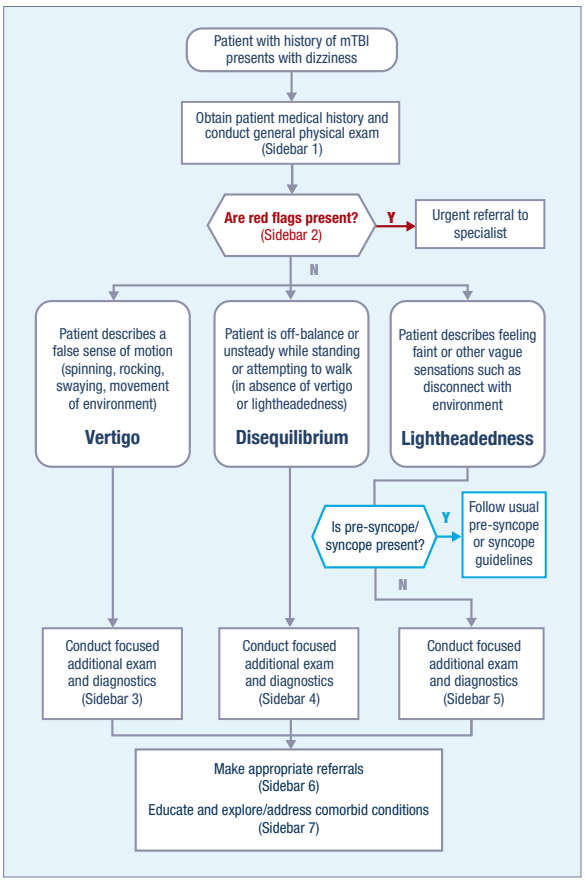
Assessment and Management of Dizziness Associated with Mild TBI
Reference Card

This algorithm is intended to assist primary care providers with diagnosing or providing appropriate referrals for patients complaining of dizziness symptoms following mTBI or a possible mTBI event. Included is a listing of focused diagnostic tests and specific comorbidities which should be explored based upon the patient's symptomatology.

The algorithm encompasses the first primary care visit; it is not intended to be used for long-term care. The processes outlined in the algorithm should not replace sound clinical judgment or standard clinical practice when caring for a patient.



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Sidebar 1: Patient History and Exam (Diagnostic Approach)

Patient history should include the following:

- Characteristics of symptoms (onset, continuous versus episodic, duration and frequency, precipitating factors such as positional or postural effects, and effect of exertion)
- Associated symptoms (hearing loss, tinnitus, aural pressure or pain, headache, oscillopsia, diplopia or other neurologic symptoms, incontinence, or loss of consciousness)
- Pertinent past medical history (prior vertigo, previous ear disease or surgery, head injury, general health)
- Assessment of comorbidities (see Sidebar 7)
- Medication history (medications and other substances that can contribute to complaints of dizziness include stimulants such as caffeine and over the counter supplements, nonsteroidal anti-inflammatory drugs (NSAIDS), abortive and prophylactic agents for migraines and migraine-like headaches, anti-hypertensive drugs, antidepressants, anti-epileptics, hypnotic and sleep medications, analgesics, alcohol, psychotropic and anxiolytic medications)
- Fall history

Patients should receive standard exams including:

- Vital signs (measurements, such as sitting and standing blood pressure and heart rate, may detect postural hypotension as a possible etiology for dizziness)
- Basic cardiovascular exam
- Otoscopic exam
- Neurological exam
- Musculoskeletal exam

Sidebar 2: Red Flags

Acute Red Flags within 7 days of mTBI
Hearing loss
Drainage or bleeding (if persistent) from ear
Facial weakness
Signs of basilar skull fracture (i.e., battle's sign, "raccoon eyes")
Two or more blast exposures within 72 hours
Witnessed loss of consciousness (LOC)
Progressively declining level of consciousness
Clinician-verified Glasgow Coma Scale score <15
Seizures
Repeated vomiting
Neurological deficit: motor or sensory
Weakness on one side of the body
Progressively declining neurological exam
Abnormal speech
Unusual behavior or combative
Cannot recognize people or disoriented to place
Amnesia/memory problems
Worsening headache
Double vision/loss of vision
Unequal pupils
Unsteady on feet

Subacute/Chronic Red Flags > 7 days post mTBI
History of sudden or fluctuating hearing loss
Pressure or sound induced dizziness
Dizziness and chest pains
Persistent gait instability

Sidebar 3: Focused Diagnostic Exams — Vertigo

Assessment	Action if Positive
Neurological exam with attention to nystagmus	Refer to neurology
Primary position and gaze-evoked nystagmus	Refer to neurology and ENT
Gait assessment	Refer to neurology and physical therapy
Dix-Hallpike Test*	Refer to neurology, ENT, audiology or physical therapy
Otologic exam	Refer to ENT or audiology
Oculomotor exam	Refer to neurology
Rhomberg Test**	Refer to neurology

*Examinations used to diagnose BPPV, including the Dix-Hallpike Test, must be done carefully to avoid overdiagnosis.
**Rhomberg Test may not be consistent with vestibular laboratory tests. ENT–Ear, Nose and Throat.

Sidebar 4: Focused Diagnostic Exams — Disequilibrium

Assessment	Action if Positive
Gait assessment (native and tandem)	Refer to neurology and physical therapy
Spontaneous/positional nystagmus tests	Refer to neurology or ENT
Neuropathy	Refer to neurology
Rhomberg Test	Refer to neurology
Standard HEENT	Refer to ENT
Musculoskeletal exam	Refer to physical therapy or physiatry
Dix-Hallpike Test	Refer to neurology, ENT, audiology or physical therapy

ENT–Ear, Nose, and Throat; HEENT–Head, Eye, Ear, Nose and Throat.

If there are no objective exam findings, focus on comorbid conditions (Sidebar 7) which can often cause feelings of disequilibrium. Consider referral to physical therapy for further evaluation and/or rehabilitation.

Sidebar 5: Focused Diagnostic Exams — Lightheadedness: Pre-syncope or Syncope

Assessment	Action if Positive
Orthostatic vital signs	Refer to cardiology if etiology not apparent
Tilt table test	Refer to cardiology
Hyperventilation test	Refer to cardiology and/or neurology
12-lead electrocardiogram and other cardiac testing as clinically indicated	Refer to cardiology
Laboratory testing including thyroid function, glucose tolerance test (GTT), complete blood count (CBC), urinalysis, and serum chemistry	Standard practice for identified disorder
Toxicology screen	Standard practice for identified agents
Allergy testing if history suggests anaphylaxis	Refer to allergy/internal medicine
Cognitive/neuropsychological exam	Refer to behavioral health specialist (psychologist or psychiatrist) and possible referral to neurology
Diagnostic neuroimaging	In conjunction with appropriate specialty referral

Note: This is not an all-inclusive list of assessments.

Sidebar 7: Common Comorbidities

Comorbidities (may apply to patients with vertigo, disequilibrium or lightheadedness)
Migraines/headaches
Medication side effects or polypharmacy
Sleep disorders
Stressors/anxiety
Psychological health disorders
Substance use disorders (drugs/alcohol)
Vision disturbances

Sidebar 6: Referral Matrix Tool

Dx	Diagnostic Exams	Neurology	Audiology	ENT	Physical Therapy*	Cardiology	Standard Practice	Psychologist or Psychiatrist
Vertigo	Neurological exam with attention to nystagmus	x						
	Primary position and gaze-evoked nystagmus	x		x				
	Gait Assessment	x			x			
	Dix-Hallpike Test	x	x	x	x			
	Otologic exam		x	x				
	Oculomotor exam	x						
	Rhomberg Test	x						

Sidebar 6 continues on next page

*Patients with persistent dizziness symptoms with no diagnosis should be referred to neurology (or ENT) and physical therapy (PT) for further evaluation and possibly to begin rehabilitation. If PT is not available, occupational therapy may be considered. Referral to PT may also be considered when vertigo is confirmed, but should be made in parallel with referral to neurology or ENT.

Sidebar 6 continued

Dx	Diagnostic Exams	Neurology	Audiology	ENT	Physical Therapy*	Cardiology	Standard Practice	Psychologist or Psychiatrist
Disequilibrium	Gait Assessment (native and tandem)	x			x			
	Spontaneous/positional nystagmus tests	x		x				
	Neuropathy	x						
	Rhomberg Test	x						
	Standard HEENT			x				
	Musculoskeletal exam**				x			
	Dix-Hallpike Test	x	x	x	x			
Lightheadness	Positional blood pressure					x		
	Tilt test					x		
	Laboratory work including thyroid function, GTT and CBC-chem panel						x	
	Toxicology screen						x	
	Cognitive/neuropsychological exam	x						x
	Hyperventilation test	x				x		

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