

What is a concussion?

A concussion is a temporary alteration in awareness or consciousness resulting from a blow to the head. One does not have to lose consciousness in order to experience a concussion. A concussion involves changes in the brain chemistry. These changes last longer than the symptoms; your doctor will recommend rest and avoiding contact sports for at least a week.

What are typical symptoms?

At the time of the injury and for a short while afterward, people experience some but not necessarily all of the following symptoms: headache, dizziness, ringing in the ears, sensitivity to light or noise, upset stomach, and vomiting. Almost everyone with a concussion will experience memory disturbance. For example, they may not be able to tell you exactly how they were injured. More often, they will have difficulty retaining new information.

Some of the symptoms described above will last only an hour or two and others may last longer, possibly a week or more. In addition, people with concussions may develop new symptoms once they get home from the Emergency Room or doctor's office. Many individuals report trouble getting to sleep or staying asleep. Some also have trouble with irritability. Another delayed symptom is poor concentration, especially when reading.

When will I recover?

Most people find that the symptoms of concussion are gone within a few days. However, the chemical changes in the brain do not recover for at least a week, and during this time it is important not to suffer another blow to the head. In some cases symptoms will last longer than a few days. If symptoms persist for a week or more, you should visit your doctor or a concussion clinic for further evaluation.

In rare cases, a person can have symptoms that persist for three or more weeks; this is called *post concussion syndrome*. Post concussion syndrome should be treated by a knowledgeable health care practitioner. If untreated, post concussion syndrome can lead to difficulties at work or school, not to mention discomfort to the person with the symptoms.

What should I watch out for?

Concussions do not cause permanent damage. However, in rare instances a concussion can lead to a bleed within the tissue that surrounds the brain. This can be life threatening so it is important the person with a concussion be watched by others. Important signs of an internal bleed are:

- 1. headache that appears to be getting worse*
- 2. continuing to vomit, even after you have returned home*
- 3. increased drowsiness or dizziness*
- 4. increased confusion*

In simple terms, *if your symptoms appear to get worse*, go to the emergency department at your local hospital immediately.

Is there treatment for concussion?

During the first week or until symptoms are gone, doctors recommend that the concussed person rest. To date, no one has found a medication that can help cure a concussion. However, your doctor may prescribe medications for some symptoms, such as headache.

If symptoms persist beyond one week, and especially, beyond three weeks, it is wise to seek treatment from a specialized concussion clinic. There are various treatments for some of the persistent symptoms of concussion. There are also treatments available for some of the problems that occasionally accompany post concussion syndrome, such as depression.

Who should I see for follow up care and treatment?

It is important that you inform your primary care doctor about your concussion. You may wish to discuss with your doctor whether you need the specialized services of a concussion clinic. Some people with concussions may choose to seek services from the concussion clinic directly.

The Concussion Clinic provides treatment for individuals suffering from *post concussion syndrome*. Our treatment approach is very proactive, and uses a carefully constructed and personalized exercise program, tailored specifically to the individual patient. Our concussion treatment program is unique; it is based on cutting edge research developed at the University at Buffalo by John Leddy, M.D. and Barry Willer, Ph.D. We are currently the *only* concussion clinic in the U.S. that uses an exercise based protocol to treat post concussion syndrome.

Our approach is to evaluate the level of exercise that produces symptoms (*the threshold*) and then prescribe a monitored exercise program that is sub threshold (*and therefore does not bring on symptoms*). Our approach has so far been very beneficial for our patients, and we are now conducting research on this approach that will help further identify how and why this treatment approach works.

Exercise Testing in our Performance Lab



Walking on a treadmill with no incline, your use of oxygen will be monitored through a face mask

The incline height will be increased slightly every few minutes, and you will be asked to maintain the same speed

Blood pressure, heart rate, ratings of perceived exertion, and the presence of any symptoms are monitored throughout the test

This process continues until you can no longer continue to exercise, or if you feel there will be a return of symptoms if you continue

These measurements are then used in creating a treatment plan that is customized for each patient