



USS - CONCUSSION INFORMATION FOR ATHLETES

CONCUSSION DEFINITION: A brain injury caused by direct impact to the head or by forces transmitted to the head.

WHAT HAPPENS IN THE BRAIN: Nerve cells require the right balance of electrolytes inside and outside of the cell to function properly. Injury to the brain causes damage to nerve cell membranes and disrupts this balance. The cell then has to use more energy due to the work required to repair the cell membrane and restore the electrolyte balance. Blood flow to the injured area is usually decreased and it becomes harder for the cell to get what it needs to heal. In addition to this, the injury to the brain tissue causes inflammation that is irritating to nerve cells.

SYMPTOMS: Due to the damage to the nerve cells and the associated inflammation, the function of the brain is compromised and it has a hard time processing information and integrating all the input from the environment. This is why the usual symptoms of headache, fatigue, dizziness, nausea, light and noise sensitivity, slowing of cognitive function, difficulty with memory, and emotional imbalance are common with concussion. The brain simply cannot do its job until it heals.

MANAGEMENT: The symptoms of a concussion can be immediate at the time of injury or can be delayed for hours after the injury. This is why it is necessary to continue to monitor for development of symptoms and for the athletic trainer or physician to perform repeat examinations after suspected brain injury. Here are a few things to expect if you are being monitored for a possible concussion:

- Evaluation by athletic trainer or physician to assess for concussion symptoms but also to rule out any possible cervical spine or more severe head injury.
- Removal from competition or training until cleared to return. Whether you are cleared to return or not, you will have serial testing done to continue to monitor your symptoms.
- If you are diagnosed with a concussion, you should have both physical and cognitive rest for the first 24-48 hours.
 - No resistance training, sport-specific training, cross training, cardiovascular conditioning, intense exertion associated with activities of daily living, etc.
 - Avoid mental tasks including studying, reading, social media streaming, etc.
 - Minimize exposure to visual and auditory stimulation (computer use, television, texting, video games, etc.)
 - Avoid potential stressful situations (media attention, interviews, team meetings, etc.)
 - Avoid alcohol or recreational drug use
 - Maintain regularly scheduled fluid intake (hydration), meals and snacking (well-balanced)
 - Avoid sleeping pills, anti-inflammatory medication (e.g., aspirin, ibuprofen, aleve, etc.), narcotics and other analgesics within the first 24-48 hours.
- After the first 24-48 hours, your athletic trainer and/or physician will help guide your activity level and specific ways to manage your concussion to help you progress back to training and competition.

RETURN TO SPORT: The reason it is important to strictly follow management guidelines is that there are many complications that come from returning to sport before the brain is healed and symptoms have resolved. Most notable is the risk of sustaining another impact to the head before the first injury is healed. Normally this results in prolonged recovery, often turning a 2 week recovery into 2 months or longer. A more rare but severe complication is brain injury that causes diffuse swelling of the brain and can cause permanent neurologic disability or even death. In addition to neurologic effects, it has been shown that concussion increases the risk for lower extremity musculoskeletal injuries when athletes return to sport.

NUTRITION: We don't know for sure if using supplements or vitamins will help in prevention and/or recovery from a concussion, but there are indications from mostly animal research and that certain ones may be beneficial. Please see your athletic trainer or the physician for more specific information.