://www.sciencedaily.com/releases/2020/11/201109132431.htm>)

FOR MORE INFORMATION ON THIS REPORT, PLEASE CONTACT:

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If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at mthomas@ivanhoe.com