

Study: Impact of concussions reduced in children with more years of sport experience

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More years in sports—not less—may help protect the brains of children who have had a concussion, against future concussions, a new study says.

Research from York University's Faculty of Health found that children who have played in a performance sport for at least seven years, and have a history of [concussion](#), recover better from concussions than children who have fewer years in the sport. Their years in the sport may give them more skill-related motor "reserve" that helps them to get back to the level they were playing at previously.

"Our results suggest there's an advantage to staying with skilled activity to the point where your brain can maintain performance even when it's still being affected in subtle ways by a past injury," says senior author, Lauren Sergio, professor in the School of Kinesiology and Health Science and Centre for Vision Research at York University. "This performance may be protective and would reduce vulnerability to another concussion when playing with non-concussed peers."

Sergio and her former postdoctoral student and lead author, Marc Dalecki, now an assistant professor in the School of Kinesiology at Louisiana State University, along with co-author Alison Macpherson, professor in York's School of Kinesiology & Health Science, examined factors that may influence performance recovery after a concussion.

"The findings of this study are important because it demonstrates that athletes with more years of experience return to pre-concussion levels

more quickly than inexperienced athletes," says Macpherson. "This can be one factor to help guide decisions about returning athletes to play."

Their study looked at 126 youth, aged eight to 17 years old, 64 with a history of concussion and 62 without, over a two-year period from 2013 to 2015. Participants, parents, team managers, and coaches were interviewed in order to obtain detailed information about the concussion history. All concussion history participants were defined as "asymptomatic" in accordance with current return-to-play protocol guidelines at the time of testing. Participants were asked to perform two visuomotor tasks over 20 trials that required sliding the index finger of the dominant hand along a dual-touch screen laptop, with touch screens in the vertical and horizontal planes.

In the first condition, they moved their hand on the vertical screen in the same direction as the target on the screen. In the second condition, participants had to slide their finger along the horizontal touch screen in the opposite direction of a presented target on the screen. In other words, in order to move the cursor to the left, they had to slide their finger to the right. This type of condition is similar to passing a hockey puck to a teammate on the left while skating to the right.

Researchers found youth with a concussion history with seven or more years of sport experience and higher levels of eye-limb coordination-related sport experience had quicker motor skill recovery times (around 12 months) compared to their peers with less than six years of sport experience (around 30 months or two seasons later). They found no differences in these results when factoring sex or age.

The study is published in the *European Journal of Sport Science*.

More information: Marc Dalecki et al, Sport experience is correlated with complex motor skill recovery in youth following concussion,

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