

## POST-CONCUSSION SYNDROME

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### **Overview**

Post-concussion syndrome is a complex disorder in which various symptoms — such as headaches and dizziness — last for weeks and sometimes months after the injury that caused the concussion.

Concussion is a mild traumatic brain injury that usually happens after a blow to the head. It can also occur with violent shaking and movement of the head or body. You don't have to lose consciousness to get a concussion or post-concussion syndrome. In fact, the risk of post-concussion syndrome doesn't appear to be associated with the severity of the initial injury.

In most people, symptoms occur within the first seven to 10 days and go away within three months. Sometimes, they can persist for a year or more.

The goal of treatment after concussion is to effectively manage your symptoms.

### **Symptoms**

Post-concussion symptoms include:

- Headaches
- Dizziness
- Fatigue
- Irritability
- Anxiety
- Insomnia
- Loss of concentration and memory
- Ringing in the ears
- Blurry vision
- Noise and light sensitivity
- Rarely, decreases in taste and smell

Post-concussion headaches can vary and may feel like tension-type headaches or migraines. Most often, they are tension-type headaches. These may be associated with a neck injury that happened at the same time as the head injury.

### **When to see a doctor**

See a doctor if you experience a head injury severe enough to cause confusion or amnesia — even if you never lost consciousness.

If a concussion occurs while you're playing a sport, don't go back in the game. Seek medical attention so that you don't risk worsening your injury.

### **Causes**

Some experts believe post-concussion symptoms are caused by structural damage to the brain or disruption of the messaging system within the nerves, caused by the impact that caused the concussion.

Others believe post-concussion symptoms are related to psychological factors, especially since the most common symptoms — headache, dizziness and sleep problems — are similar to those often experienced by people diagnosed with depression, anxiety or post-traumatic stress disorder.

In many cases, both physiological effects of brain trauma and emotional reactions to these effects play a role in the development of symptoms.

Researchers haven't determined why some people who've had concussions develop persistent post-concussion symptoms while others do not. There's no proven connection between the severity of the injury and the likelihood of developing persistent post-concussion symptoms.

However, some research shows that certain factors are more common in people who develop post-concussion syndrome compared with those who don't develop the syndrome. These factors include a history of depression, anxiety, post-traumatic stress disorder, significant life stressors, a poor social support system and lack of coping skills.

More research is still needed to better understand how and why post-concussion syndrome happens after some injuries and not others.

### **Risk factors**

Risk factors for developing post-concussion syndrome include:

- **Age.** Studies have found increasing age to be a risk factor for post-concussion syndrome.
- **Sex.** Women are more likely to be diagnosed with post-concussion syndrome, but this may be because women are generally more likely to seek medical care.

### **Diagnosis**

No single test will prove you have post-concussion syndrome.

Your doctor may want to order a scan of your brain to check for other potential problems that could be causing your symptoms. A computerized tomography (CT) scan or magnetic resonance imaging (MRI) may be performed to detect structural brain abnormalities.

If you're experiencing a lot of dizziness, you may be referred to a doctor who specializes in ear, nose and throat complaints.

A referral to a psychologist or licensed counselor may be in order if your symptoms include anxiety or depression, or if you're having problems with memory or problem-solving.

### **Treatment**

There is no specific treatment for post-concussion syndrome. Your doctor will treat the individual symptoms you're experiencing. The types of symptoms and their frequency are different for everyone.

#### **Headaches**

Medications commonly used for migraines or tension-type headaches, including some antidepressants, antihypertensive agents and anti-epileptic agents, appear to be effective when these types of headaches are associated with post-concussion syndrome. Medications are usually specific to the individual, so you and your doctor will discuss which are most appropriate for you.

Keep in mind that the overuse of over-the-counter and prescription pain relievers may contribute to persistent post-concussion headaches.

## Memory and thinking problems

No medications are currently recommended specifically for the treatment of cognitive problems after mild traumatic brain injury. Time may be the best therapy for post-concussion syndrome if you have cognitive problems, as most of them go away on their own in the weeks to months after the injury.

Certain forms of cognitive therapy may be helpful, including focused rehabilitation that provides training in the specific areas that you need to strengthen. Some people may need occupational or speech therapy. Stress can increase intensity of cognitive symptoms and learning stress management strategies can be helpful to decrease cognitive symptoms. Relaxation therapy also may help.

## Depression and anxiety

The symptoms of post-concussion syndrome often improve after the affected person learns that there is a cause for his or her symptoms and that they will likely improve with time. Education about the disorder can ease a person's fears and help provide peace of mind.

If you're experiencing new or increasing depression or anxiety after a concussion, some treatment options include:

- **Psychotherapy.** It may be helpful to discuss your concerns with a psychologist or psychiatrist who has experience in working with people with brain injury.
- **Medication.** To combat anxiety or depression, antidepressants or anti-anxiety medications may be prescribed.

## Preparing for your appointment

An emergency room doctor often makes the initial diagnosis of a concussion. Once discharged, you may seek care from your family doctor or general practitioner.

He or she may refer you to a doctor who specializes in brain and nervous system disorders (neurologist) or a brain rehabilitation specialist (physiatrist).

If you are referred to a specialist, it's a good idea to be well-prepared for your appointment. Here's some information to help you get ready for your appointment and know what to expect from your doctor.

### What you can do

- **Write down any symptoms you're experiencing**, including any that may seem unrelated to the reason for which you scheduled the appointment.
- **Write down key personal information**, including any major stresses or recent life changes.
- **Make a list of all medications**, vitamins or supplements that you're taking.
- **Ask a family member or friend to go with you**, if possible. Sometimes it can be difficult to remember all of the information provided to you during an appointment. Someone who accompanies you may remember something that you missed or forgot.
- **Write down questions to ask** your doctor.

Preparing a list of questions can help you make the most of your appointment. List your questions from most important to least important in case time runs out.

For post-concussion syndrome, some basic questions to ask your doctor include:

- Why are these symptoms still occurring?
- How long will they continue?

- Do I need any additional tests? Do these tests require any special preparation?
- Are there any treatments available, and which do you recommend?
- Are there any activity restrictions that I need to follow?
- Are there any brochures or other printed material that I can take home with me? What websites do you recommend visiting?
- When can I return to work?
- When can I drive again?
- Is it safe to drink alcohol?
- Is it OK to take my medications that were prescribed before the injury?

In addition to the questions that you've prepared to ask your doctor, don't hesitate to ask questions during your appointment.

### **What to expect from your doctor**

Your doctor is likely to ask you a number of questions. Being ready to answer them may reserve time to go over any points you want to spend more time on. Your doctor may ask:

- How did the initial injury occur?
- Have your symptoms been constant or do they come and go?
- What symptoms are you currently experiencing?
- How often do your symptoms occur?
- Does anything seem to improve your symptoms?
- What, if anything, makes your symptoms worse?
- Are your symptoms getting worse, staying the same or improving?

### **Prevention**

The only known way to prevent post-concussion syndrome is to avoid the head injury in the first place.

Avoiding head injuries:

Although you can't prepare for every potential situation, here are some tips for avoiding common causes of head injuries:

- Fasten your seat belt whenever you're traveling in a car, and be sure children are in age-appropriate safety seats. Children under 13 are safest riding in the back seat, especially if your car has air bags.
- Use helmets whenever you or your children are bicycling, roller-skating, in-line skating, ice-skating, skiing, snowboarding, playing football, batting or running the bases in softball or baseball, skateboarding, or horseback riding. Wear a helmet when riding a motorcycle.
- Take action at home to prevent falls, such as removing small area rugs, improving lighting and installing handrails.

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