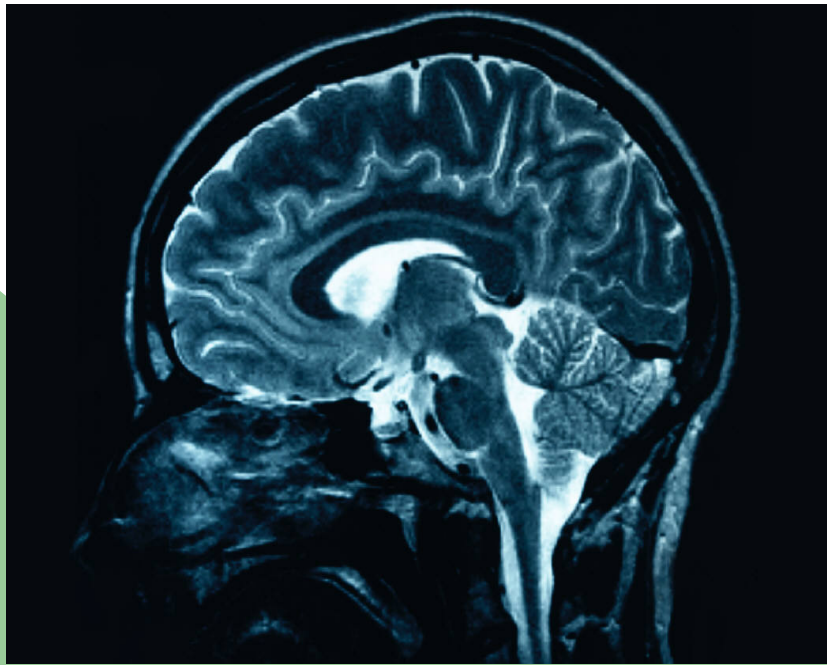


Recovering from Mild Traumatic Brain Injury/Concussion

A Guide for Patients and
Their Families





Recovering From Mild Traumatic Brain Injury/Concussion: A Guide for Patients and Their Families

This booklet provides a few answers to questions commonly asked by patients and family members following a mild traumatic brain injury (TBI) which is also called a concussion. It describes some of the problems that people may experience after a mild TBI and offers some tips on coping with these problems. As you read this booklet, keep in mind that everyone recovers a little bit differently. Everyone improves after a mild TBI, and most people recover completely in time. We hope that you find this booklet helpful.

A common cause of stress after a mild brain injury is worry about the symptoms you have. Scientific studies by neurosurgeons and neuropsychologists in New Zealand, Scandinavia, Great Britain, Canada and the United States have shown that patients who get an information booklet like this one recover faster and feel better during recovery than patients who do not know what to expect. You have been given this booklet so you will know what to expect and what to do about the symptoms you may experience.

Talking to a doctor about your symptoms is also important. Your doctor can prescribe therapy and/or medication that can help you if you need it. You can also talk to the person who gave you this booklet or call the number listed on the last page of this guide.



This manual was prepared by the Michigan TBI Services and Prevention Council in April 2008. Some of the text is adapted from:
Mittenberg, W., Zielinski, R.E., & Fichera, S. (1993) Recovery from mild head injury: A treatment manual for Patients. *Psychotherapy in Private Practice*, 12, 37-52.



What happens in a TBI?

“I don’t understand what has happened to me.”

A blow to the head can occur in:

- ◆ A motor vehicle crash
- ◆ A fall
- ◆ A bicycle crash
- ◆ Child abuse/domestic violence incidents
- ◆ When the skull is struck by a blunt or heavy object
- ◆ Sports injuries
- ◆ Assaults
- ◆ Military service-related injuries

In most cases, there are no lasting symptoms or ill effects from a mild injury to the brain, also known as a concussion. This is because the brain is surrounded by shock-absorbing liquid and is covered by the skull, which usually is enough to protect the brain from any damage.

Sometimes the force of impact is more severe. This can cause the skull to break or fracture. When the skull fractures, it absorbs some of the force of the blow and protects the brain. This is the same way that a crash helmet works. When the head is hit, the brain may be shaken around inside the skull. This can sometimes cause the brain to get bruised if it hits the inside of the skull hard enough. Like a black and blue mark on your arm or leg, this will recover with time. If there are many bruises on the brain, there will be some swelling that can take a while longer to return to normal.

The brain is made of thousands of long, thin nerve fibers. Some of these nerves can snap or tear if a blow to the head is severe enough. Although these nerves cannot be seen without a microscope, we know that they can recover because many patients recover completely from mild brain injury in time.

Like any other part of the body, the brain has blood vessels in it. If a head injury is very serious, some of these blood vessels can tear and bleed. This happens soon after the injury. The bleeding often stops on its own and the blood vessels heal like any cut does. If there is bleeding deep inside the brain, then this is a sign of an injury that is more severe than a concussion. Bruises, swelling, snapped nerves and broken blood vessels are the causes of symptoms after a brain injury. Your doctors have examined you for any signs of injury to the brain and prescribed treatment if you need it. Most people who suffer a concussion recover completely in time because the damage is minor. Most doctors who treat people with brain injuries agree that recovery is faster when the patient gets enough **rest** and resumes responsibilities **gradually**. There are a number of symptoms that can occur after a mild TBI that will be explained in subsequent pages.

Common Causes of Symptoms After a Mild TBI

- **Bruises**—When the head is hit, the brain can be shaken around inside the skull. If the shaking was hard enough, the brain can get bruised as it hits the skull. Just like bruises you might get on your arms or legs, these go away in time.
- **Swelling**— If there are lots of bruises, there may also be swelling. Swelling takes a while longer than bruising to return to normal.
- **Snapped Nerve Fibers**—The brain is made of millions of cells called neurons that are connected to each other by long, thin fibers called axons. Some of these axons can snap or break during a concussion if it is serious enough. When this happens, different cells in your brain cannot communicate properly with each other. Even though we can only see axons under a microscope, we know that they can heal because in time many patients recover completely.
- **Broken blood vessels**—Like any other part of the body, the brain has blood vessels in it. If a TBI is very serious, some of these blood vessels can tear and bleed soon after the injury. Usually, the bleeding stops on its own and the blood vessels heal like any other cut does.

Some of the “symptoms” you notice may have nothing to do with your concussion or injury. See the table below for things we forget with or without a mild TBI.

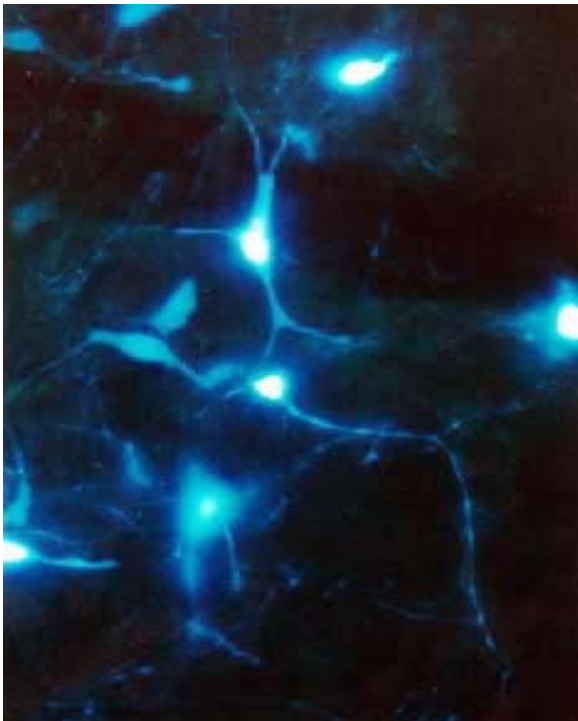
Things We Normally Forget

“Symptom”	% of People
Forgets telephone numbers	58%
Forgets people’s names	48%
Forgets where car was parked	32%
Loses car keys	31%
Forgets groceries	28%
Forgets why they entered a room	27%
Forgets directions	24%
Forgets appointment dates	20%
Forgets store location in shopping center	20%
Loses items around the house	17%
Loses wallet or pocketbook	17%
Forgets content of daily conversations	17%



How serious was the TBI?

“I just need some answers.”



Nerve cells inside the brain
www.fi.edu/brain/head.htm

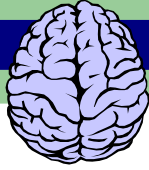
One way to tell if a head injury is serious is the amount of time the patient was unconscious after the injury. If you were not knocked out at all or were unconscious for less than 30 minutes, then the injury was most likely minor or **mild**. Although you may have some symptoms, there was probably little injury to the brain and complete recovery is expected. Most people who have a head injury fall into the category of mild TBI or concussion.

The longer the length of unconsciousness, the longer the recovery usually takes. If the patient was knocked out for more than 30 minutes, but less than one hour, the injuries were most likely **moderate**. Return to normal will probably take a while.

TBI Severity is based on:

- Loss of consciousness
- Abnormal results on a brain scan such as a **CT** or **MRI**
- Length of time until the patient is first able to follow instructions
- Duration of confusion

Patients who are unconscious for **more than an hour** have suffered a **severe** brain injury. Although many patients make a good recovery even after a severe head trauma, symptoms can often last for some time. In very severe head injuries, many symptoms can be permanent. Treatment at a rehabilitation center is usually recommended and can help recovery.



What symptoms can I expect?

“I just don’t feel like myself”

Eight out of ten patients with a mild brain injury show some symptoms during the first week to a month after the accident. These symptoms are part of the normal recovery process and are not signs of permanent damage or medical complications. Like the itch of healing stitches, these symptoms are common and should not be a cause for concern or worry. These symptoms are usually a sign that your injuries were probably mild or minor. The majority of patients with mild TBI recover completely in a week to three months. If you are older than 40, it may take a bit longer to return to normal. The symptoms often disappear without any special treatment. A list of the symptoms that you can expect is shown below, along with the percent of mild brain injury patients who experience each symptom at some point in their recovery. A more detailed explanation of symptoms are on the following pages. It is important to remember that everyone has these symptoms on occasion. The table also shows the percent of people who have these symptoms, even though no head injury occurred.

Most Common Symptoms of Mild TBI Compared to Symptoms of Everyday Stress

Symptom	Symptoms of Mild TBI % of Patients	Symptoms of Everyday Stress % of People
Poor concentration	71%	14%
Irritability	66%	16%
Tired a lot more	64%	13%
Depression	63%	20%
Memory problems	59%	20%
Headaches	59%	13%
Anxiety	58%	24%
Trouble thinking	57%	6%
Dizziness	52%	7%
Blurry or double vision	45%	8%
Sensitivity to bright light	40%	14%

Poor Concentration This is the most common symptom of concussion. The main cause of poor concentration is fatigue. **You will probably be able to concentrate better if you get enough rest.** When it becomes difficult to concentrate on what you are doing, take a break and relax for 15 to 30 minutes. If you still continue to have problems, your work day, class schedule, or daily routine should be temporarily shortened. Trying to "stick to it" usually makes things worse. Reducing distractions can help. Turn down the radio or try to work where it is quiet. Do not try to do too many things at once. Writing while you talk on the phone or taking notes as you listen to someone talk are examples of doing two things at the same time. It may be difficult to concentrate on more than one thing at first. You will probably be able to concentrate better when you have had enough rest or a short nap.

Irritability One of the most frequent causes of irritability is fatigue. People lose their tempers more easily when they are tired or overworked. Adjust your schedule and get more rest when you notice yourself becoming irritable. Everyone gets angry from time to time, often with good reason. Being irritable only becomes a problem when it interferes with your ability to get along with people from day to day. If you find yourself getting into arguments that cause trouble at home or at work, try to change the way you think about things. When something makes you angry, ask yourself what caused it. Family, friends, or co-workers can do things that bother us at times. Try to think of why you may be feeling angry with them. What would they say was the reason? Thinking about what caused a problem is the first step to solving it. Problems can usually be solved better if you try to stay calm and explain your point of view. Try to remind yourself of this when you find yourself becoming irritable. Try to think of several different ways to solve the problem and then decide which is best. Just realizing that there are several things you can do to solve a problem may ease your mind.

Fatigue It is normal to be more tired after a concussion. **Rest is the only sensible treatment for being tired.** Avoid wearing yourself out. Gradually increase your activity level. Most patients have more energy in the morning than later in the day. You may benefit from scheduled rest breaks or daytime naps. If your symptoms get worse, this means that you are pushing yourself too hard.

Depression People become depressed when unpleasant things happen to them, and a concussion is unpleasant. An effective way to treat depression is try to make good things happen. One way to do this is to plan to do something enjoyable for yourself every day. Make your plan specific, and then stick to it. That way you can look forward to it. Anticipating and doing enjoyable things each day will improve your mood. Some thoughts can make us depressed. Bad situations are often not as terrible as they may seem at first. Think back to an unpleasant moment in your own life and you will see that this is so. Chances are that if you are depressed, you are telling yourself things that are depressing. Thinking that the situation is terrible, that there is no end to it in sight, that you are not able to do anything about it, and that it is your fault are all depressing things to tell yourself. Thinking this way can become a habit if you do it enough. Usually, when people tell themselves unpleasant things all the time it is out of habit, not because those things are really true. If you find yourself thinking depressing thoughts, stop. Simply stopping a depressing thought can make you

feel better. See if what you are telling yourself is really true. Think instead of what you are thankful for. Consider doing one good deed for someone each day. Picture yourself doing your favorite things.

Memory Problems Memory difficulties have several causes. The part of our brain that stores memories is called the temporal lobe. This is one part of the brain that is likely to be bruised in a concussion. Some memory difficulties can be caused by the bruises, which is why you may not remember the accident very well. Like a black and blue mark on your arm or leg, these bruises will recover with time. Your memory will most likely improve as this happens. If you can remember the accident, chances are that your brain was not bruised.

Most of the memory problems patients notice after a concussion are not caused by actual bruising but are usually from being tired. For you to remember something, you have to pay attention to it first. If you don't concentrate long enough, the information is never stored in your memory. **You will probably be able to remember better if you get enough rest.** Memory problems can be a sign that you are pushing yourself too hard. Writing things down or using a pocket tape recorder are other ways of coping with temporary memory difficulties, and will help your recovery. You likely had trouble remembering things even before the accident. Some of the memory symptoms you notice may actually have nothing to do with your concussion. People with serious memory difficulties are usually not upset by their symptoms. They don't remember that they have any memory trouble. If you are concerned about your memory, have it tested by a neuropsychologist. Your physician can order the necessary tests if you need them. You can also ask the person who gave you this booklet or call us at the number listed on the last page of this guide for more information on any of these symptoms.

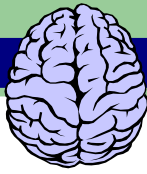


Mild TBI Recovery Guide

How long will my symptoms last?

“I feel like I’ll never be the same again.”

- ◆ The most rapid recovery occurs in the first week after mild TBI.
- ◆ Most patients will be back to normal in a week to a month.
- ◆ Keep in mind that everyone recovers differently.
 - * People under the age of 40 get better faster and have fewer symptoms as they get better than people over the age of 40.
 - * Elderly patients can expect a longer recovery, even after a mild TBI.



What can I do about my symptoms?

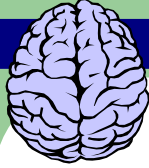
“I feel so powerless.”

Some patients, who have had a concussion, find that at first it is hard to do their daily activities, their job, to get along with everyone at home, or relax. The best way to deal with this is to resume activities and responsibilities a little at a time. The time you spend at work, getting together socially, with your family, or exercising is determined by your comfort. **You should pace yourself and be sure to get all the rest you need.** If your symptoms get worse, or if you notice new symptoms, this is a sign that you are pushing yourself too hard. Slow down and let your brain heal.

Ignoring your symptoms and trying to "tough it out" often makes the symptoms worse. **Return to your routine gradually.** Symptoms are your body's way of giving you information. A broken bone or a torn muscle hurts so that you will not use it; that give it time to heal. Scientific studies by neurologists in the Netherlands showed that one week of relaxing at home and then one **week of gradually increasing activity after leaving the hospital is best.** Most people who took this advice and rested more, were back to normal at work or school in 3 to 4 weeks. Most of the patients who were did not get this one week of rest, took up to 3 times longer (3 months) to get back to their normal routine and had more symptoms, like irritability, trouble concentrating, and memory problems.

Your concussion was traumatic, but thinking and worrying about your symptoms can make them seem worse. This is partly because paying attention to a feeling seems to magnify or increase it. Concentrating on your symptoms will make them more noticeable to you. **It is important to remember that the symptoms are a normal part of recovery and will go away on their own.** We all have some of these symptoms once in a while anyway. After a concussion it can be easy to forget that we were sometimes irritable, tired, had headaches, could not concentrate, or forgot things even before the accident. Try to deal with these things the same way you did before. Review the list of common symptoms on page 5, in order of frequency.

Some of the symptoms you notice may have nothing to do with your concussion. **The symptoms of mild TBI are pretty much the same as the symptoms of ordinary day-to-day stress.** Of course hitting your head also has a lot to do with it! But having a concussion adds more stress to your life, as well as the bumps and bruises to your brain. The accident itself, being in the hospital, and going back to work or school are all things that add stress to most patients' lives. Bills can pile up, time to do what you want is lost, and there may be injuries to other parts of your body. And just like a pulled muscle or a bruised leg, your brain takes some time to recover. You can have some trouble with work or school at first, and this is also stressful, even though it is normal. Trying to do your regular work right after a concussion is something like trying to play baseball or swim with a pulled muscle. You cannot see it, it is not really serious, but it takes some time to get better.



Where can I go for support?

“I thought I was all alone, but I’m not.”

Most people find it helpful to seek support from their friends and family in the weeks and months after a TBI. They also look to medical professionals like doctors, nurses, and case managers to provide advice and support through their recovery. Unfortunately, this is not always enough. Since you or a family member experienced a mild TBI, you may feel like you need to talk to other people who have been through similar experiences. There are many support groups for people who have experienced a TBI and their loved ones. Other supports and services are listed below.

Finding Support Services

- ◆ Brain Injury Association of Michigan (BIAMI) Helpline: 800-772-4323 or www.biami.org.
- ◆ Michigan Department of Community Health TBI website, www.michigan.gov/tbi, has many free educational materials including:
 - * *Michigan Resource Guide for Persons with Traumatic Brain Injury and Their Families*, a 96-page directory of resources that provides information about TBI, the signs of TBI and a wide variety of services that are available.

An electronic version of this guide is available at www.biami.org or www.michigan.gov/tbi. You can add the name of your hospital or rehabilitation center on the front page, and local sources of support in the space above.

- Evans, R.W., Evans, R.I., & Sharp, M.J. (1994). The physician survey on the post-concussion and whiplash syndromes. *Headache*, 34, 268-74.
- Kashluba, S., Paniak, C., Blake, T., et al. (2004). A longitudinal, controlled study of patient complaints following treated mild traumatic brain injury. *Archives of Clinical Neuropsychology*, 19, 805-816.
- McCrea, M., Guskiewicz, K.M., Marshall, S.W., et al. (2003). Acute Effects and Recovery Time Following Concussion in Collegiate Football Players - The NCAA Concussion Study. *Journal of the American Medical Association*, 290, 2556-2563.
- Mittenberg, W., Zielinski, R.E., & Fichera, S. (1993). Recovery from mild head injury: A treatment manual for Patients. *Psychotherapy in Private Practice*, 12, 37-52.
- Rohling, M.L., Meyers, J.E., & Millis, S.R. (2003). Neuropsychological Impairment Following Traumatic Brain Injury: A Dose-Response Analysis. *The Clinical Neuropsychologist* 17, 289-302.