

Research finds balance tests key in better gauging concussions

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The Florida Tech concussion research involved student-athletes from multiple sports, including lacrosse, football, soccer and basketball. Credit: Florida Institute of Technology

As professional football approaches the July start of training camps and

prep and college football programs look toward their fall seasons, new research from Florida Tech into concussions among student-athletes may have found a better way to understand the severity of these head injuries: balance tests.

In "Change in Balance Performance Predicts Neurocognitive Dysfunction and Symptom Endorsement in Concussed College Athletes," published last month in the *Archives of Clinical Neuropsychology*, Florida Tech Ph.D. students Andrew DaCosta and Andrew Crane, former Florida Tech psychology professor Frank Webbe, and university psychology associate professor Anthony LoGalbo explored the change in balance performance in relation to neurocognitive functioning or symptom endorsement among [student-athletes](#) referred for possible concussion.

The researchers found that individuals who normally have great balance but demonstrate a notable decline in balance and report balance problems exhibited poorer post-concussion neurocognitive performance, potentially suggesting a more acute [injury](#).

Additionally, the research, which involved 68 student-athletes from multiple sports including lacrosse, football, soccer and basketball, highlighted the importance of conducting pre-season or early baseline balance tests to better illuminate any changes that may appear in post-concussion testing.

"What our research lends some credence to is without a baseline balance assessment, you would have less information when you're making clinical decisions about a person having a concussion after their evaluation," DaCosta said.

DaCosta said the research began with considering balance from a recovery perspective, which led to them looking at balance changes

overall, rather than just after a concussion. The research team noticed that those athletes with more pronounced balance changes were having worse outcomes in the acute phase, something that was previously overlooked as researchers analyzed symptoms and problems with memory and [reaction time](#).

They also found that athletes having poor balance after an injury did not always suggest that they had a worse [concussion](#). When athletes didn't report balance issues during baseline testing but nevertheless had trouble balancing both before and after an injury, the researchers suggested that the [athlete](#) likely had poor balance normally, as can be the case in taller athletes, for example, due to their higher center of gravity. For this reason, assessing a change in balance before and after an injury appears to be more informative than simply measuring [balance](#) after an injury occurs.

More information: Andrew DaCosta et al. Change in Balance Performance Predicts Neurocognitive Dysfunction and Symptom Endorsement in Concussed College Athletes, *Archives of Clinical Neuropsychology* (2020). [DOI: 10.1093/arclin/acia031](https://doi.org/10.1093/arclin/acia031)

Provided by Florida Institute of Technology

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