Mild Traumatic Brain Injury in Children and Adolescents

Traumatic brain injury (TBI) occurs to the brain after a blow to the head or a blow to the body affecting the head. Loss of consciousness is possible, but only occurs in about 20% of all head injuries. You can have a brain injury without any loss of consciousness, skull fracture, internal bleeding, or memory loss. Any of these symptoms are possible, but not necessary for an injury to have occurred. It is important to note that a “concussion” is the same thing as a mild traumatic brain injury. Don’t let the label “mild” mislead you. Mild TBI (mTBI) is often called an “Invisible Injury” because the injury is too small to be seen on a CT scan or MRI. This does not mean that an injury is not there, but just that our current tests may not detect it.

What happens to the brain after a Mild Traumatic Brain Injury?
After a mTBI, the brain works very hard to fix itself. This is not easy and uses a lot of energy. The areas of the brain that help make and move energy are often damaged. This means that just when the brain’s need for energy is high, the energy level is low. This “mismatch” in energy can make the brain feel slow.

Which symptoms are most common?
Headaches, fatigue, and dizziness are common symptoms. Some people have changes in vision or hearing. Many say they think slower, have a hard time focusing, or feel “foggy”. Others complain of having trouble following directions or feel like they can’t do more than one thing at a time. Parents may see changes in emotions such as being more irritable, sad or worried.

How long will the symptoms last?
Most people (about 80%) recover from a mTBI in about 10-14 days. However, some people have symptoms that last much longer. Students with a history of learning disabilities, ADHD, depression, or anxiety may recover slower. Medical conditions such as migraines or other head injuries can also slow down recovery. Early on, we cannot tell who will recover quickly or slowly. Often symptoms will get worse about 24-48 hours after the injury before they start to get better.

How do we treat mTBI?
The best way to heal is by resting. This includes both physical and brain rest. You should not do anything that will increase your heart rate or requires too much thought. In the first few days, activities such as exercise, sports, video games, texting, emailing, Facebook, and reading should be avoided. If you have a few days in a row without any symptoms, these activities can be restarted slowly. Start with 15-20 minutes, and then increase the time or the difficulty of the activity as tolerated. Any time a symptom returns, it is important that you stop the activity. A lot of people like to be very active in treating injuries, but for mTBI, slowing down and letting the brain heal is the best way you can recover faster. Your body is working hard to heal your brain, and these activities take energy away from that. When you have symptoms it is your body’s way of telling you that you are doing too much.
When should I call the doctor?
After the first few days, symptoms should start to get better if you follow the suggestions above. If they get worse, call your doctor. The doctor may need to order more tests. Before leaving the hospital, your team probably told you to follow-up with the Brain Care Clinic. This is a special clinic with experts that can help you during your recovery. It is important that you make and keep this appointment. These experts can help you with your recovery and can also work with your school if help is needed.

What about school?
You should plan to stay home from school for at least one day, if not 2 or 3. If you have symptoms while resting at home, they will likely get worse if you go back to school. Ideally, you should be symptom free at home for one full day before returning to school. If a full school day is too much, start with a half day. You can also do some school work at home. The most important thing is to start school work slowly. If you speed through things faster than your brain can handle, the healing will be much slower. Let your symptoms guide you to help heal more quickly. You should not return to work or other activities until you can handle a full school day.

RETURN TO LEARN AND PLAY – A STEPWISE PLAN

<table>
<thead>
<tr>
<th>STEP</th>
<th>SCHOOL</th>
<th>PLAY</th>
<th>GOAL</th>
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<tbody>
<tr>
<td>1</td>
<td>Complete brain rest.</td>
<td>Complete physical rest.</td>
<td>Focus on recovery. No screens, homework, or athletics.</td>
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<td>2</td>
<td>Start make-up homework for 5-15 minute sessions.</td>
<td>Light exercise like walking or swimming (unless not cleared by doctor).</td>
<td>Gradually start these activities; should not cause symptoms.</td>
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<td>3</td>
<td>Homework sessions 20-30 minutes.</td>
<td>More heavy exercise like skating or running drills; no impact activities.</td>
<td>Increase endurance by repeating short periods of self-paced activities.</td>
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<td>4</td>
<td>Half days at school. Make-up homework should not be required.</td>
<td>Add resistance training; no impact activities</td>
<td>Further increase endurance; slow down if symptoms occur.</td>
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<td>5</td>
<td>Full days at school. Shorter homework assignments may be needed.</td>
<td>Once cleared by doctor, return to impact drills.</td>
<td>Focus on returning to normal schedule, and watch symptoms.</td>
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<td>6</td>
<td>Full days. Some help may continue. Catch up with important missed work.</td>
<td>Return to game or typical physical activities.</td>
<td>Full return to school and physical pre-injury schedule.</td>
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At home, you can use the following log to track how bad your symptoms are before and after starting a variety of activities. This includes going to school, taking a shower, playing video games, or texting. If symptoms worsen after the activity, you may want to reduce your activity level for a few hours until you feel better. If your symptoms persist for more than 7 days, you should talk to your doctor about a referral to the Brain Care Clinic (608-263-3301) at the Waisman Center at UW for additional follow-up.
# TBI SYMPTOM LOG

**NAME:**

**DATE:**

**SYMPTOMS:**
Rate symptoms before and after activities on a scale of 0-10, with 10 being severe

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<th>ACTIVITY (add across)</th>
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<th>Time</th>
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**INSTRUCTIONS:**
- Record name and date
- Rate all symptoms at time of waking up
- Add activities along the top of the graph
- Rate each symptom before and after doing an activity
- Include activities such as going for a walk, reading, watching TV, therapies (OT, PT, SLT), taking a shower, and talking with the doctors.
- Rate all symptoms before going to bed

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person’s health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 4/2014 University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing. HF#6328