

What is a concussion?

A concussion is an injury to the brain that results in temporary loss of normal brain function. A concussion is diagnosed when symptoms, such as headache, dizziness, and/or confusion, occur after a blow to the head or body.

How do experts know when a child has recovered from concussion?

A child is considered to be recovered from concussion when behavior returns to “normal” for him or her. Specifically, a child is recovered when symptoms of concussion are no longer observed and the child’s performance on tests of thinking skills, balance, and motor speed is in the range we expect the child would have performed if he or she had not had a concussion.

However, this outward recovery from concussion does not tell us how the brain is working. When a child’s behavior returns to normal after concussion, we don’t know if that is because the brain has returned to pre-concussion functioning or if the brain is working harder or differently than it was prior to concussion.

Is it possible to know if a child will have more problems after a 2nd, 3rd, or 4th concussion?

Some children with a prior history of concussion have more severe or longer-lasting symptoms with a subsequent concussion, while others do not. In addition, little is known about risk factors for later-appearing problems after repeated concussion, such as has been reported for former NFL players.

Currently, the best way to predict an individual child’s response to a future concussion is to carefully consider the child’s previous experience with concussions, including how severe the symptoms were and how long they lasted after each concussion. However, if we can develop a way to directly assess brain functioning after apparent recovery from a concussion, this may help us better understand which children are at risk for having more problems in the future related to concussion.

What can be done to improve knowledge about recovery from concussion?

At Kennedy Krieger Institute, we are conducting research to evaluate the use of functional magnetic resonance imaging (MRI, does not involve radiation) to directly evaluate how the brain works in children who have recovered from concussion. We want to see if brain functioning is different in children who have recovered from concussion compared to children who have never had a concussion. We also want to know if behavioral measures can tell us as much as a direct measure of brain functioning.

We are examining brain functioning three times over one year in children who recently recovered from a concussion and, for comparison purposes, in children who have never had a concussion. This way we will be able to understand whether/how brain function changes over time after concussion.

How can you help?

We cannot do this critical research without the help of children who have never had a concussion! We are looking for children aged 10-17 years old who have never had a concussion to participate in this research. We would love the opportunity to tell you more about the study. You can contact us at 443-923-7987 or BRAINNY@kennedykrieger.org.

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