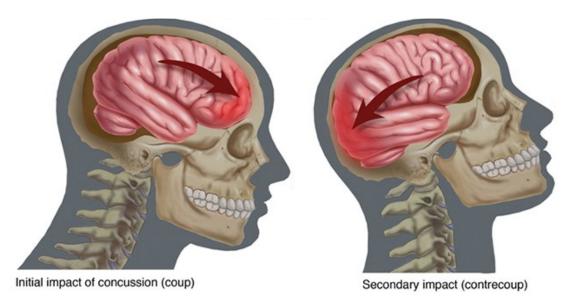
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Concussions

A concussion can result from a violent jar or impact to the head. It represents a brain injury that can cause changes in brain function, including a possible loss of consciousness. The effects of a concussion are usually temporary, but they may be cumulative. The more concussions sustained, the more long-term effects occur, such as slurred speech, slow movements, slow thought processes, and tremors, etc.



Frequent Signs and Symptoms

Symptoms depend on the extent of the injury. A concussion can occur with or without loss of consciousness which is not necessarily related to the severity of the injury. Signs and symptoms include, but are not limited to

- Headaches
- Temporary loss of consciousness
- o Memory loss (amnesia) of short duration
- o Emotional instability
- Usually prolonged loss of consciousness
- o Pupils of different size
- Changes in vision (including blurring)
- Changes in breathing
- Disturbed equilibrium (balance)



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The worst concussions are caused by large impacts of energy (motor vehicle accidents). Although more severe injuries are incurred when helmets are not worn, an individual can receive a concussion even if a helmet is worn.

Risk Factors

- Contact sports, especially football, soccer, martial arts, or boxing
- Riding bicycles, motorcycles, or horses without a helmet

Prevention

- Wear proper protective headgear and ensure correct fit.
- Do not drink or use mind-altering drugs and drive.

Outcomes

This condition is usually curable with early recognition and medical treatment. Complications can be life threatening or cause permanent disability and brain damage.

Potential Complications

- Permanent brain damage, depending on the extent of injury; repeated concussions can cause slurred speech, slow movement, slow thought processes, and tremor
- Bleeding under the skull (subdural hemorrhage or hematoma, epidural hematoma) associated with the head injury.
- Bleeding into the brain associated with the head injury.
- Prolonged recovery time if usual activities are resumed too soon
- Susceptibility to repeat concussions; often less trauma or force is required to cause a second concussion than is necessary to cause the first. After one concussion, an athlete is 4 times more likely to sustain a second.
- Death from second impact syndrome (a return to sports before all symptoms have completely disappeared). A minor second injury that occurs before all symptoms have disappeared can cause sudden, massive, irreversible swelling of the brain, resulting in death.

Treatment Considerations

The initial treatment includes removal from the event, immediate and repeat neurologic evaluations, evaluation for a more severe head injury or bleed, occasional advanced imaging, and rest from mental and physical activities.- Report any of the following to the physician immediately:



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- Vomiting
- The inability to move arms and legs equally well on both sides
- Temperature above 100°F (37.8°C)
- Neck stiffness
- Pupils of unequal size, shape, or reactivity
- Convulsions
- Noticeable restlessness
- Severe headache that persists for longer than 4 hours after injury
- Confusion, disorientation, or mental status changes

Avoid mental and physical exertion as long as concussion symptoms persist. Do not return to activities until evaluated and released by a proper medical expert

Return to play is a controversial subject and should be discussed at length with your treating physician. Generally speaking, individuals should not return to sports until asymptomatic and it is recommended, they progress through a gradual and graded protocol for return to physical activity. Factors such as the length of time of unconsciousness, amnesia, and other altered brain functions, and whether this is the first, second, or third concussion all play a role in timing for a patient's return to sports.

Possible Medications

Do not give any medicine, including nonprescription acetaminophen, NSAIDS, or aspirin, until the diagnosis is certain because these may mask developing symptoms.

Notify My Office If

- Symptoms get worse or do not improve in 24 hours
- Any of the following symptoms occurs:
 - Vomiting
 - o The inability to move arms and legs equally well on both sides
- Temperature above 100°F (37.8°C)
- Neck stiffness
- Pupils of unequal size, shape, or reactivity
- Convulsions
- Noticeable restlessness
- Severe headache that persists for longer than 4 hours after injury
- Confusion, disorientation, or mental status changes



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