reason for this increase in depression may bebecause brain injury causes an imbalance in certain chemicals in the brain and disrupts brainnetworks critical for mood regulation.

Memory problems

Memory difficulties have several causes. The part of our brain that stores memories is calledthe temporal lobe. This is the part of the brain that is most likely to be bruised in a headinjury. Some memory difficulties can be caused by the bruises, which is why you may notremember the accident very well. Like a black and blue mark on your arm or leg, thesebruises will recover with time. Your memory will most likely improve as this happens. Mostof the memory problems that patients notice after a head injury are not caused by bruising.They usually come from poor concentration and being tired. For you to remember something,you have to pay attention to it first. If you don't concentrate long enough, the information isnever stored in your memory. Concentration problems are a normal part of recovering from ahead injury and some memory trouble is a normal side effect of this. You will probably beable to concentrate and remember better when you get enough rest. Memory problems can bea sign that you are pushing yourself too hard. Writing important things down, using a pockettape recorder, and asking for reminders are other excellent ways of coping with temporarymemory difficulties. They will help recovery and not slow it down.

Headaches

Headaches are part of the normal recovery process, but that doesn't make them any lessbothersome. Not only are they painful to experience, but frequent headaches can take a tollon you mentally and emotionally, and are a common cause of irritability and concentrationproblems following a head injury. This guide cannot replace the medical advice that youshould get if you are bothered by headaches. Headaches can have many causes, and yourdoctor will want to diagnose the problem and prescribe medication that can help if you need it.

Anxiety

Worry about symptoms and problems at work is the main cause of anxiety for many patients.Anxiety should not be a problem for you if you understand that your symptoms are a normalpart of recovery, get enough rest, and gradually increase your responsibilities at work. If youare anxious, chances are that you are telling yourself things that are making you that way.Usually, when people worry all the time it is out of habit, not because the things that they aretelling themselves are really true. The steps you need to take to solve a problem will be the same when you are calm as they would be if you were anxious. If you find yourself thinking anxious thoughts, stop. Simply stopping an anxious thought can make you feel better. See if what you are telling yourself is really true.

Confusion and trouble thinking

Many people feel uncertain, perplexed, or confused after a head injury. They find that their mind and feelings don't react in the ways they used to. They may fear that they are “going crazy.” This is a normal reaction to a head injury. If you have these feelings, it is good to talk about them with someone you trust.

Dizziness, visual difficulties, and light sensitivity

Dizziness and visual difficulties should be checked by your doctor. These symptoms usually go away by themselves in 3-6 months or less in most patients. If you find these symptoms troublesome, your doctor may want to prescribe medication for motion sickness, or eyeglasses. Some motion sickness medications are very effective for dizziness, but can make you drowsy or reduce your attention span as side effects.

Returning to school or work

Returning to school or work is often one of the most difficult phases of recovery from brain injury. This is because a number of TBI symptoms can interfere with your ability to manage the demands of work and school environments. For example, concentration difficulties and memory problems may affect your capacity to learn new things in school. Or fatigue may limit your ability to effectively handle work responsibilities throughout the day. One important thing to keep in mind when attempting to return to work or school is that the process will be gradual. It would be unreasonable to expect yourself to immediately perform at the level you were functioning prior to your TBI. Instead, you should gradually resume responsibilities as you are able. Slowly increase your workload and hours when you feel fully equipped to handle such increases. When returning to school, be sure to find out what special help and accommodations are available to you. You may be eligible for extra test-taking time, help with note taking, etc. A visit to your school's “student services” or “disability services” office will help you determine the resources available and how to obtain them.

Some general advice to aid recovery:

- Cut back on work and duties. Gradual resume activities as you are able
- Get plenty of rest. Aim for 8 hours per night and take naps as needed
- Stay away from alcohol and non-prescribed drugs. Your brain will not dead with alcohol and drugs in the normal way
- Simplify your life and activities. Try to follow a consistent daily routine
- Write things down and ask for reminders
- Do one thing at a time
- Decrease distractions as much as possible while attending to a task
- Eat healthy food and try to exercise regularly

Summary

The most common symptoms after a head injury are known as post-concussion syndrome. These symptoms are part of the normal recovery process and are not signs of brain damage or medical complications. They are not a cause for concern or worry. Post-concussion syndrome is more common after mild head injury. Few patients will experience all of the symptoms. The symptoms may not develop until days or even weeks after the accident. Most patients will be back to normal within 3 months without any special treatment. Most doctors who treat head injuries agree that recovery is faster when the patient gets enough rest and resumes responsibilities gradually. If your symptoms get worse, or if you notice new post-concussion symptoms, this is probably a sign that you are under too much stress. Your workday, class schedule, or daily routine should be determined by your own comfort level.

Dr. Rela Institute & Medical Centre is a multi-specialty quaternary care hospital located in Chennai, India. The Institute is within the campus of Sree Balaji Medical College and Hospital, which is spread across 36 acres. It has 14 operating theatres with 450 beds, inclusive of 150 critical care beds.

The Institute is conveniently located 10 minutes from the Domestic and International Airport.

The hospital is designed to provide highly specialized care in various departments with a focus on multi-organ transplantation. Prof. Mohamed Rela, a world renowned surgeon in the field of Liver surgery and transplantation is the Chairman and Managing Director of the Institute.

In addition to quaternary & quality care, is also committed to provide day to day primary and secondary care to the local population, with facilities of international standards.

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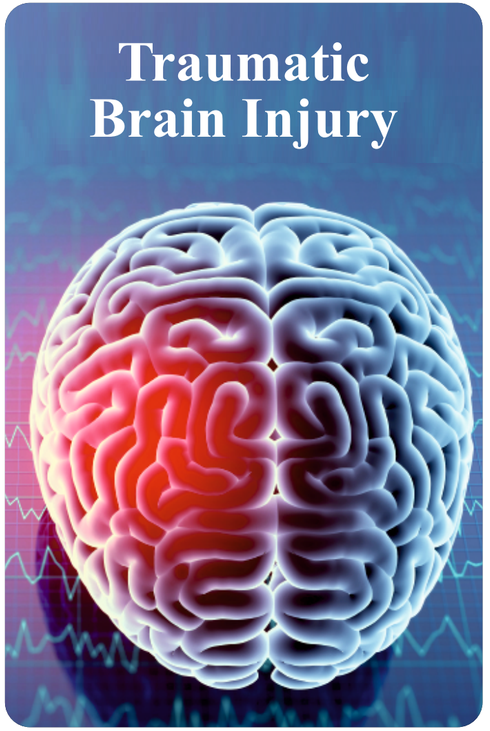
Traumatic Brain Injury



Department of Neurosurgery

Traumatic brain injury (TBI) occurs when a sudden trauma, such as a blow or jolt to the head,causes damage to the brain. Such injuries can result in impaired physical, cognitive, emotional,and behavioral functioning. Approximately 1.4 million Individuals sustain a TBI each year in theUnited States. In times of combat, 14-20% of surviving casualties suffer a TBI

What causes TBI?

Automobile accidents, falls, assaults/blows, sports-related injuries, and explosive blasts are common causes of TBI. When an individual suffers a TBI, the brain can be injured in a number of different of ways. For example, the brain may be shaken within the skull causing bruises (also called contusions) to form at the sites of impact. Like bruises elsewhere on the body, these will heal with time. Swelling may occur if there are many bruises on the brain, which can take a while longer to return to normal.

Brain injury can occur even when there is no direct blow to the head, such as when a person suffers whiplash. When the head is rapidly accelerated and decelerated, as in an automobile accident, twisting or rotational forces may stretch and even sever long-range connecting fibers in the brain. Damage to these fibers disrupts communication between nerve cells, and thereby reduces the efficiency of widespread brain networks.

Damage to blood vessels surrounding the brain is another common source of injury, causing bleeding between the brain and skull. This bleeding often stops on its own and the blood vessels heal like any other cut.

Exposure to rapid pressure changes, such as the over pressurization and under pressurization waves that accompany explosions, can also cause damage to the brain. These pressure shifts induce air bubbles to form in the bloodstream, which can then travel to the brain and interrupt its blood supply.

How serious is my injury?

The severity of TBI can range from "mild" (characterized by relatively brief changes in mental status or consciousness following the injury) to "severe" (characterized by an extended period of unconsciousness or amnesia after the injury). Thus, the length of time that a person is unconscious is one way to measure the severity of the injury.

If you weren't knocked out at all or if you were unconscious for less than 30 minutes, your injury was most likely minor or mild. If you were knocked out for more than 30 minutes but less than 6 hours, your injuries were probably moderate.

Approximately 80% of TBI cases are classified as mild, with emergency room visits for mild TBI (MTBI) topping one million each year. Although this is a very high number of cases, there may even be more MTBIs than that. We don't know for sure because a number of cases go unreported or undetected. MTBIs are especially difficult to diagnose because these individuals typically do not show obvious physical signs of injury (for example, skull fracture), and rarely display evidence of brain damage on neuroimaging exams. The term “mild” may be misleading in reference to brain injury.

Although someone may only be dazed or confused or have a brief loss of consciousness in MTBI, evidence of impaired brain function is often clear. Cognitive changes, headaches, dizziness, and a number of other

symptoms may be observed following MTBI. The actual harmful effects on daily functioning of persons with MTBI may be large depending on what type of activities that person must do on a daily basis.

How is TBI diagnosed?

Diagnosis of TBI is difficult because affected individuals may not show physical signs of injury. Even sophisticated neuroimaging techniques may fail to detect signs of brain injury. Tests such as EEG, CAT scans, and MRIs are often “normal.” Typically, only relatively large abnormalities are detected by current clinical imaging techniques. Neuropsychological testing may be performed in cases of suspected TBI and can be an effective method of identifying associated cognitive deficits. A comprehensive neuropsychological battery takes several hours to administer and includes a broad range of tests. On formal testing, persons with TBI may show problems in information processing speed, memory, and distractibility. By one month, the effects are usually mild in young persons with no previous problems with health or thinking. By about three months, these problems resolve in most cases, although a few will continue to have difficulties.

What are the common symptoms of TBI?

After TBI, persons often report symptoms in the days, weeks, and perhaps months following injury, but do improve over time. The most common symptoms after head injury are known as post-concussion syndrome (PCS). These symptoms include physical complaints (dizziness, fatigue, headaches, visual disturbances, trouble sleeping, sensitivity to light and sound, poor balance), cognitive changes (poor concentration, memory problems, poor judgment and impulsivity, slowed performance, difficulty putting thoughts into words), and psychosocial concerns (depression, anger outbursts, irritability, personality changes, anxiety).

What can I do about these symptoms?

PCS is a normal part of recovery. Most patients will be back to normal by 3 months without any special treatment. The symptoms are not a sign of relapse or brain damage. The syndrome is expected even after minor head injury. Few patients will experience all of the symptoms, but even one or two of the symptoms can be unpleasant.

Some patients find that at first, PCS makes it hard to work, get along at home, or relax. The best way to deal with this is to resume activities and responsibilities gradually, a little at a time. The time you spend at work, getting together socially, with your family, or exercising should be

determined by what you are comfortable with. You should pace yourself, and be sure to get all the rest you need. If your symptoms get worse, or if you notice new post-concussion symptoms, this is a sign that you are pushing yourself too hard. Ignoring your symptoms and trying to “tough it out” often make the symptoms worse. Symptoms are your body's way of giving you information. A broken bone or a torn muscle hurts so that you won't use it and it has time to heal. Post-concussion syndrome is your brain's way of telling you that you need to rest it. Most doctors who treat head injuries agree that recovery is faster when the patient gets enough rest and resumes responsibilities gradually.

Managing specific symptoms

Poor Concentration

The main cause of poor concentration is tiredness. When it becomes difficult to concentrate on what you're doing, take a break and relax. Between 15 and 30 minutes a day should be enough. If you still continue to have problems, your work day, class schedule, or daily routine should be temporarily shortened. Trying to “stick to it” won't help, and usually makes things worse.

Reducing distractions can help. Turn down the radio or try to work where it's quiet. At first,avoiding noisy environments may be helpful, then return to them gradually. Don't try to dotoo many things at once. Writing while you talk on the phone or taking notes as you listen tosomeone are examples of doing two things at the same time. It may be difficult for you toconcentrate on more than one thing at first. You will be better able to concentrate whenyou've had enough rest. So, if you really need to concentrate on something important, do sowhen you're feeling fresh.

Fatigue

It is normal to be more tired after a head injury. Most people experience some degree offatigue during their recovery. The only sensible treatment for being tired is rest. Avoidwearing yourself out. Gradually increase your activity level. You may find that you need tosleep more than usual, in which case it is a good idea to get the extra sleep that you need.Most patients have more energy in the morning than later in the day. An afternoon nap canhelp if you find that it is harder to do things at the end of the day. Physical and mental fatigueusually diminishes over time; it should be greatly improved within 6 months after a brain injury.

Simple suggestions to reduce fatigue

- Follow a regular sleep schedule and reduce disruptions. Try to sleep for atleast 8 hours per night.
- Take scheduled naps and rest breaks, but be increasingly active in between.
- Do strenuous activities when energy is normally highest and rest when energyis normally lowest.
- Simplify tasks whenever possible - conserve your energy.
- Add tasks only as you can tolerate them, slowly and incrementally.
- Set a cut-off time for ending daily activities.
- Plan proper nutrition. Eat healthier foods and stay on a fairly structured routine.
- Use stress management and relaxation techniques.
- Get help to become and stay organized.
- Start a diary to understand patterns and triggers of fatigue.

Sleep Difficulties

You might expect that the fatigue you experience during recovery would cause you to sleepmore soundly. However, sleep disturbance is actually quite common following a brain injury.Studies have shown that individuals who suffer a brain injury often have difficulty getting tosleep and maintaining uninterrupted sleep at night, and thus experience excessive daytimesleepiness. When they do sleep, their sleep is lighter and less restful, and they frequentlyawaken. Getting adequate sleep is very important in the healing process. If you don't sleepwell at night, you'll be more tired during the day. When you're tired during the day, you'llfind it difficult to concentrate, and may become irritable and angry more easily. Thus, lack ofsleep can exacerbate your other symptoms.

Simple suggestions to improve your sleep habits and routines:

- Wake up at roughly the same time each morning.
- Avoid caffeine, especially in the evenings.
- Avoid exercising late in the evening.
- Set your bedroom temperature to a comfortable level.
- Ensure that your bedroom is quiet and dark.
- If you take daytime naps, try to rest long enough to re-energize (30 minutes orless should be sufficient), but not so long that you'll have difficulty fallingasleep in the evening.

Depression

For reasons we do not fully understand, depression seems to occur more often after a braininjury. More than one-third of people with recent traumatic brain injury become depressed,especially during the first year after injury. One