

TALKING TO PATIENTS WITH CONCUSSIONS

**For Athletic Trainers and Healthcare
Professionals Treating Patients with Traumatic
Brain Injuries.**

ImPACT Applications

TABLE OF CONTENTS

CONCUSSION EDUCATION FOR PATIENTS

Common causes of head injuries	4
Concussion prevention	4
Concussion symptoms	5
Post-concussion syndrome	6

PROVIDING SPECIALIZED CARE

Tips to create an ideal clinical environment	8
Multidisciplinary team members	9

PREPARING FOR THE CONCUSSION EVALUATION

Baseline testing	11
Diagnosing a concussion	11
Set proper concussion recovery expectations	12

WHAT TO DO AFTER A CONCUSSION

Removal from activity	14
Importance of reporting a concussion	15
Danger signs to report right away	15

CONDUCTING THE CLINICAL INTERVIEW

Neurocognitive testing to measure brain function	18
VOMS test to detect visual and vestibular issues	18
BESS balance testing	19

CONCUSSION TREATMENT AND RECOVERY PLANS

Six clinical trajectories	22
Communicating the treatment plan to patients	22

RETURNING PATIENTS TO EVERYDAY ACTIVITY

Returning to cognitive activity	25
Return to learn	26
Return to physical activity	27
Concussion return to play protocol	30

AT-HOME CONCUSSION REHABILITATION EXERCISES

Rehab exercise examples for home	33
The importance of keeping a routine	34

CONCUSSION EDUCATION FOR PATIENTS



A concussion is the most common traumatic brain injury caused by some sort of force, blow, or trauma to the head. This type of injury causes short-term changes to the mental status that affects coordination, balance, and even personality changes right away. Since this is a newer research field, the definition changes as more information becomes available.

COMMON CAUSES OF HEAD INJURIES

When most people think concussion they tend to associate it with contact sports such as football or hockey. However, according to the CDC, falls are the number one cause of concussions with car accidents coming in second. This puts anyone, not just athletes, at risk for concussion.

CONCUSSION PREVENTION

Unfortunately, there is no specific method or equipment that will entirely protect an individual from getting a concussion. While helmets are vital in keeping the skull safe from fractures and more serious injuries, concussion education is the best prevention. Teaching patients the concussion risks

and signs as well as the importance of baseline testing is the best information you can share.

CONCUSSION SYMPTOMS

There is no textbook set of symptoms as every concussion is different. Here are signs you may recognize in a patient who has sustained a head injury:

- Problems with concentration/memory
- Sensitivity to light and noise
- Dizziness or lightheadedness
- Double or foggy vision
- Headaches
- Nausea

These concussion symptoms might not manifest right away and can appear weeks or even months later, making it necessary to know and monitor your patients. Changes in behavior are more difficult to measure but something to be aware of.

POST-CONCUSSION SYNDROME

While most concussions heal within three to four weeks, 20% of patients experience lingering symptoms sometimes years after the initial injury. If your patient continues to report sensitivity to light, increased tiredness, or headaches, continue exploring the issue while helping them manage their symptoms.

Refer patients to [BaselineTesting.com](https://www.baselinetesting.com) to learn more about being proactive with concussions.

PROVIDING SPECIALIZED CARE



Creating an environment that accommodates concussed patients is important if you plan to specialize in concussion or brain injury. Consider the office lighting, where you will gather patient information, and how you will conduct the concussion evaluation to help keep patients comfortable.

TIPS TO CREATE AN IDEAL CLINICAL ENVIRONMENT

- **Lights** — Avoid a bright fluorescent atmosphere by dimming or softening the lights. This prevents triggering visual symptoms some of your patients may have.
- **Privacy** — Create a quiet space with minimal distractions that allows your patient to feel safe speaking to you one-on-one versus out in the open.
- **Breaks** — If you notice your patient getting tired, frustrated, or having worsening symptoms, stop and take a break. Consider dividing your evaluation into two parts to allow time for cognitive rest post-concussion.
- **Prepare patients for how they may feel** — After the evaluation your patient's symptoms may worsen. Let them know this is normal and to

take time to regroup instead of scheduling back to back appointments.

MULTIDISCIPLINARY TEAM MEMBERS

Along with creating a suitable environment, you'll need a multidisciplinary team or network of specially trained healthcare professionals. A few members to have on your medical team include athletic trainers, sports medicine physicians, neuropsychologists, psychologists, optometrists, as well as physical and occupational therapists.

Go to [ConcussionCareProviders.com](https://www.concussioncareproviders.com) to find concussion specialists in your area.

PREPARING FOR THE CONCUSSION EVALUATION



There are three significant factors to include in your concussion evaluation — objective tools to measure recovery, a concussion diagnosis plan, and recovery education for patients.

BASELINE TESTING

Baseline testing records brain function in a healthy state. After a patient sustains a head injury, the same memory, visual, and spatial testing can be done to compare data side by side. This objective information can assist you when making concussion rehabilitation plans that are specific to your patient's symptoms and needs.

DIAGNOSING A CONCUSSION

There is no FDA cleared test that provides a concussion diagnosis. It is up to you, the healthcare provider, to utilize a myriad of tools and medical equipment for concussion diagnosis and treatment. This can include:

- Neurocognitive testing
- Physical examination

- Balance screening
- Vestibular ocular examination
- Reviewing a concussion symptoms checklist
- Asking questions about the head injury and the current cognitive state

Expertise is crucial for concussion diagnosis and treatment. There are a variety of concussion credential programs for healthcare providers that teach the latest skills in concussion care and rehabilitation.

SET PROPER CONCUSSION RECOVERY EXPECTATIONS

Concussion treatment and rehabilitation has evolved over the years. You can properly set your patients' expectations by educating them about some of the most common myths. These include avoiding sleep after a head injury, extended periods of rest in a dark room, and long concussion recovery times.

Download our concussion myths infographic at BaselineTesting.com/Concussion-Myths to share with your patients.

WHAT TO DO AFTER A CONCUSSION



No matter how your patient hits their head, the body is undergoing a traumatic experience. This sets the nervous system into fight or flight mode, making the body work harder than usual. Current recommendations advise complete cognitive and physical rest for 24 to 48 hours. This allows the body to settle and begin the healing process.

Along with this information, you should educate your patients about removal from activity, the importance of reporting concussion symptoms, and alarming signs to look out for.

REMOVAL FROM ACTIVITY

After a head injury, patients must immediately stop performing activity to avoid a second impact. Patients should seek medical care as soon as possible to get a full concussion evaluation. This is followed by 24 to 48 hours of physical and cognitive rest including screen time.

IMPORTANCE OF REPORTING A CONCUSSION

A patient's ability to fully recover requires having a strong support system. This includes a medical team, their family members, friends, coaches, and teachers or employers. Encourage your patients to report their concussion to any of these people to have help available in all areas of their lives. With everyone on the same page, it will be less likely to miss key symptoms and the patient will get back to normal that much sooner.

DANGER SIGNS TO REPORT RIGHT AWAY

After a head injury, your patient can experience a variety of symptoms. If any of the below worsen with time or do not seem to improve, pursue additional care:

- Headaches
- Weakness
- Vomiting
- Dizziness
- Deafness in ears

- Blindness in eyes
- Slurred speech
- Convulsions
- Change in consciousness
- Irregularities with the pupils such as not being equal, not dilating to light, or staying wide open

These worsening symptoms are all red flags that you, your patient, and their support network should monitor throughout the recovery process. For more severe symptoms emergency care is recommended.

CONDUCTING THE CLINICAL INTERVIEW



During the clinical interview, you will do more talking than you think necessary. The goal is to gather as much information as possible by getting the patient to report their symptoms. You will also administer a neurocognitive test, perform the Vestibular-Ocular Motor Screening (VOMS), and Balance Error Scoring System (BESS) test.

NEUROCOGNITIVE TESTING TO MEASURE BRAIN FUNCTION

Ideally, you want a patient to complete a neurocognitive test, such as ImPACT baseline, before an injury. If a test has not been taken, you can compare their post-injury results to normative data. During the ImPACT post-injury test, you will review a list of signs and symptoms to understand how the patient feels. You can use this data throughout your patient's recovery to show them how far they have come.

VOMS TEST TO DETECT VISUAL AND VESTIBULAR ISSUES

Next, you will conduct a screening that tracks eye movements and allows you to observe how the vestibular system is working. When conducting VOMS you will get to see any change in symptoms as exercises are

completed. There are a series of eye movements — side-to-side without moving the head, up and down, shaking the head and keeping the eyes steady on one point — that will help you understand the patient's deficits and where you can cater rehab going forward.

Go to ImPACTQuickTest.com/VOMS to watch a VOMS test demo.

BESS BALANCE TESTING

The BESS balance test evaluates a patient's body awareness, postural stability, and control of their body after a head injury. It's common for athletes to have BESS baseline results prior to injury which gives you data to compare. The general public likely won't have access to this information but you can still use these results to track their progress as the number of errors they have decreases.

Go to ImPACTQuickTest.com/BESS to watch a BESS test demo.

Having objective tools to measure recovery is beneficial for a couple of reasons. They can help document your patient's rehabilitation and show progress over time. Some tools are even covered by CPT codes for concussion care which can generate extra revenue.

CONCUSSION TREATMENT AND RECOVERY PLANS



Using the data gathered in the clinical interview, you can create an individual concussion treatment and recovery plan. Refer your patients to the appropriate specialists by determining their clinical trajectory.

SIX CLINICAL TRAJECTORIES

- Vestibular — balance, or proprioception difficulties
- Ocular — visual changes or visual differences
- Cognitive fatigue — chronic tiredness, mental disturbances, memory changes
- Post-traumatic migraine — constant headaches that can last months, more susceptible to migraines, sounds and light are debilitating
- Cervical — neck pain, neck dysfunction, loss of range of motion
- Anxiety/mood — persistent low mood type symptoms, constant anxiety with no necessary reason behind the worry

COMMUNICATING THE TREATMENT PLAN TO PATIENTS

The key to creating a solid rehabilitation plan is communication. By explaining your treatment ideas to your patients you build trust and show

compassion. This also creates a team atmosphere and helps your patients learn what symptoms they have that are leading you to recommend a specific type of treatment.

RETURNING PATIENTS TO EVERYDAY ACTIVITY



The standards for concussion rehabilitation and treatment have changed over the years. Previously, cocoon therapy, where patients were isolated in a dark room for extended periods of time, was the most recommended form of recovery. Now, there is research and new concussion treatment guidelines provided by the CDC that emphasize the importance of a gradual return to life as soon as possible.

Gradual return to activity is best done with the healthcare provider serving as a guide throughout this journey. You will help your patients manage their symptoms while motivating them to know what they can work through and when they should ease off. The main objective is to avoid isolation so patients have an easier time getting back to life and their routines.

RETURNING TO COGNITIVE ACTIVITY

Releasing a patient to cognitive activity isn't something thought of right away. For athletic trainers, the focus has typically been on getting athletes back into sport. But all patients, no matter if they are student-athletes or

work in an office, need to have a certain cognitive ability to learn, check emails, make calls, and get through the day.

Patients with a concussion can't participate at full capacity since every cognitive ability they have — attention, memory, focus — is affected. While this is true, maintaining a regular schedule throughout rehab is important. As soon as a patient is ready, plan to integrate them back into their routine even if that means half days to start.

RETURNING TO LEARN

Many schools do not have the resources to establish a return to learn or activity protocol. In these instances, the healthcare provider will be the point person to help patients navigate their lives as they return to normal.

Start by recommending changes patients can make to their surroundings to support their symptoms. Here are a few examples:

- Using earplugs to soften noise
- Wearing a hat or sunglasses to shade light from their eyes
- Communicating with their teacher or employer if they are feeling tired, overwhelmed, or need to take more breaks
- Closing their eyes to focus on auditory skills and limit visual distractions
- Allowing students more time for tests

All of these adjustments may seem minimal but they can have a huge impact in supporting children with concussions, adolescents, or adults returning to work. The goal is to encourage patients to get back to their routines instead of staying at home until they are 100% symptom-free.

RETURNING TO PHYSICAL ACTIVITY

When patients are ready to return to physical activity, healthcare providers and concussion rehabilitation specialists will continue to play an active role. For athletes and non-athletes alike, monitor their heart rate and symptoms

to make adjustments. The more information patients share, the better their rehab plans will be going forward and the better care they will receive.

These concussion rehabilitation steps are a gradual process to return to physical activity. Always be sure to have a trained concussion care provider on hand for supervision:

1. Rest — 24 to 48 hours of rest that includes removing extended screen time, homework, or cognitively demanding tasks.
2. Symptom-limited activity — Integrate activity, about ten minutes whether cognitive or physical and monitor symptoms the entire time.
3. Light aerobic exercise — Add activity that gets the heart rate up without aggravating symptoms. A walk outside or on a treadmill, swimming, or stationary cycling for 20 minutes at 70% HRMax.
4. Sport-specific exercise — Incorporate movement for 30 minutes at 80% HRMax. If your patient is a hockey player suggest going out to skate and doing non-contact drills. If your patient is a football player test sprints, get on the ladder, or try sport-specific moves. Once your patient has integrated back into practice they should still sit out contact drills and monitor their symptoms.

5. Non-contact training drills — Add activity that requires coordination and cognitive skills. Progress to more complex training drills for 60 minutes at 90% HRMax.
6. Medical clearance — Have a trained healthcare provider conduct a medical exam before moving on to normal training and returning to sport or activity.
7. Full contact practice — In a controlled environment incorporate contact while monitoring symptoms. Focus on restoring the patient's confidence and function while performing normal training.
8. Return to sport — Patients may resume full activity and get back into games. The amount of time it takes to reach this concussion rehabilitation step will vary by athlete and depends on the symptoms they're reporting.

This gradual process of returning to exercise or sports works best with open communication about symptoms. If a patient reports their symptoms being a 5 or 6 out of 10, the activity is too aggravating. By listening and working within their limits you can create a rehab plan specific to each patient.

CONCUSSION RETURN TO PLAY PROTOCOL

Return to play is a stepwise process based on a patient's heart rate and presence of their symptoms. All cognitive and physical activities should be supervised by a trained concussion care provider to make adjustments when needed.

To begin this phase of rehab, patients should meet the following return to play criteria:

- Symptom-free at rest, with cognitive exertion, and physical exertion. Activities such as reading, checking emails, going for a walk, or attending a yoga class do not aggravate symptoms
- Within normal limits on BESS and VOMS
- Back to (or better than) baseline on neurocognitive tests

Keep in mind patients suffering from post-concussion syndrome will still have symptoms that worsen with cognitive and physical exertion. You will have to bend the guidelines and encourage them to move through their

symptoms to interrupt the chronic pain cycle. A trained concussion rehabilitation specialist can help determine this balance of activity.

AT-HOME CONCUSSION REHABILITATION EXERCISES



Concussion care providers can recommend activity for patients to do at home to maximize healing opportunities. This allows patients to continue working on their recovery, even if they do not have a scheduled rehab appointment.

REHAB EXERCISE EXAMPLES FOR HOME

- Light cardio as tolerated — walking outdoors to train the eyes to find movement and get the eyes moving side to side.
- Meditation — helps patients dealing with anxiety or stress about the future by focusing on the present and calming the nervous system.
- Gentle yoga — eases patients into trusting their bodies and feeling safe with simple movements.
- Specific eye or vestibular exercises — these can be done alone or incorporated with light cardio (looking around), yoga (shifting the gaze up and down), or meditation (focusing on one point).

THE IMPORTANCE OF KEEPING A ROUTINE

Another key factor to emphasize is keeping a routine. This is crucial for targeting concussion-specific symptoms and will help patients maintain a consistent sleep cycle so they can bounce back to everyday activities.

Ready to put your concussion care skills to the test? [Take this 5-question quiz.](#)