

CLINICAL PRACTICE GUIDELINE PHYSICAL THERAPY EVALUATION AND TREATMENT AFTER CONCUSSION/MILD TRAUMATIC BRAIN INJURY



Journal of Orthopaedic & Sports Physical Therapy; April 2020; Volume 50 Issue 4

EXAMINATION

Grades of Recommendation	
● A (strong evidence)	Must: benefits substantially outweigh harms; Should: benefits moderately outweigh harms; May: benefits minimally outweigh harms or benefit-harm ratio is value dependent; Should not: harms minimally or moderately outweigh benefits or evidence of no effect; Must not: harms largely outweigh benefits
● B (moderate evidence)	Should: benefits substantially outweigh harms; May: benefits moderately or minimally outweigh harms or benefit-harm ratio is value dependent; Should not: evidence that harms outweigh benefits or evidence of no effect
◇ C (weak evidence)	Should: benefits substantially outweigh harms; May: benefits moderately or minimally outweigh harms or benefit-harm ratio is value dependent; Should not: harms minimally or moderately outweigh benefits
◇ D (conflicting evidence)	May: conflicting evidence; the benefit-harm ratio is value dependent
▽ E (Theoretical/Foundational)	May: in the absence of evidence from clinical studies, theoretical and/or foundational evidence supports benefit; Should not: in the absence of evidence from clinical studies, theoretical and/or foundational evidence suggests risk of harms
▽ F (Expert Opinion)	Must: strongly supported by consensus-based best practice/standard of care; Should: moderately supported by best practice/standard of care; May: supported by expert opinion in the absence of consensus; Should not: best practice/standard of care indicates potential harms; Must not: potential harms are strongly supported by consensus-based best practice/standard of care

SYSTEMS TO BE EXAMINED

Physical therapists **must determine and document** a need for physical therapy to facilitate recovery from a concussive event, based on findings from a comprehensive multisystem physical therapy examination and evaluation.

- **Level of Evidence: B**
- **Patient presentation:** Identified as safe and appropriate for a comprehensive examination.

SEQUENCING OF EXAMINATION BASED ON LEVELS OF IRRITABILITY

Physical therapists **should determine** probable levels of irritability for movement-related symptoms and impairments and plan to strategically sequence and/or delay examination procedures as needed, based on patients' symptom types and probable levels of irritability.

- ▽ **Level of Evidence: F**
- ▽ **Patient presentation:** Pre-examination and experienced a concussive event.

Physical therapists **should first examine** the cervical and thoracic spines for sources of musculoskeletal dysfunction and address findings appropriately to promote symptom relief (eg, stretching, soft tissue mobilization, therapeutic exercise, modalities) and to support tolerance of examination of other body systems.

- ▽ **Level of Evidence: F**
- ▽ **Patient presentation:** Experienced a concussive event and have high neck pain irritability but exhibit no signs of serious neck or systemic pathology.

Physical therapists **should thoroughly examine** for sources of cervical and thoracic spine dysfunction, vestibular and oculomotor dysfunction, and orthostatic hypotension/ autonomic dysfunction that may contribute to the emergence or exacerbation of these symptoms.

- ▽ **Level of Evidence: F**
- ▽ **Patient presentation:** Experienced a concussive event and report dizziness, vertigo, and/or headache.

SEQUENCING OF EXAMINATION BASED ON LEVELS OF IRRITABILITY – cont.

Physical therapists **should proceed** with multisystem comprehensive examination of any untested domains of cervical musculoskeletal function, vestibulo-oculomotor function, autonomic dysfunction/exertional tolerance, and motor function by sequencing tests and measures based on clinical judgement as indicated.

- ▽ **Level of Evidence: F**
- ▽ **Patient presentation:** Post triaging and screening for neck pain, dizziness, and headache

IMPAIRMENTS: CERVICAL MUSCULOSKELETAL

Physical therapists **should examine** the cervical and thoracic spines for potential sources of musculoskeletal dysfunction for patients who have experienced a concussive event.

- ◇ **Level of Evidence: C**
- ◇ **Patient presentation (reports any of the following symptoms):** neck pain, headache, dizziness, fatigue, balance problems, or difficulty with visually focusing on a target.

Physical Therapists **may examine** the cervical spine, thoracic spine, and temporomandibular joint for potential sources of musculoskeletal dysfunction.

- ▽ **Level of Evidence: F**
- ▽ **Patient presentation:** Do not report the symptoms listed to determine whether subtle impairments are present and may be contributing to symptoms.

Level of Evidence Legend

- Green – circle
- ◇ Yellow – Diamond
- ▽ Orange - Triangle

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IMPAIRMENTS: VESTIBULO-OCULOMOTOR

Physical therapists **should assess** the patient using Dix-hallpike test or other appropriate positional test(s).

- **Level of Evidence: A**
- **Patient presentation:** BPPV is suspected.

Physical therapists **should examine** vestibular and oculomotor function.

- **Level of Evidence: B**
- **Patient presentation (reports any of the following symptoms):** headache, dizziness, vertigo, nausea, fatigue, balance problems, visual motion sensitivity, blurred vision, or difficulty with focusing on stable or moving targets.

Physical Therapists **may examine** for vestibulo-oculomotor function to identify potential subtle impairments that may be contributing to symptoms.

- ▽ **Level of Evidence: F**
- ▽ **Patient presentation:** Experienced a concussive event and has not reported vestibulo-oculomotor symptoms.

IMPAIRMENTS: AUTONOMIC/EXERTIONAL TOLERANCE

Physical therapists **should test** for orthostatic hypotension and autonomic dysfunction (eg, resting and postural tachycardia or fast rise in heart rate with positional changes) by evaluating heart rate and blood pressure in supine, sitting, and standing positions.

- **Level of Evidence: B**
- **Patient presentation:** Experienced a concussive event.

Physical therapists **should use** a stationary bicycle for testing to reduce the risk of exacerbating impairments or compromising the validity of the test results.

- ◇ **Level of Evidence: C**
- ◇ **Patient presentation:** Vestibulo-oculomotor or cervical spine impairments or symptoms are present.

Physical Therapists **should conduct** a symptom guided, graded exertional tolerance test for patients who have experienced a concussive event.

- **Level of Evidence: B**
- **Patient presentation (reports any of the following symptoms):** exertional intolerance, dizziness, headache, and/or desire to return to high-level exertional activities (ie, sports, active military duty, jobs that entail manual labor)

Physical therapists **may use** assessments for orthostatic hypotension/autonomic dysfunction and symptom-guided, graded exertional tolerance tests to help determine the role autonomic dysfunction, deconditioning, or general fitness may play in symptoms.

- ◇ **Level of Evidence: C**
- ▽ **Patient presentation:** Do not report exertional intolerance, but report symptoms (eg, headache, fatigue, foggiess)

IMPAIRMENTS: AUTONOMIC/EXERTIONAL TOLERANCE – cont.

Physical therapists **may conduct** exertional test in order to rule out subtle autonomic dysfunction in response to exertion, establish initial post-concussion performance level, and identify exertional targets for aerobic exercise training that may be incorporated to promote brain health and healing.

- ▽ **Level of Evidence: F**
- ▽ **Patient presentation:** Experienced a concussive event and do not report symptoms indicative of exertional intolerance.

IMPAIRMENTS: MOTOR FUNCTION

Physical therapist **should examine** motor function impairments.

- **Level of Evidence: B**
- **Patient presentation (reports any of the following symptoms):** Experienced a concussive event.

CLASSIFICATION OF EXAMINATION FINDINGS INTO IMPAIRMENT PROFILES

Physical therapist **should determine** and document the potential headache type in accordance with the international Classification of Headache Disorders.

- **Level of Evidence: B**
- **Patient presentation:** Experienced a concussive event and report headache as a symptom.

Physical therapist **should establish** and document the presence or absence of all impairments and their level of irritability to support the selection of treatment priorities and strategies.

- ▽ **Level of Evidence: E**
- ▽ **Patient presentation:** Experienced a concussive event.

PSYCHOLOGICAL AND SOCIOLOGICAL FACTORS

Physical Therapists **should elicit, evaluate and document** factors related to self-efficacy and self-management abilities, potential psychological and sociological factors that may significantly influence recovery processes and outcomes for physical therapy interventions.

- ▽ **Level of Evidence: E**

Physical therapists **should explain** and emphasize that most symptoms and impairments after concussion do improve.

- ▽ **Level of Evidence: E**
- ▽ **Patient presentation:** Experienced a concussive event and evaluating self-efficacy and self-management factors.

OUTCOMES

Physical therapists **should determine** and document a plan for outcome measurement for any impairment domains that will be targeted with physical therapy interventions and/or were previously untested due to poor tolerance.

- ▽ **Level of Evidence: F**
- ▽ **Patient presentation:** Experienced a concussive event.

Level of Evidence Legend

- Green – circle
- ◇ Yellow – Diamond
- ▽ Orange - Triangle