Mild Traumatic Brain Injury

A Mind Numbing Experience

Carolyn A. Rocchio

By your side.
BRAIN INJURY ASSOCIATION OF FLORIDA INC

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The Brain Injury Handbook:
An Introductory Guide to Understanding Brain Injury
for Vocational Rehabilitation Professionals

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foreword

As a natural consequence of living, practically everyone at some time experiences a blow to the head, raises up and strikes a cabinet door, or bumps into another person while engaging in a sandlot ball game. Does every blow to the head result in damage to the brain ? Of course not, but a significant number of individuals sustain a blow to the head, see stars and/or briefly feel dizzy, yet recover with a spot, sore to the touch, on their skull at the point of impact and continue on with their activities. Some, when diagnosed with a concussion are told that their feelings of dizziness, headache, and poor concentration should disappear within a few weeks. Fortunately, for most, problems as a result of a blow to the head are a temporary inconvenience and should clear in 3-6 months. However, those whose symptoms persist and in some cases worsen over that same time frame may find it frustrating before locating the help they need to deal with a mild traumatic brain injury (MTBI).

MTBI can be a life altering experience. Thousands of adults with persistent problems, resulting from concussion/ mild brain injury affecting nerve cells in the brain suffer loss of work productivity, disrupted marriages, mind numbing headaches,and other equally disabling residual problems. The long suffering is due, in part, to lack of appropriate diagnostic procedures and treatment. Children are equally at risk for MTBI from falls, athletic events, and childhood pranks. It is possible to have a MTBI, with or without loss of consciousness, and have lingering after-effects that may not be well understood by you or those around you.

It is also common for individuals to have more than one MTBI, this is particularly true for athletics engaged in contact sports in which they experience repeated jarring "minor" injuries. MTBI has a cumulative effect; therefore, each new insult to the brain results in far greater than expected residual damage. The brain has just so much reserve and once that reserve is depleted recovery is adversely affected.

This booklet will focus on externally caused injury to the brain which may be referred to as minor/mild brain injury, minor head injury and/or concussion; however, Mild Traumatic Brain Injury (MTBI) will be used exclusively and interchangeably in this publication.

What is Mild Traumatic Brain Injury?

MTBI is defined by the Mild Traumatic Brain Injury Committee of the American Congress of Rehabilitation Medicine as follows:

A patient with a mild traumatic brain injury is a person who has had a traumatically induced physiological disruption of brain function, as manifested by at least one of the following:

1. Any period of loss of consciousness;

2. Any loss of memory for events immediately before or after the accident;

3. Any alteration in mental state at the time of the accident (e.g., feeling dazed, disoriented, or confused); and

4. Focal neurological deficit(s) that may or may not be transient; but where the severity of the injury does not exceed the following:

    a. Loss of consciousness of approximately 30 minutes or less;

    b. After 30 minutes, an initial Glasgow Coma Scale of 13-15; and

    c. Post traumatic amnesia not greater than 24 hours.

Is It Possible to Injure the Brain Without Being Unconscious?

MTBI may involve a brief period of unconsciousness; however, it is not necessary to lose consciousness to damage nerve cells in the brain. MTBI can result from a sudden violent motion, even a whiplash, and the head may not even have been struck. It is often overlooked when an individual is seen in an emergency room for treatment of injuries sustained in car crashes, falls, and assaults. Such an individual may be conscious yet disoriented and confused about events that precipitated their entering the emergency room, but routinely, when confusion or other clinical signs suggest a neurologic insult, a CAT scan is ordered. Ironically CAT scans and even MRI's may appear normal upon examination by a radiologist.

When life threatening physical injuries necessitate admission to a hospital, treatment and/or surgery for these conditions may cause a MTBI to be overlooked, particularly when drugs and/or anesthesia are administered. In other situations when an individual is treated for superficial wounds and released from an emergency room, inquiries may be made to determine if the head

was struck, and if so, the individual may be sent home with a "head sheet." Typically a head sheet alerts a person about certain medical problems that can occur which require further attention and follow up with a physician. Head sheets do not usually contain information about cognitive changes affecting the way a person thinks and acts, such as forgetfulness, problems with attention and concentration, fatigue, sensitivity to light and/or sound, taste and smell, difficulty finding the right words to use in conversation, and problems reading or calculating figures.

What Happens to the Brain in a MTBI?

When the head is struck or moves violently such as in a car crash, the brain twists on the stem striking the rough interior surfaces of the skull. When this happens nerve fibers are stretched and torn and bruising can even occur. The activation center of the brain may be impacted and result in a brief un-consciousness. Severe whiplashing injury can result in similar rotational force within the brain yet the individual remains conscious, perhaps briefly confused or disoriented.

How Does Concussion Differ from Minor/Mild Traumatic Brain Injury?

The word "concussion" is frequently used to describe an event in which the head is struck or strikes something, such as when athletes talk about "having their bells rung". Concussion is taken more seriously by medical personnel, coaches, and athlete trainers than was once the case. The American Academy of Neurology has developed a Standardized Assessment of Concussion (SAC) and encourages its use for measuring 3 grades of concussion and suggesting appropriate bench time before returning athletes to play.

What Are the Grades of Concussion and How Can They Be Recognized?

A person sustaining a Grade 1 concussion might appear confused with no loss of consciousness and have difficulty maintaining a coherent conversation. The symptoms should disappear within 15 minutes. A Grade 2 concussion may have very similar symptoms; however, they last beyond the 15 minute time frame. Any loss of consciousness would result in a Grade 3 concussion and the person should be seen by a physician at once.

When Will Things Get Better?

When subtle changes i.e., memory, headaches, dizziness, confusion and fatigue occur, it is expected that they gradually resolve over a period of weeks or months. However, in some cases there may be a significant number of nerve cells damaged and the symptoms persist and become major problems. When there has been significant damage affecting performance, the individual generally experiences greater than expected difficulty when attempting to resume a normal work or school routine. It is at this point that the symptoms get in the way and a cycle of emotional upheaval may begin.

Old routines may be easily performed, although speed of performance may be diminished. Learning new information, finding the right words to use in speaking or writing, concentration and comprehension, calculating figures and sleep disturbances may all prove very difficult and frustrating. Although the individual may realize things aren't right, appearance is generally unchanged and others have difficulty understanding that there is anything wrong. Commonly friends, family, and co- workers think of the individual as malingering, feigning the symptoms, and/or suggest that the problem is all in their head. This attitude increases the upheaval and frustration for the individual and is often followed by suggestions that the individual is "going crazy" or needs to work harder. Lowered self-esteem and lack of understanding by those surrounding the individual frequently develops into a secondary emotional response and it is not uncommon that a psychiatric consultation is scheduled.

How Is Mild Traumatic Brain Injury Diagnosed?

Possibly the greatest frustration of all after mild brain injury is finding appropriate professional intervention for diagnosis and treatment. Many individuals seek out or are sent to sleep disorder clinics, headache clinics, oral maxillary specialists, otolaryngologists, and many other physicians, and therapists in hopes that someone will have the answers to their life altering situation. When CAT and MRI scans, EEG's and other diagnostic tools are negative, many professionals are poorly prepared to refer the patient for additional and more appropriate diagnostic procedures. Although more sophisticated tools, e.g., PET and SPECT scans may find evidence to support damaged nerve cells in the brain, these tests are

very expensive and often unavailable in some areas, which limits their use. One of the most effective tools in determining MTBI is use of the neuropsychological assessment. Ideally the testing should be done by a board certified neuropsychologist rather than a technician. A neuropsychologist is a psychologist with specialized training in brain-behavior relationships. The testing may require many hours scattered over several days, depending on the client's attention, fatigueability or other factors that can influence the validity of the assessment. A neuropsychological assessment is a non-invasive battery of task oriented tests that may involve pencil and paper tests, memory recall, and the like. There is no reason to feel pressure from the testing because it focuses on your abilities and there is no pass or fail, but from which a picture of the functioning of the brain can be determined. Testing should measure information processing, attention, concentration, memory, organization, self monitoring and other executive functions.

In addition, careful attention should be placed on gathering information about the pre-injury performance, medical history, school records, and other pertinent information that will give a comprehensive picture of the way the person functioned before the injury in comparison to the level of performance after sustaining the injury. The results of this evaluation should provide valuable information about the extent of damage, its location in the brain and form the basis for development of a treatment plan.

Are Children with Mild Brain Injury Just Little Adults with Brain Injury?

MTBI in youngsters is as frequently under-diagnosed or misdiagnosed as it is in the adult population. This is particularly true when a preteen or teenager receives a blow to the head or gets his "bells rung" playing sports. An event of this nature is often followed by a decline in performance on school work and/or changes in personality or behavior.

However, cognitive changes creating impairment of attention, memory, and information processing, even though minor and in some cases transient, result in disruption of self esteem and achievement. Often treated as "teenage" behavior, there may be no effort to look for reasons for the changes, only the hope that the teenager is in a "phase" which will soon be outgrown. Unfortunately many

dysfunctional adults sustained undocumented and untreated MTBI as children.

Is MTBI a Problem Often Seen in Elderly Persons?

Elderly individuals are prone to falls in which the head strikes the floor or a piece of furniture and unfortunately once righting themselves, the event may go unreported, particularly for elderly persons living alone. Families and friends may later report a decline in memory and functional capabilities and all too frequently, in the absence of information about the fall or only superficial efforts to delve more deeply into the changes,
the individual is determined to have early stage Alzheimers disease or senile dementia. Often no efforts are made to further explore the problem, despite the fact that the person was functioning very normally and independently the day before the fall and only one day later the person was no longer able to function at a level even close to the previous day. And over time the loss of function becomes more disabling and places elderly folks in jeopardy of placement in psychiatric services.

What are the Most Common Problems After MTBI?

Physical Problems:

- sleeping difficulties
- headaches
- dizziness and balance problems
- fatigue
- visual changes
- loss of taste/smell
- sensitivity to light/noise

Cognitive Problems:

- memory loss
- disorientation
- problems making decisions, solving problems and organizing tasks
- concentration
- distractibility
- changes in speech patterns, word retrieval, reading and expressing oneself
- loss of math calculation skills

Emotional Problems:

- irritability/anger
- frustration
- depression
- mood swings
- anxiety that cannot be attributed to other physical, psychological, or emotional stressors.

What Kind of Treatment or Rehabilitation is Prescribed?

Although individuals with MTBI can benefit from formal rehabilitation, few actually are referred, due to lack of timely and accurate diagnosis. The most effective intervention is education of the individual, family, teachers, and employers. Even though education will not change the situation and bring about overnight improvement, it can usually offset the secondary emotional response which, for some, becomes even more disabling than the original insult.

Thomas Kay, Ph.D., one of the most respected researchers on MTBI, states, "The ability to anticipate and understand one's own disordered behavior increases one's sense of control and makes a healthy accommodation more likely. After education, treatment of remaining difficulties consists of identification of the problem, support, neuropsychological rehabilitation, and accommodations. There is no formula for successful treatment of a mild head injury, but certain measures can help the rehabilitation professional guide the patient in a positive direction."

What Can I Do to Improve My Situation?

Some strategies used and suggested by individuals with MTBI that you may find helpful include:

- Brain injury support groups where others with MTBI can be found are very helpful. The reassurance of others with similar residual affects of MTBI can be extremely important when lack of awareness of the general public to the problem of MTBI may be so emotionally devastating. Contact the Brain Injury Association of Florida's Family Helpline (800) 992-3442 for support group information.
- The use of biofeedback, imaging, and other forms of pain management are often helpful for those who suffer unrelenting headaches which are not relieved with the use of traditional pain remedies.
- Use of post-it notes, daily journals, and lists to minimize the problems related to memory loss.

- Use of egg timers and watches with alarms, to keep track of tasks that are time related.
- Relaxation, meditation, and/or yoga to reduce stress.
- Plan time for rest during the day due to increased fatigue. You will probably function better with additional sleep at night.
- Professional assistance in planning the work environment can be very helpful in ensuring successful employment.
- Arrange shelves, drawers, and other possessions in an orderly manner with all items in assigned places to avoid the frustration of finding lost or misplaced items.
- Students should arrange for special accommodations based on results of the neuropsychological assessments. Some examples may be additional time for test taking, permission to take tests in a distraction free environment, and seating in classroom to reduce motion in the area around the desk.

When returning to school the student and family should actively participate in development of the Individual Education Plan (IEP) and when possible engage the services of a neuropsychologist, familiar with childhood brain injury, to assist with this process.

- If you are unable to return to work in a timely manner, investigate your eligibility for Social Security Disability Insurance. Although, it is expected that your claim will be denied (70 % of all claims are denied the first time) it is important that you reapply within the time frame required. If you are denied on the second application and you continue to be disabled, you should hire a Social Security lawyer to prepare for your administrative hearing (the third step in the process). A Social Security lawyer cannot charge a fee for accepting your case; however, if successful in establishing your claim compensation for services

rendered will be paid by the Social Security Administration from a portion of the retroactive benefits due to you.

- Encourage friends, family, and those with whom you are acquainted to become more familiar with the persistent problems faced by those with brain injuries.

What if My Injury was the Result of the Negligence of Another Party?

In the event you were injured as the result of the negligence of another, you should consider seeking legal advice in order to protect your rights, should you experience any persistent problems that affect your lifestyle. Litigation of MTBI is a highly specialized field of law and can be more efficiently managed by a neuro-lawyer. For information about selecting legal representation as well as other medical and rehabilitation professionals, you may wish to obtain The Consumers Guide to Selecting, Legal, Medical and Rehabilitation Professionals After Brain Injury, a publication of the Brain Injury Association of Florida.

MTBI takes a far greater toll on individuals than is necessary. The general public needs to be far more alert to the fragility of the brain, take necessary precautions to protect themselves and their children, and be watchful of any personality, physical or emotional changes that may occur as a result of a blow to the head. Any time you bump your head, you may be in for an unexpected surprise later. Be prepared!

SUMMARY

In summary, the effects of MTBI are often minimized by treating professionals, courts, employers, and family members.

The persistent problems associated with MTBI are very real and don't always go away.

It is not uncommon for individuals with MTBI to be accused of feigning symptoms for financial gain when litigation is pending.

However, it has been determined that those receiving compensation continue to have symptoms just as consistently as those for whom compensation was not an issue.

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