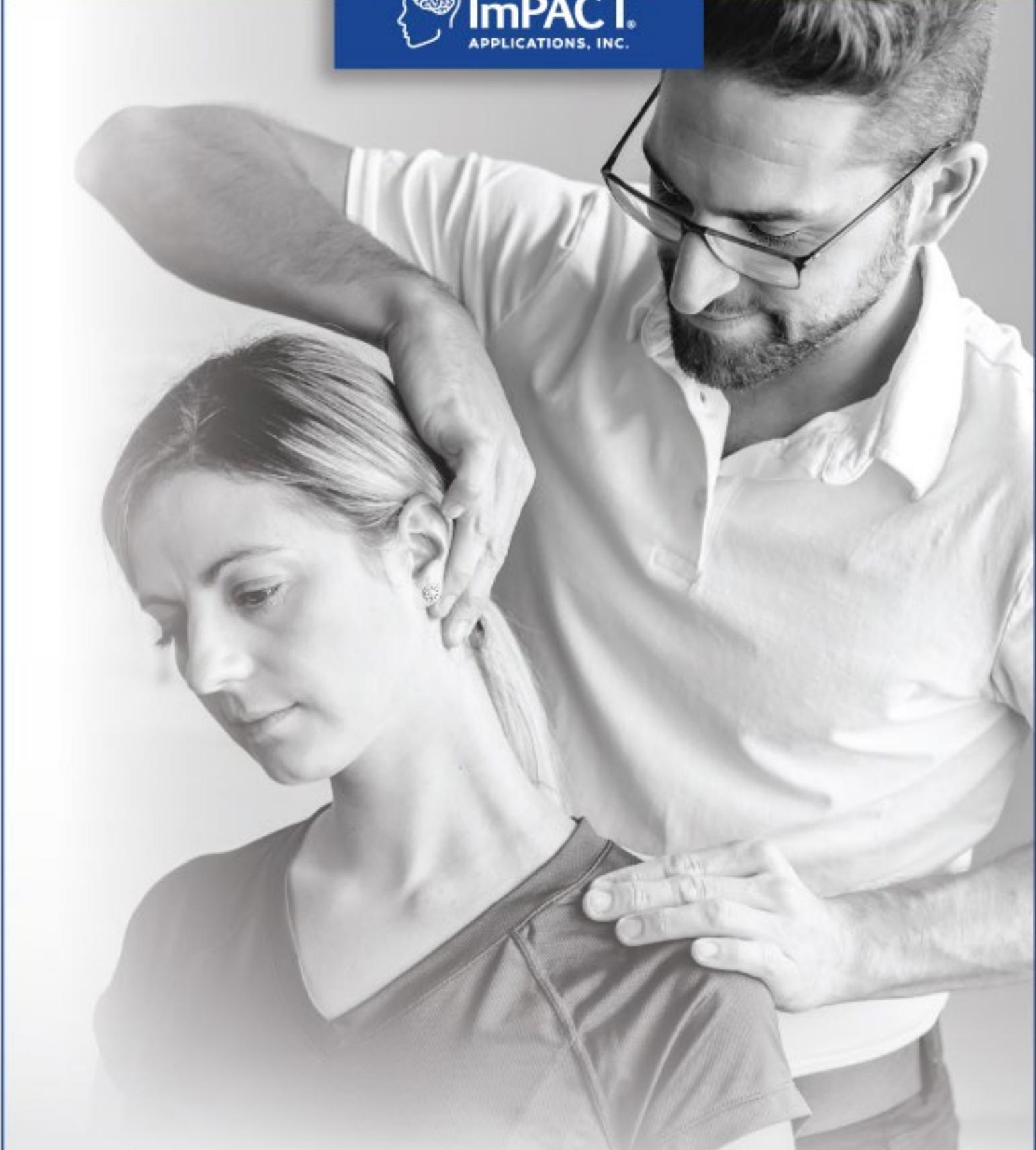




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# **Chiropractor's Role in Concussion Management**

# Chiropractor's Role in Concussion Management

Learn what tools, resources, and methodologies a chiropractor may use for concussion assessment and management.

Based on a presentation given by Dr. Jordan Knowlton-Key, Doctor of Chiropractic, at the 2022 Concussion Care Virtual Conference.

*This guide is based on the scope of doctors of chiropractic in the U.S. The extent to which chiropractors can be involved in concussion management differs by state. Always check your state's scope of practice to confirm what roles and responsibilities you may have within the concussion care team.*

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# 1.

## **The Chiropractor's Scope of Practice for Concussion Care**

In the past, concussion management was mainly limited to neuropsychologists. More recently, a multidisciplinary approach has been recommended which includes collaboration between different specialties for more comprehensive concussion treatment.

As a doctor of chiropractic, you may or may not be able to assess and manage concussions in your state. However, your role will still include triaging patients to rule out complicating factors and determining if there is involvement of the cervical spine. Chiropractors are allowed to be primary care providers and portal of entry clinicians for patients in all 50 states. However, only about 50% of the states include a scope of practice allowing a doctor of chiropractic to return an athlete back to their activity.

No matter your scope of practice, it's important to work effectively with a variety of providers when managing patients with concussion.

# 2.

## **Sideline Assessment of Concussion**

Chiropractors may be on the sidelines of sports games and practices to triage, make removal from activity decisions, and refer for further assessment.

Chiropractors' success on the sidelines is based on the extent of their planning and preparation. If you don't plan for the worst-case-scenario, you won't be prepared to manage it and respond quickly should it happen.

At a minimum, your sideline assessment should include these fundamentals.

### **Observation of the Mechanism of Injury (MOI)**

- Did they lose consciousness?
- Do they have a dazed gait?
- Are they demonstrating any tonic posturing?
- Are they demonstrating motor incoordination?

### **Identification of red flags**

- Altered vital signs
- Repeated vomiting
- Blurry vision
- Impact seizure
- Tonic posturing
- Gross motor instability
- Anterograde / Retrograde amnesia

Your sideline assessment will differ depending if you're the solo provider on the sidelines or if you have a multidisciplinary team to work with.

As a solo provider, your focus is on triaging, identifying red flags, taking vitals, assessing related injuries, checking orientation, and making a removal from play determination.

It's important to consider that you may not have the resources to do a comprehensive assessment on the sidelines. Rather, you may administer modified cognitive, balance, ocular-motor, and cervical assessments as well as observe concussion signs and ask about symptoms.

One of the chiropractor tools you may use on the sidelines is **ImPACT Quick Test** - a 5-minute neurocognitive test battery that assists with removal from activity decisions. ImPACT Quick Test also includes the ability to administer and record the Vestibular Ocular Motor Screening (**VOMS**) and Balance Error Scoring System (**BESS**) tests. Any athlete who manifests signs or symptoms consistent with concussion, or shows impairment in any of the areas assessed, should be removed from play for further evaluation.

If you have a more robust healthcare team on the sidelines, you'll be able to do a more thorough examination in addition to ImPACT Quick Test. This may include neurological screening, cervical assessment, and a functional return to play evaluation.



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It's essential for doctors of chiropractic to understand the importance of using standardized concussion assessment tools and current concussion guidelines.

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3838721/>

# 3.

## Concussion Evaluation

At a minimum, your comprehensive concussion evaluation should consist of:

- Patient history
- Physical examination
- VOMS
- BESS
- ImPACT
- Symptom check
- Exercise testing

Chiropractors may use [ImPACT](#) for patients ages 12-80 ([ImPACT Pediatric](#) for patients 5-11) to help determine the cause of some of the signs and symptoms the patient is experiencing, as well as use it to monitor progress throughout return to academics and sport. ImPACT consists of 8 neurocognitive test batteries that measure visual and verbal memory, reaction time, and processing speed. It also includes a 21 item concussion symptom scale that you may use to cater your exam and make sure you address any symptoms the patient is reporting. After administration, a detailed clinical report is automatically generated that you can use to help guide rehab plans.

ImPACT is a critical portion of the examination because it provides objective data that can be used to help guide treatment decisions. In instances where the patient doesn't have an established baseline, the chiropractor can compare ImPACT post-injury test results to normative data. ImPACT can be administered remotely or in-person, so chiropractors don't need to have large computer labs or additional resources to use ImPACT.

# 4.

## Differential Diagnosis

Differential Diagnosis			
<b>Cervical:</b>	<b>Vestibulochochlear:</b>	<b>Ocular:</b>	<b>Temporal mandibular joint:</b>
Neck pain, headache, dizziness, gait instability, fogginess, gaze stability, difficulty with saccades, body coordination, and balance issues	Dizziness, vertigo, headache, posture imbalance, difficulty focusing, gait alterations, smooth pursuit difficulty	Blurry vision, imbalance, convergence errors, accommodation errors, smooth pursuit errors, difficulty performing saccades	Headaches, neck pain, and jaw pain

Concussion symptoms may overlap with those of other conditions, making a differential diagnosis extremely difficult on the sidelines without a thorough assessment. Symptoms may be related to the cervical spine, vestibulochochlear injury, ocular dysfunction, or temporal mandibular dysfunction.

## Temporomandibular Disorders

If the patient experiences jaw discomfort, ear pain, or headaches, you should conduct an in-depth temporomandibular joint assessment. During which you will be looking for jaw deviations and/or malocclusion.

## Cervical Spine / Whiplash Associated Disorders (WAD)

Whiplash associated disorders (WAD) are a category of conditions affecting the neck occurring during acceleration-deceleration injuries.

When conducting your initial evaluation, check for these things that are typical of whiplash associated disorders:

- Reduced range of motion
- Spasm and tenderness of neck musculature
- Hyper- or hypo- mobility of the alar ligaments
- Vertigo and/or dizziness with specific cervical testing

The Quebec Task Force has classified whiplash associated disorders from 0-4.

- **Grade 0:** No complaints about the neck. No physical signs.
- **Grade 1:** Neck complaint of pain, stiffness, or tenderness only. No physical signs.
- **Grade 2:** Neck complaint AND musculoskeletal signs. Musculoskeletal signs include decreased range of motion and point tenderness.
- **Grade 3:** Neck complaint AND neurological signs. Neurological signs include decreased range of motion and point tenderness.
- **Grade 4:** Neck complaint AND fracture or dislocation.

Depending on the grade, chiropractors may need to refer out.

If a patient presents with dizziness, the chiropractor should conduct tests to determine whether the cervical spine is the cause.

**Stool rotation test:** Have the patient sit on a stool with wheels while you hold their head stationary. Then have the patient rotate their body right and left.

**Smooth Pursuit Neck Torsion Test:** Have the patient seated and complete smooth pursuit with their head facing center, then with the neck rotated left 45 degrees, then with the neck rotated right 45 degrees.

## Vestibular-Ocular Disorders

Vestibular-ocular disorders can involve either the vestibulo-ocular (eye tracking) or the vestibulo-spinal system (balance). Its conditions may include:

- Otolith displacement
- Eye tracking disorders
- Peripheral vestibulopathy
- BPPV
- Tympanic Membrane Rupture

There's a wide variety of signs and symptoms seen during concussive events and WAD injuries related to function of the vestibulocochlear and ocular systems including:

- Ocular tracking
- Reaction time
- Spatial orientation
- Balance

The chiropractor's assessment of the vestibulocochlear and ocular function may include:

- H-Pattern - Smooth Pursuit
- Convergence
- VOMS
- Dix-Hallpike
- Supine Roll
- Balance Testing (BESS)
- Cover / Uncover
- Eye Fixation (horizontal and vertical)

Chiropractors may use the Head Impulse Nystagmus Test of Skew (HINTS) exam to differentiate between peripheral and central disorders. Conduct the Head Impulse Test by placing hands bilaterally along the patient's head and having the patient fixate on your nose. Quickly turn the patient's head to one side, reset, then turn to the other side. During this movement, look for corrective saccades (abnormal if in the direction of head thrust).

**Peripheral Vestibulopathy:**

- Abnormal head impulse test  
AND
- Nystagmus (unidirectional when looking in all directions)  
AND
- Normal Test of Skew (Cover / Uncover)

Chiropractors can treat peripheral disorders, or refer out to an ocular specialist if they don't have the expertise.

**Central:**

- Abnormal head impulse test  
OR
- Nystagmus (vertical or bidirectional)  
OR
- Normal Test of Skew (Cover / Uncover)

# 5.

## **Chiropractor Concussion Treatment and Rehabilitation**

In addition to the sideline and clinical assessment, chiropractors may also be involved in multiple areas of concussion rehab. These may include:

- **Neuromusculoskeletal rehab:** manual procedures including soft tissue modalities or joint manipulative therapies
- **Cervical rehab:** deep neck flexor endurance testing and proprioceptive testing
- **Sport-specific rehab:** agility drills and strength training
- **Vestibular therapy:** VOMS, Epley's Maneuver, "BBQ" Roll
- **Vision therapy:** eye exams and determining if there's blurred vision

While chiropractors may be involved in many areas of concussion rehab, it's important to recognize when something is beyond the scope of your expertise and refer out to a specialist. Make sure you have a good referral network in place that you can utilize if a patient is not making progress.

Current research supports graduated return to activity as soon as possible and suggests that it may lead to a shorter recovery time. Chiropractors may be involved in exercise testing as long as they have the necessary resources and expertise.

# 6.

## Reimbursement for Chiropractic Concussion Care

As a doctor of chiropractic, you may be able to get reimbursed for a variety of techniques and modalities used for examining concussion patients.

**Commonly used CPT codes for chiropractic concussion services:**

CPT Codes for Chiropractic Concussion Care		
QUICK REFERENCE		
<b>99211</b> Re-evaluation	<b>99212-99215</b> E/M established patient	<b>98940-98943</b> Chiropractic manipulative treatment (CMT)
<b>97140</b> Manual therapy	<b>97112</b> Neuromuscular re-examination	<b>95992</b> Canalith repositioning procedure

**99211:** Re-evaluation

**99212-99215:** E/M established patient

**98940-98943:** Chiropractic manipulative treatment (CMT)

**97140:** Manual therapy

**97112:** Neuromuscular re-examination

**95992:** Canalith repositioning procedure

## Commonly used ICD-10 codes for chiropractic concussion care:

### Concussion

- **S06.0X0** - Concussion without loss of consciousness (LOC)
  - **S06.0X0A** - Initial encounter
  - **S06.0X0D** - Subsequent encounter
  - **S06.0X0S** - Sequela
- **S06.0X1** - Concussion with LOC 30 minutes or less
  - **S06.0X1A** - Initial encounter
  - **S06.0X1D** - Subsequent encounter
  - **S06.0X1S** - Sequela
- **S06.0X9** - Concussion with LOC of unspecified duration
  - **S06.0X9A** - Initial encounter
  - **S06.0X9D** - Subsequent encounter
  - **S06.0X9S** - Sequela

### Cervicogenic Dizziness

- H81.4** - Vertigo of central origin (used for suspected diagnosis)
- 169.998** - Cervical vertigo (used for confirmed diagnosis)

### Benign Positional Paroxysmal Vertigo (BPPV)

- H81.39** - Other peripheral vertigo (used for suspected diagnosis)
- H81.1** - Other peripheral vertigo (used for confirmed diagnosis)

### Other ICD-10 Codes

- H53.19** - Other subjective visual disturbance
- F07.81** - Postconcussional syndrome

# 7.

## **Building a Strong Referral Network**

A community outreach program is very important to make sure people are aware of the concussion care services you offer. You might volunteer or do paid coverage at local high schools and/or universities or attend local athletic events. You should also build relationships with lawyers you can trust, since they may be a good referral source for MVA cases. You can also meet physicians and rehab professionals by attending hospital grand rounds and explaining the fundamental role you play in concussion management.



## Want to learn more?

Take the conference session replay course:

**[Chiropractors Role in Concussion Care](#)**