

# Concussion Recovery Book for Families



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# What is a concussion?

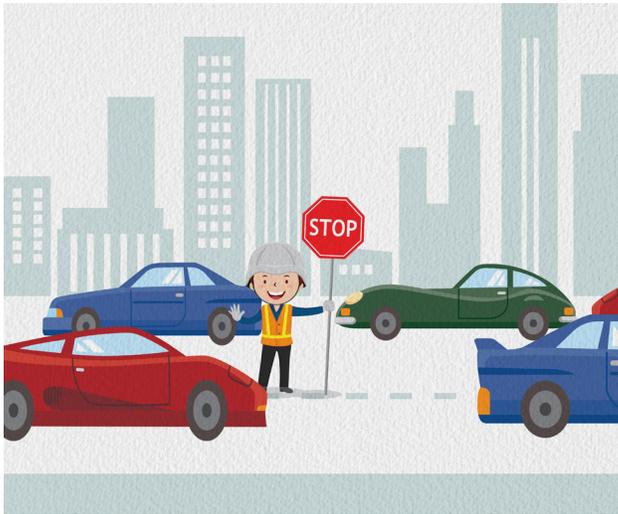
When you think of a brain injury, you may think of a skull fracture or a brain bruise. But not all brain injuries have signs you can see on the head — or on a scan. Even without any visible injury, the brain “network” can be injured, and this is called a *concussion*.

A concussion can happen after just a little bit of trauma — like heading a soccer ball — or after any kind of more serious injury to the head. A concussion happens when the brain suffers an impact.

## *The brain is like a big city*

Think of the brain as a huge city with a network of streets running north and south, east and west, and every direction in between. The streets intersect, and thousands of cars are moving all about to get to places in the city, delivering important messages.

When a concussion happens, roadblocks go up on some of the streets. Streetlights get stuck on red. Traffic has been disrupted, and now cars can't get to where they need to go. The important messages for controlling the mind and body stop being delivered, or they arrive very late.



How do we get traffic moving again? That's where you come in. The family plays the most important role in helping a child recover from a concussion. Think of yourself as the traffic director for the brain.

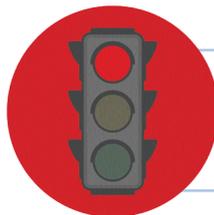
This book will help you understand how your child's brain heals from a concussion and what you can do to help your child get the green light to move on. With the right care, your child will get better.

# How the brain works

Much like moving all those cars in the big city takes a lot of gas, completing all the tasks the brain is responsible for takes a lot of energy. In fact, the brain uses about 25 percent of the body's energy.

The majority of the brain's energy goes to carrying messages, or signals, along the roadways in the brain so you can think and do. It also takes energy to maintain a healthy environment in the brain.

After a concussion, the brain uses even more energy because it has to both repair the damage and keep functioning. Think of it like cars stuck at a red light. They are sitting, using up gas as they wait for the road crew to get the traffic lights working again.



In the weeks following a concussion, your child's energy needs to be focused on healing the brain. We'll talk about this in more detail later in the book.

# Diagnosing a concussion

Usually, the only way doctors can tell someone has a concussion is how they feel and act. Concussions do not show up on an MRI or a CT scan. A scan shows the big picture — like a bird's-eye view of a city. From high above skyscrapers, you can't see the traffic jams and roadblocks. Traffic appears to be moving smoothly. If you drop down to street view, it's a different story. You can see the traffic jams.



*From high above the city, you can't tell there are traffic jams.*

With a concussion, we have to rely on the story of what happened and how the person feels. Sometimes a person will have symptoms right away; sometimes it takes a few days or weeks.



## The brain can tell us it is injured in four ways:

- **Physically** (how the body feels)
- **Cognitively** (how well the person can think)
- **Emotionally** (the types of feelings a patient has and how those feelings affect behavior)
- **Through sleep** (whether there are changes in sleep patterns)



### *Physical*

- Headache
- Nausea and/or vomiting
- Sensitivity to light and/or noise
- Vision problems
- Fatigue
- Dazed or stunned
- Dizzy or trouble staying balanced



### *Cognitive*

- Feeling mentally “foggy”
- Slow thinking
- Slow to answer questions
- Difficulty concentrating
- Repeating things
- School performance gets worse



### *Feelings*

- Irritable
- Sad or depressed
- Changes in personality
- Anxious
- More or less emotional than usual

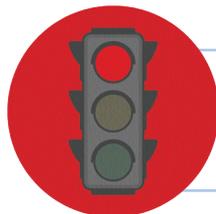


### *Sleep*

- Drowsy
- Sleeping more or less than usual
- Trouble falling asleep
- Trouble staying asleep

You must pay close attention to your child during his or her recovery in order to see if symptoms are improving. Keep track of symptoms and how they change over time.

If symptoms are getting better, we can assume your child’s brain is healing. If they are staying the same, we can assume your child’s brain is not getting better. And if they are getting worse, we can assume the brain injury also is getting worse.



Pay close attention to your child during his or her recovery in order to see if symptoms are improving.

# Healing a concussion

Healing a concussion requires a careful balance between doing *too much activity* and doing *too little activity*.

Why does it matter? Because activity takes energy. We learned the brain needs a lot of energy to work and heal. If an injured brain does not get **all** of the energy it needs to heal, then brain cells will suffer and some cells may die.

## Watching signals to heal the brain



### Unbalanced

The brain  
An energy-hungry organ



Day-to-day activities  
The whole body needs energy; more activities = more energy



Energy  
Energy available to the brain is “stolen” by other parts of the body so the brain does not get what it needs to heal, causing more damage — or death — to brain cells



Effect on the brain  
Return, or worsening, of symptoms

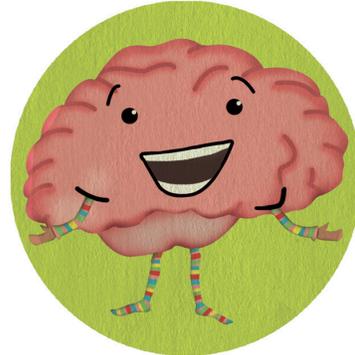


### Balanced

The brain  
An energy-hungry organ



Day-to-day activities  
Limited activities = more energy for the brain

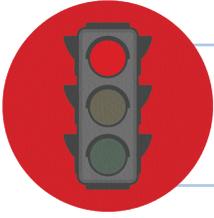


Energy  
The brain gets the right supply of energy to heal



Effect on the brain  
Improvement, or disappearance, of symptoms

You must carefully limit your child's daily *physical* and *cognitive* activities so that the brain gets the energy it needs to heal rather than being spent on other activities.



Too much activity too soon and the brain suffers. Too little activity too late, and the brain suffers. The right amount of activity at the right time will heal the brain.

Some physical and cognitive activities are good for healing — they can speed healing of damaged cells, improve mood and help body aches get better. Your child also needs to spend time doing activities he or she likes, such as seeing friends. Without these familiar situations, kids can become depressed and unmotivated.

## Parents' and caregivers' role as traffic director

The most common question we get from parents and family members is, "How do I know what is the right amount of activity at the right time?" Unfortunately, there's no magic answer.

To help you manage your child's activity level, keep an eye on three things:

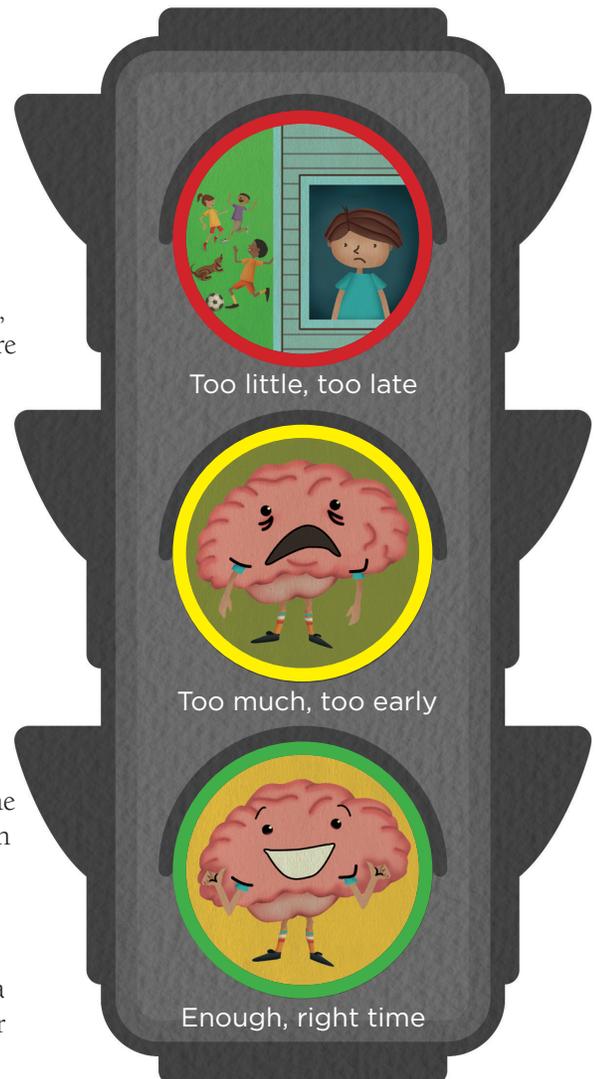
1. **Symptoms:** What symptoms is your child having? Are they getting better, staying the same or getting worse? If symptoms are not getting better or are getting worse, reduce activity level.
2. **Activity level:** Some activity is good, so keeping your child in bed in a dark room for two weeks is not a good idea. Carefully reducing the level of physical and cognitive activities until you see improvement is the most important thing you can do to help your child heal.

As symptoms improve, gradually increase the level of activity. Because symptoms need to be carefully monitored so that activity level can be adjusted, the third important thing to keep in mind is your child's situation.

3. **Situation:** While recovering from a concussion, your child needs to have someone making sure their activity level is not too heavy or too light. If the activity level is too intense and no one notices your child's symptoms, then further brain injury will occur.

Playing video games or competitive sports are examples of situations where a child cannot pay attention to symptoms. A busy classroom where the teacher or school administrators are not aware of your child's brain injury is an example of a situation in which symptoms are not monitored.

A worsening headache or becoming distracted are symptoms of brain injury but also could be seen as an uninterested student to an adult who does not know about the injury. These situations must be avoided in order to help your child heal.



# Things to look for in your child

- Headache
- Nausea and/or vomiting
- Sensitivity to light and/or noise
- Vision problems
- Dizzy or trouble staying balanced
- Mentally “foggy” or thinking slowly
- Difficulty concentrating
- Repeating things
- School performance gets worse
- Irritable
- Sad or depressed
- Anxious
- More or less emotional than usual
- Drowsy or fatigued
- Sleeping more or less than usual
- Trouble falling asleep or staying asleep



# Daily activities

Physical activities can be broken up into daily activities — what your child needs to do to get through the day — and athletic or play activities. To help you make decisions about levels of activity, common sense is usually a good guide.

## Athletic and play activities

### Activities of daily living

#### Heavy

Heavy yard work (pulling weeds, raking)  
Climbing stairs  
Shoveling snow

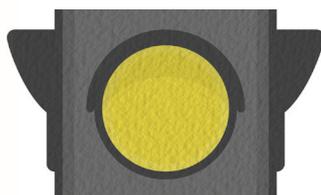


#### Heavy

All ball sports  
Running (middle and long distance)  
Sprinting  
High-intensity aerobics  
Gymnastics  
Swimming (breast stroke and freestyle)  
Jumping rope

#### Medium

Getting dressed for school  
Taking a bath/shower  
Taking care of a pet  
Light yard work (picking up sticks)  
Walking quickly  
Making bed  
Doing household chores



#### Medium

Golf  
Medium-intensity aerobics  
Playing with other kids  
Walking uphill  
Cycling on level road  
Pushups  
Dancing

#### Light

Sleeping  
Lying down, resting  
Sitting  
Standing  
Walking slowly



#### Light

Sitting, playing with toy  
Playing cards  
Playing musical instrument  
Standing at practice  
Abdominal exercises  
Low-intensity aerobics

### Cognitive activities

These are things like **social interactions** — maintaining good behavior around other people — and completing tasks that require a lot of **thinking**, like complicated schoolwork. Also, **focusing** on cognitive tasks takes a considerable amount of energy. The longer your child spends focusing, the more energy he or she is using.

#### Cognitive activity level

Social interactions

Thinking tasks

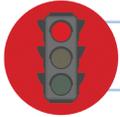
Focus

# The good and bad about watching TV

Watching TV is OK in small amounts but poses two problems: First, sitting around watching TV does not help the brain heal. Things that do help the brain heal are going for a slow walk or light household chores. Second, when kids watch TV they tend to forget about things going on around them, like a worsening headache or mental cloudiness. As with children who have not had a brain injury, TV use should be infrequent and limited.

## What about video games and mobile devices?

Playing video games and certain mobile apps use a large amount of cognitive energy and should not be allowed until late in the recovery process. Ask your doctor when your child can begin playing video games and using mobile devices.



While the brain is healing, it can be injured again much more easily.

## Getting traffic moving again

Because every injury is different and every child heals at a different speed, we can't put an exact timeline on when your child can get back to his or her normal level of activities.



Just because your child does not have symptoms, does not mean the brain is fully healed. As a result, we are very cautious about when to let a child go back to normal activities.

While your child will need a physician's approval before going back to contact and competitive sports, it's your job to get your child to the point where this is a possibility. It's up to you to decide how much activity is right for your child and when he or she is ready to increase activity levels. A helpful way to understand this process can come from what we call "circle talk."



# Getting the green light to move on

Early in your child's healing process, when activities are most restricted, your family may be the only ones aware of your child's concussion.

As your child is able to go back to school, play sports and do other activities, it is very important for you to meet with teachers, school administrators, athletic coaches and others involved with your child's activities to make them aware that your child is still healing.

Discuss the following topics with these individuals:

- What **symptoms** your child has been experiencing and what to look for that means symptoms are getting worse.
- What physical and cognitive activities your child **currently can and cannot do**.
- **What to do** if your child's symptoms start to worsen.

It might help you to track your child's activities and symptoms so you can see how he or she is progressing (or not progressing) over time. Keeping a log or journal can help you decide if you need to increase or decrease your child's activity levels. It also will show you how certain activities may bring on symptoms so that you can make changes.

## *We are here to help!*

Brain injuries are frightening and can require major adjustments to family life. The brain is our most important organ, so taking good care of an injured brain is worth the effort. The good news is that with the right care and attention, your child will heal from a concussion.

If you have questions or think your child needs to be seen by a physician, call **(502) 629-KIDS** or visit **NortonChildrens.com**.

