

Better detection of concussion in young football players

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Researcher Christian Duval, PhD, and his team have developed a new, simple and non-invasive approach to create a biomechanical and cognitive profile of football players and more quickly and accurately detect concussions in these individuals. Christian Duval and his post-doctoral student Hung Nguyen, PhD, work at the Research Centre of the Institut universitaire de gériatrie de Montréal, which is affiliated with the University of Montreal. They presented their preliminary research findings at the International Congress on Sport Sciences Research and Technology Support, which was held in Lisbon from November 15 to 17.

For their study, Christian Duval's team performed a dual-task assessment using simultaneous biomechanical and [cognitive tests](#) to evaluate the players every week. Thanks to a markerless motion capture system, this approach let them establish a unique profile for each person in just seven minutes and detect signs of concussion in a player before the medical team could. Developing such a fast and effective test is critical, as repeated impact on the young brain over time leaves damage similar to that caused by dementia.

"We had the players walk while avoiding obstacles and while executing cognitive tasks. The combination of these two results established each individual's personal signature. Our measurements let us quickly detect concussion symptoms that could go unnoticed by health care professionals or by the young athletes themselves. The test we developed also simulates game situations, because in football, players are stimulated

both physically and intellectually," explained Christian Duval.

In a sport in which many concussions go undetected, this approach could help [health care professionals](#) to not only better detect these brain injuries but also systematically monitor all [players](#) during the season to detect or monitor those who sustain a concussion to determine when they are ready to get back out on the field.

Provided by University of Montreal

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