

Pediatric Concussion Assessment of Rest and Exertion (PedCARE); a RCT

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Lay Summary

Concussion is an injury to the brain resulting from a blow to or shaking of the head. Concussion rates in children have quadrupled since 2003, with approximately 30,000 doctor visits/year in Ontario. Children are at higher risk of sustaining a concussion than adults and take longer to recover.

Physical symptoms (headache, nausea, dizziness), memory and concentration problems, and emotional/behaviour changes are very common following a concussion. Disturbingly, one-third of children who sustain a concussion go on to experience these symptoms for months, and some even for years. When symptoms last at least one month, it is known as Persistent Postconcussion Symptoms (PCS). PCS has tremendous negative effects on quality of life. PCS can affect school attendance and performance, and reduce social contact with friends and peers due to removal from sports and recreational activities. In teens, PCS may increase the risk for drug and alcohol abuse, and may increase the risk for long-term mental health problems and suicide.

In the hope of preventing PCS, current concussion management calls for both physical and mental rest. Mental rest involves limiting school and homework, reading, and screen time (TV, video games, etc.), followed by a step-wise return to school. Physical rest protocols prescribe strict physical rest until children are fully symptom-free, followed by a step-wise return to physical activities. Since symptoms often take weeks to months to resolve, many children are therefore restricted from any physical activities, even walking which can result in social isolation and sensory deprivation.

Recent research suggests that too much rest may in fact delay the brain's recovery.

Restarting physical activity early has proven physical and mental benefits in many other conditions such as stroke (a severe brain injury). Although this may also be true for concussion, it has not yet been studied.

Research is urgently needed to determine the ideal balance of physical rest and exertion. We will examine whether restarting exercise (beginning with a walking program) at three days following a concussion is associated with better recovery compared to current protocols. We believe that earlier physical activity in children following concussion may reduce the risk of PCS. It may also result in better quality of life, and a successful return to school and sports performance. Physicians everywhere can use the results to ensure that children receive the best care for concussion, and children can get back to doing the things they need, want and love to do.