



Dr. Andrea Kuldaneck is the Medical Director of the Pediatric Brain Injury Program and past Chief of Staff of Mary Free Bed Rehabilitation Hospital. In addition, she is the Medical Director of Hope Network Rehabilitation Services of Big Rapids. Dr. Kuldaneck is double board certified in Pediatrics and Physical Medicine and Rehabilitation.

Ask the Experts

about Pediatric Concussions

What is a concussion? How is it different from a brain injury?

A concussion injury results from a forceful blow to the head & neck. This can cause a disruption in brain metabolism & injury to the muscles of the head & neck producing a range of symptoms affecting thinking, emotional well being & physical comfort. Sports, car accidents, falls, bike accidents or physical assault, including child abuse, can cause a concussion injury.

If my child did not lose consciousness, does that mean that my child did not have a concussion or brain injury?

No. It is possible to not lose consciousness at all and still have concussion injury or mild brain injury resulting in disruption of brain metabolism that can cause a cluster of cognitive, emotional and physical symptoms.

My child plays sports and sometimes the style of play is pretty rough. Accidents happen. People bump heads, run into each other, fall, etc. How would I know if my child had a concussion from a hit in sports?

Possible signs include:

- Appears dazed
- Is confused about activity or play preceding the hit
- Moves clumsily
- Answers questions slowly
- Personality or behavior changes
- Difficulty remembering activity leading up to the hit
- Difficulty remembering activity right after the hit
- Loss of consciousness

Are there medical tests that would show that my child had a concussion?

CT scans and MRI scans of the brain often show no hard evidence of this kind of injury to the brain. But that does not mean the brain was not injured. The metabolic system of the brain can be disrupted by this sort of injury and may require several weeks to recover

Can you explain more about this cluster of cognitive, emotional and physical symptoms?

Following concussion, the child may not have all of these symptoms, but may experience a combination of symptoms.

Physical symptoms:

- Headache
- Nausea or vomiting
- Feeling dizzy
- Excessive sleepiness or being harder to wake than usual
- Fatigue or weakness
- Complaints about blurred or double vision or other changes in eye movement
- Hypersensitivity to sound & light
- Ringing in the ears or difficulty hearing
- Difficulty with balance that you didn't notice before

Cognitive symptoms:

- Changes in memory (losing details, forgetting to do things)
- Confusion
- Mental fatigue
- Changes in performance at school
- New difficulty concentrating or staying with a task
- Having trouble finding the words to express him or herself or talking much more than is characteristic of him/her
- Change in personality



Dr. Rush received his medical degree at Temple University in Philadelphia. He completed a combined residency in pediatrics and physical medicine & rehabilitation at Albert Einstein Medical Center & Temple University. Dr. Rush served as chief resident at Temple, and completed a fellowship in gait and motion analysis at Moss Rehab. He is double board certified in pediatric medicine and physical medicine & rehabilitation. He joins long-time pediatric rehabilitation specialist, Andrea Kuldaneck, MD in her practice at Rehabilitation Medicine Associates, PLLC.

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Ask the Experts

about Pediatric Concussions *continued*

Emotional symptoms:

- Irritability
- Depression
- Anxiety
- Change in personality

These symptoms may not always be evident right away. It is common to be sent home after being seen in the emergency room with instructions to monitor for onset of any of the above symptoms. They may last for days, weeks or longer. A good rule of thumb to follow is to report any changes in your child's behavior. Evaluation by a children's rehabilitation specialist may be indicated – especially if the symptoms last longer than 3 or 4 days.

How soon can my child return to school?

It is generally safe to have your child slowly return to normal activities, including school, as long as you monitor closely for the symptoms above. It is a good idea to alert the teacher that the child has sustained a blow to the head and that you are monitoring for any changes in the way he or she behaves or performs at school. If the teacher notices changes or symptoms described above, it may be appropriate to involve specialists to evaluate the impact of these symptoms on the child's ability to learn and to identify ways to best help your child function successfully in school.

What about returning to sports?

- This decision will require close collaboration with the physician.
- Current guidelines recommend restriction from sports play while any symptoms are present. The child should be taken out of play for the day & evaluated by his/her physician.
- Return to sports play is determined by several factors including grade or severity of the concussion, whether the individual has had any previous concussions, and whether a sufficient period of time without any symptoms at rest or with exertion has been achieved, the nature of the activity, and whether symptoms return once the activity is resumed.
- Return to contact sports involving an aggressive, competitive style of play poses more risk than those same sports played for recreation and enjoyment.
- After being symptom free, a graduated progression of activity is recommended while continually monitoring closely for return of any symptoms.
- If symptoms return, activity must be reduced again.
- Close collaboration with the physician before and during return to physical activity and sports is very important.

If my child has had a concussion, is he more at risk for this type of injury than someone who hasn't had a concussion before?

According to *The Journal of the American Medical Association*, two or more concussion injuries during contact sports can affect an athlete's thinking and learning abilities for years to come. After you have had one concussion injury, every subsequent concussion injury puts you at risk for more severe problems.