

ESC Concussion Document

A concussion is a type of traumatic brain injury—or TBI—caused by a bump, blow, or jolt to the head or by a hit to the body that causes the head and brain to move rapidly back and forth. This sudden movement can cause the brain to bounce around or twist in the skull, creating chemical changes in the brain and sometimes stretching and damaging brain cells.

Concussions Are Serious

Medical providers may describe a concussion as a “mild” brain injury because concussions are usually not life-threatening. Even so, the effects of a concussion can be serious.

Children and teens who show or report one or more of the signs and symptoms listed below, or simply say they just “don’t feel right” after a bump, blow, or jolt to the head or body, may have a concussion or more serious brain injury.

Concussion Signs Observed

- Can’t recall events *prior to* or *after* a hit or fall.
- Appears dazed or stunned.
- Forgets an instruction, is confused about an assignment or position, or is unsure of the game, score, or opponent.
- Moves clumsily.
- Answers questions slowly.
- Loses consciousness (*even briefly*).
- Shows mood, behavior, or personality changes.

Concussion Symptoms Reported

- Headache or “pressure” in head.
- Nausea or vomiting.
- Balance problems or dizziness, or double or blurry vision.
- Bothered by light or noise.
- Feeling sluggish, hazy, foggy, or groggy.
- Confusion, or concentration or memory problems.
- Just not “feeling right,” or “feeling down”.

Signs and symptoms generally show up soon after the injury. However, you may not know how serious the injury is at first and some symptoms may not show up for hours or days. For example, in the first few minutes your child or teen might be a little confused or a bit dazed, but an hour later your child might not be able to remember how he or she got hurt.

You should continue to check for signs of concussion right after the injury and a few days after the injury. If your child or teen's concussion signs or symptoms get worse, you should take him or her to the emergency department right away.

Information for Parents

A child or teen with a concussion needs to be seen by a medical provider. If you think your child or teen has a concussion, contact his or her health care professional.



If the concussion happens while playing sports, you should also:

1. Remove the child from play.
2. Keep the child out of play the day of the injury and until a medical provider, experienced in evaluating for concussion, says he or she is symptom-free and it's OK to return to play.

Children or teens who return to play too soon—while the brain is still healing—risk a greater chance of having a repeat concussion. Repeat or later concussions can be very serious. They can cause permanent brain damage, affecting your child for a lifetime.

Seek Medical Care

Most kids and teens who have a concussion are treated in the emergency department or a medical office and get to go home. Through telemedicine or telehealth services, patients may get checked for concussion symptoms and get recovery tips without needing to travel to a medical office or hospital. You may consider using telemedicine or telehealth services if you are unable to visit a healthcare provider in person. Telemedicine and telehealth services external icon connect patients and their healthcare providers through a phone or video chat. Your healthcare provider can identify whether these services are available to you.

Patients experiencing concussion danger signs should seek care right away at an emergency department. When the injury is more serious, your child or teen may need to stay in the hospital overnight.

WHAT TO TELL THE MEDICAL PROVIDER

Be sure to tell the medical provider if your child or teen is taking medications—prescription, over-the-counter medicines, or “natural remedies.” When possible, also write down and share the following information:

- Cause of the injury and force of the hit or blow to the head or body
- Any loss of consciousness (passed out/knocked out) and if so, for how long
- Any memory loss right after the injury
- Any seizures right after the injury
- Number of previous concussions (if any)

TESTS FOR CONCUSSION & BRAIN INJURY

Your child or teen’s medical provider may do a scan of his or her brain (such as a CT scan) to look for signs of a more serious brain injury. Other tests such as “neuropsychological” or “neurocognitive” tests may also be performed. These tests help assess your child or teen’s learning and memory skills, the ability to pay attention or concentrate, and how quickly he or she can think and solve problems. These tests can help the child’s medical provider identify the effects of the concussion.

GET WRITTEN CONCUSSION CARE INSTRUCTIONS

Ask for written instructions from the young athlete's health care provider on return to play. These instructions should include information about when they can return to play and what steps you should take to help them safely return to play. Before returning to play an athlete should:

- Be back to doing their regular school activities.
- Not have any symptoms from the injury when doing normal activities.
- Have the green-light from their health care provider to begin the return to play process.

Information for Coaches

If you think an athlete has a concussion, implement the HEADS UP Action Plan:

HEADS UP Action Plan

Remove from Play



Remove the young athlete from play. When in doubt, sit them out!

Seek Medical Attention



Keep a young athlete with a possible concussion out of play the same day of the injury and until cleared by a health care provider. Do not try to judge the severity of the injury yourself. Only a health care provider should assess a young athlete for a possible concussion. After you remove a young athlete with a possible concussion from practice or play, the decision about return to practice or play is a

medical decision that should be made by a health care provider. As a coach, recording the following information can help a health care provider in assessing the young athlete after the injury:

- Cause of the injury and force of the hit or blow to the head or body
- Any loss of consciousness (passed out/knocked out) and if so, for how long
- Any memory loss right after the injury
- Any seizures right after the injury
- Number of previous concussions (if any)

Inform and Educate Parents



Inform the young athlete's parent(s) about the possible concussion, and give them the HEADS UP fact sheet for parents. This fact sheet can help parents watch the young athlete for concussion signs or symptoms that may show up or get worse once the young athlete is at home or returns to school.

Get Written Concussion Care Instructions



Ask for written instructions from the young athlete's health care provider on return to play. These instructions should include information about when they can return to play and what steps you should take to help them safely return to play. Before returning to play an athlete should:

- Be back to doing their regular school activities.
- Not have any symptoms from the injury when doing normal activities.

- Have the green-light from their health care provider to begin the return to play process.

Baseline Testing

Baseline testing is a pre-season exam conducted by a trained health care professional. Baseline tests are used to assess an athlete's balance and brain function as well as the presence of any concussion symptoms. Results from baseline tests (or pre-injury tests) can be used and compared to a similar exam conducted by a health care professional during the season if an athlete has a suspected concussion.

Concussion Danger Signs

In rare cases, a dangerous collection of blood (hematoma) may form on the brain after a bump, blow, or jolt to the head or body that may squeeze the brain against the skull. Call 9-1-1 right away, or take your child or teen to the emergency department if he or she has one or more of the following danger signs after a bump, blow, or jolt to the head or body:

Dangerous Signs & Symptoms of a Concussion

- One pupil larger than the other.
- Drowsiness or inability to wake up.
- A headache that gets worse and does not go away.
- Slurred speech, weakness, numbness, or decreased coordination.
- Repeated vomiting or nausea, convulsions or seizures (shaking or twitching).
- Unusual behavior, increased confusion, restlessness, or agitation.
- Loss of consciousness (passed out/knocked out). Even a brief loss of consciousness should be taken seriously.

Dangerous Signs & Symptoms of a Concussion for Toddlers and Infants

- Any of the signs and symptoms listed in the Danger Signs & Symptoms of a Concussion list.
- Will not stop crying and cannot be consoled.
- Will not nurse or eat.

Severe Brain Injury

Long-Term Effects

A person with a severe brain injury will need to be hospitalized and may have long-term problems affecting things such as:

- Thinking
- Memory
- Learning
- Coordination and balance
- Speech, hearing or vision
- Emotions

A severe brain injury can affect all aspects of people's lives, including relationships with family and friends, as well as their ability to work or be employed, do household chores, drive, and/or do other normal daily activities.

Recovery from Concussion

Most children with a concussion feel better within a couple of weeks. However for some, symptoms will last for a month or longer. Concussion symptoms may appear during the normal healing process or as your child gets back to their regular activities. If there are any symptoms that concern you or are getting worse, be sure to seek medical care as soon as possible.

What Steps Should My Child Take to Feel Better?

Making short-term changes to your child's daily activities can help him or her get back to a regular routine more quickly. As your child begins to feel better, you can slowly remove these changes. Use your child's symptoms to guide return to normal activities. If your child's symptoms do not worsen during an activity then this activity is OK for them. If symptoms worsen, your child should cut back on how much he or she can do that activity without experiencing symptoms. It is

important to remember that each concussion and each child is unique, so your child's recovery should be customized based on his or her symptoms.

Recovery Delays

Factors that might delay recovery include your child having:

- a history of a previous concussion or other brain injury,
- neurological or mental health disorders,
- learning difficulties, and/or
- family and social stressors.

1. Rest

Your child should take it easy the first few days after the injury when symptoms are more severe.

- Early on, limit physical and thinking/remembering activities to avoid symptoms getting worse.
- Avoid activities that put your child at risk for another injury to the head and brain.
- Get a good night's sleep and take naps during the day as needed.

2. Light Activity

As your child starts to feel better, gradually return to regular (non-strenuous) activities.

- Find relaxing activities at home. Avoid activities that put your child at risk for another injury to the head and brain.
- Return to school gradually. If symptoms do not worsen during an activity, then this activity is OK for your child. If symptoms worsen, cut back on that activity until it is tolerated.
- Get maximum nighttime sleep. (Avoid screen time and loud music before bed, sleep in a dark room, and keep to a fixed bedtime and wake up schedule.)
- Reduce daytime naps or return to a regular daytime nap schedule (as appropriate for their age).

3. Moderate Activity

When symptoms are mild and nearly gone, your child can return to most regular activities.

- Help your child take breaks only if concussion symptoms worsen.
- Return to a regular school schedule.

4. Back to Regular Activity

Recovery from a concussion is when your child is able to do all of their regular activities without experiencing any symptoms.

Also, be sure to:

- Schedule a follow up appointment for your child's doctor or nurse.
- Ask your child's doctor or nurse about safe over-the-counter or prescription medications to help with symptoms (e.g., Ibuprofen or acetaminophen for headache).
- Limit the number of soft drinks or caffeinated items to help your child rest.

Post-Concussive Syndrome

While most children and teens with a concussion feel better within a couple of weeks, some will have symptoms for months or longer. Talk with your children's or teens' health care provider if their concussion symptoms do not go away or if they get worse after they return to their regular activities.

If your child or teen has concussion symptoms that last weeks to months after the injury, their medical provider may talk to you about post-concussive syndrome. While rare after only one concussion, post-concussive syndrome is believed to occur most commonly in patients with a history of multiple concussions.

There are many people who can help you and your family as your child or teen recovers. You do not have to do it alone. Keep talking with your medical provider, family members, and loved ones about how your child or teen is feeling. If you do not think he or she is getting better, tell your medical provider.

Returning to Sports and Activities

After a concussion, an athlete should only return to sports practices with the approval and under the supervision of their health care provider. When available, be sure to also work closely with your team's certified athletic trainer.

Below are six gradual steps that you, along with a health care provider, should follow to help safely return an athlete to play. Remember, this is a gradual process. These steps should not be completed in one day, but instead over days, weeks, or months.



6-Step Return to Play Progression

It is important for an athlete's parent(s) and coach(es) to watch for concussion symptoms after each day's return to play progression activity. An athlete should only move to the next step if they do not have any new symptoms at the current step. If an athlete's symptoms come back or if he or she gets new symptoms, this is a sign that the athlete is pushing too hard. The athlete should stop these activities and the athlete's medical provider should be contacted. After more rest and no concussion symptoms, the athlete can start at the previous step.

Step 1: Back to regular activities (such as school)

Athlete is back to their regular activities (such as school) and has the green-light

from their healthcare provider to begin the return to play process. An athlete's return to regular activities involves a stepwise process. It starts with a few days of rest (2-3 days) and is followed by light activity (such as short walks) and moderate activity (such as riding a stationary bike) that do not worsen symptoms. You can learn more about the steps to return to regular activities at: https://www.cdc.gov/headsup/basics/concussion_recovery.html.

Step 2: Light aerobic activity

Begin with light aerobic exercise only to increase an athlete's heart rate. This means about 5 to 10 minutes on an exercise bike, walking, or light jogging. No weight lifting at this point.

Step 3: Moderate activity

Continue with activities to increase an athlete's heart rate with body or head movement. This includes moderate jogging, brief running, moderate-intensity stationary biking, moderate-intensity weightlifting (less time and/or less weight from their typical routine).

Step 4: Heavy, non-contact activity

Add heavy non-contact physical activity, such as sprinting/running, high-intensity stationary biking, regular weightlifting routine, non-contact sport-specific drills (in 3 planes of movement).

Step 5: Practice & full contact

Young athlete may return to practice and full contact (if appropriate for the sport) in controlled practice.

Step 6: Competition

Young athlete may return to competition.