Concussion
(Mild Traumatic Brain Injury)

**Definition**

A concussion is an injury to your brain that causes problems with how the brain works. It can affect brain tasks like memory, balance, concentration, judgement, and coordination.

Most will have a full recovery, but the brain will need time to heal with the proper rest and monitoring.

**Causes**

A concussion is caused by a sudden, violent jolt to the brain. The force can cause stretching and tearing to the brain and soft tissue that supports it. Forces that can cause this type of damage include:

- A blow to the head
- Severe jarring or shaking—like a bad fall
- Abruptly coming to a stop—most common in car accidents

**How a Concussion Occurs**

The head strikes a hard object creating a concussion-type injury

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Risk Factors

Factors that may increase your chance of a concussion include:

- A previous concussion or head injury
- Participation in contact sports like football or boxing, especially during competition
- Work that involves farming, logging, or construction where the potential for a head injury is high
- Being in a car accident
- Increased susceptibility to concussion
- Alcohol intoxication

Concussions most often occur with:

- Motor vehicles
- Bicycles, especially if not wearing a helmet
- Skates, skateboards, and scooters
- Sports and recreation
- Falls
- Firearms
- Physical violence including domestic abuse or child abuse

Symptoms

A concussion can cause symptoms that may last for days, weeks, or even longer. They may be immediately present or appear a few hours or days after the injury. The symptoms that develop will depend on the severity of the injury. More common symptoms are listed below.

Physical symptoms may include:

- Low-grade headache or neck pain
- Loss of balance or coordination
- Feeling lightheaded
- Ringing in the ears or trouble hearing
- Blurred vision or eyes that tire easily
- Nausea or vomiting
- Feeling fatigued or tired
- Increased sensitivity to sounds, light, or distraction
- Numbness
- Change in sleeping pattern, sleeping more than normal or trouble sleeping
- Seizures

Mental and emotional symptoms may include:

- Confusion
- Loss of consciousness or memory about the accident
- Trouble processing information such as difficulty:
  - Remembering things
  - Paying attention or concentrating
  - Organizing daily tasks
  - Making decisions and solving problems
- Slowness in thinking, acting, speaking, or reading
• Mood instability or changes such as:
  o Feeling sad, anxious, or listless
  o Becoming easily irritated or angry for little or no reason
  o Lacking motivation
• Hallucinations

A doctor should be consulted if serious symptoms like confusion and vomiting occur or if symptoms get worse.

Young children may not be able to clearly communicate symptoms. Talk to a doctor if the child has had a head injury and is showing any of the following symptoms:

• Listlessness or tiring easily
• Irritability or crankiness
• Changes in:
  o Eating or sleeping patterns
  o Play
  o Behavior
  o School performance
• Lack of interest in favorite toys or activities
• Loss of new skills, such as toilet training
• Loss of balance, unsteady walking

Diagnosis

You will be asked about your symptoms and how the injury occurred. Others who witnessed the accident may also be asked to describe what happened and how you reacted. A physical exam will be done. It will often include brief tests for strength, sensation, balance, reflexes, and memory. The doctor will often be able to diagnose a concussion based on the exam and history.

A CT scan may be done if there are severe symptoms or certain risk factors but are not always needed.

Treatment

The brain can usually heal on its own with some rest and avoiding activities that may be harmful while it heals. Normal activities can be resumed when tolerated and if advised by the doctor. Strenuous physical activity and sports participation may be resumed depending on the severity of your concussion and individual symptoms. Symptoms will gradually fade during recovery.

Mental Rest

There may be cognitive problems after a concussion that can make mentally-demanding tasks more difficult. Early in recovery activities that need concentration like work or schoolwork may be difficult. Also, consider reducing video games, watching television, computer activities, or texting.

Increase mental and physical activities gradually as recommended by your doctor based on how you feel. Symptoms, balance, cognition and tolerance to current activity levels may be tested throughout recovery.

Prevent Further Damage
The brain is more vulnerable to injuries while it is healing. Re-injury can lead to more severe or long-term symptoms. Precautions should be taken with:

- Certain medications—especially aspirin, blood thinners, and medications that cause drowsiness
- Use of alcohol and illegal drugs.
- Activities that might jolt or jar the head from recreational activities and sports to rollercoasters.

Second head injury can be especially dangerous in children and adolescents (second impact syndrome). Even a mild second head injury in children and adolescents can lead to serious damage to the brain. This can lead to unconsciousness and even death.

**Prevention**

A closed head injury is often the result of an accident which can be difficult to prevent. To decrease the chance of severe injuries during an accident:

- Always use seatbelts, shoulder harnesses, and child safety seats when traveling in vehicles. Follow recommendation for child car safety options.
- Learn about the air bags in your car. Young children should not be placed in front of airbags. Check your cars specifications.
- Wear a helmet when participating in high risk activities such as:
  - Riding a bike or motorcycle
  - Playing a contact sport like football, soccer, or hockey
  - Using skates, scooters, and skateboards
  - Catching, batting, or running bases in baseball or softball
  - Riding a horse
  - Skiing or snowboarding

To prevent accidents at home that can lead to concussions:

- Make sure your child's play surface is soft and free of rocks, holes, and debris.
- Use handrails when walking up and down stairs—teach your child to do so.
- Install safety gates by stairs and safety guards by windows.
- Use grab bars in the bathroom.
- Place non-slip mats in the bathroom.
- Keep walkways clear to avoid tripping.
- Make sure rooms and hallways are well lit.

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