

## Summary of Recommendations

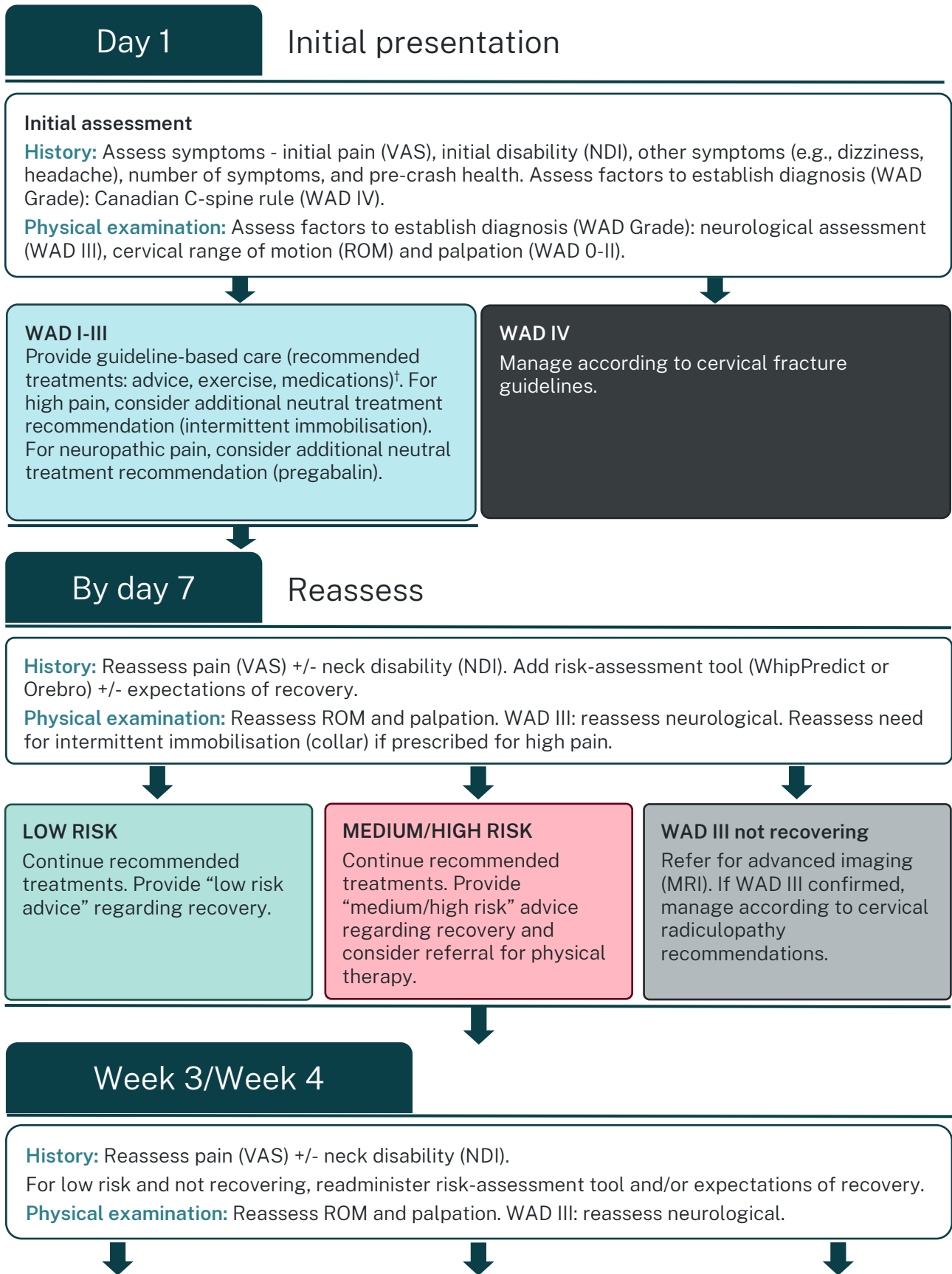
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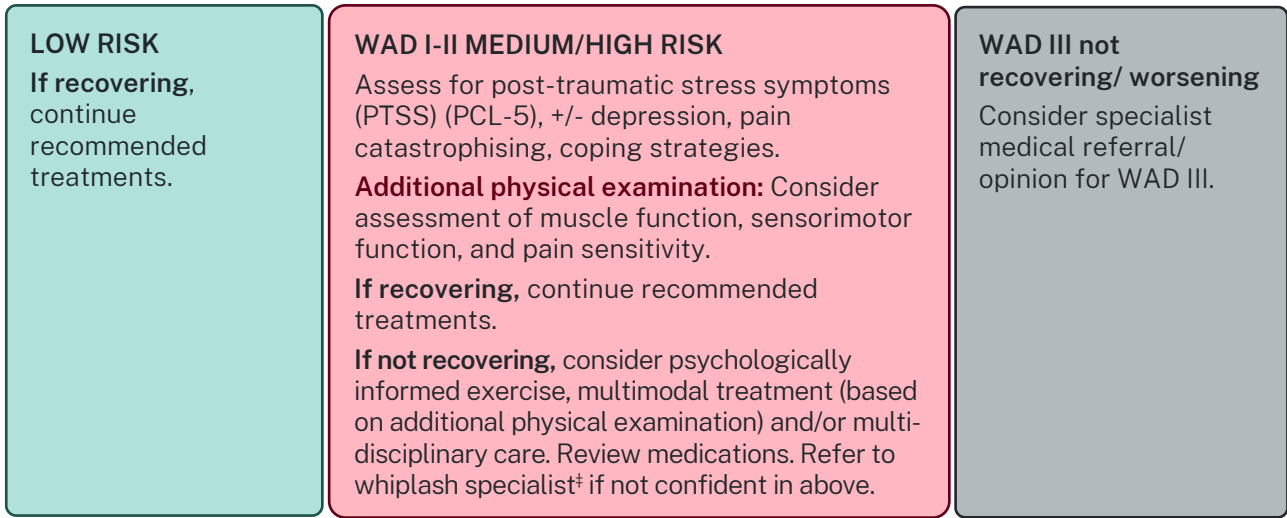
# Australian Clinical Guidelines for Health Professionals Managing People with Whiplash-Associated Disorders, Fourth Edition

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# 1. Acute whiplash injury care flowchart





## Week 6

**History:** Reassess pain (VAS) +/- neck disability (NDI).  
**Physical examination:** Reassess ROM and palpation. WAD III: reassess neurological.



**LOW RISK**  
If **recovered**, discontinue treatment.  
If **recovering**, wean off recommended treatments such that self-managing by 12 weeks.  
On average, 3 sessions are required.

**MEDIUM/HIGH RISK**  
**History:** Reassess PTSS and other psychological factors (reapply metrics).  
**Additional physical examination:** As week 3.  
**If recovering**, continue treatment as week 3.  
**If not recovering**, refer to psychologist if above threshold on PCL-5 and DASS-21. Refer to physician if pain remains high for medication review. Contact insurer +/- general practitioner to facilitate. Refer to whiplash specialist if not confident in recommended physical treatments. Treatment as week 3 or follow specialist advice.



## Week 12

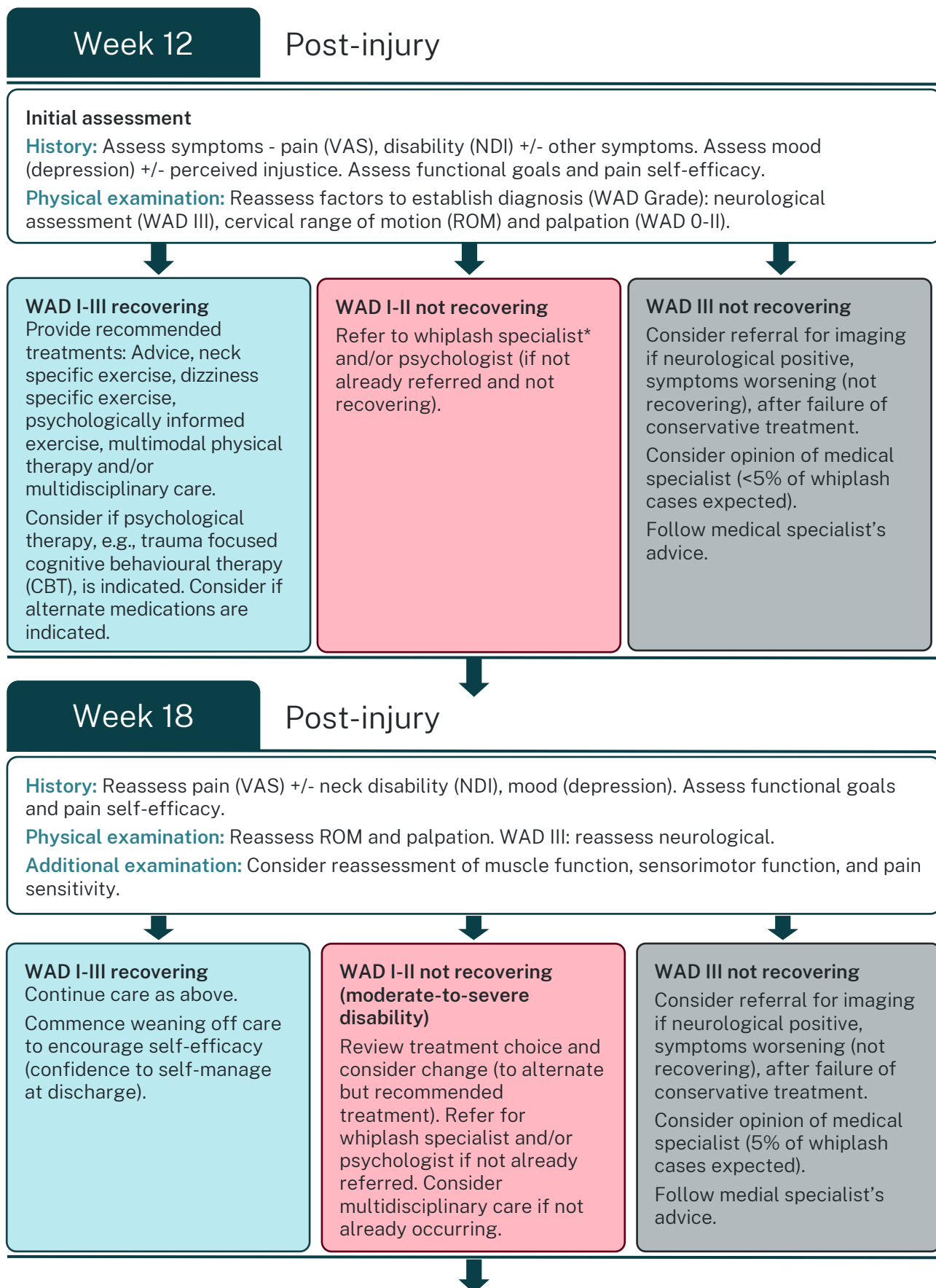
**LOW RISK**  
Discharge.

**MEDIUM/HIGH RISK**  
See chronic guideline.

<sup>†</sup>Resources available at <https://www.mywhiplash.com.au/>

<sup>‡</sup>For the purpose of these guidelines, defined as an allied or medical healthcare professional with advanced clinical expertise in managing whiplash. May include but not limited to specialist physiotherapists and specialist physicians.

## 2. Chronic whiplash injury care flowchart



## Week 24

## Post-injury

**History:** Reassess pain (VAS) +/- neck disability (NDI), pain self-efficacy, and functional goals.

**Physical examination:** Reassess ROM. Reassess other domains as appropriate.



**If recovering,** discharge with advice.

**If not recovered,** follow advice from specialists. Care likely to be multidisciplinary – physical, medical, and psychological.



## Week 24 to 12 months

## Post-injury

Provide care in accordance with the Clinical Framework\*\* for the Delivery of Health Services, which includes negotiation for end of care.

\*For the purpose of these guidelines, defined as an allied or medical healthcare professional with advanced clinical expertise in managing whiplash. May include but not limited to specialist physiotherapists and specialist physicians.

\*\*<https://www.tac.vic.gov.au/providers/working-with-the-tac/clinical-framework>

### 3. Guidelines executive summary

#### 3.1. Acute whiplash recommendations

The following sections provide an executive summary of the Diagnosis, Prognosis, Treatment, and Assessment recommendations for the management of people with acute WAD.

##### 3.1.1. Summary of Diagnosis recommendations

Two systematic reviews and one observational study from a general literature search informed the recommendations for diagnosis for acute whiplash. The guideline panel made the following recommendations for the diagnosis of people with acute whiplash (Table 1).

Table 1: Executive summary of Diagnosis recommendations for people with acute whiplash

Domain (WAD grade)	Index test(s)	Strength of recommendation / Vote summary
Exclude / screen for fracture (WAD IV)	Canadian C-spine rule	Strong for 9/9 100% strong for
Clinical neurological examination to screen for cervical radiculopathy (WAD III)	History: arm pain > neck pain, paraesthesia, and numbness. Physical Examination: Neurological deficit, antalgic postures.	Conditional for 3/11 27% strong for; 8/11 73% conditional for
Refer for imaging to determine probable diagnosis of cervical radiculopathy (WAD III)	MRI	Conditional for (consensus recommendation) 1/12 8% strong for; 11/12 92% conditional for

See 'Acute whiplash: Diagnosis recommendations' (section 10 of the guidelines) for implementation considerations for the diagnosis of people with acute WAD.

##### 3.1.2. Summary of Prognosis recommendations

57 prospective longitudinal cohort studies from an electronic search of databases from Jan 1995 to 31 July 2022 informed the recommendations for prognosis for acute whiplash. The guideline panel made the following recommendations for the prognosis of people with acute whiplash (Table 2).

Table 2: Executive summary of Prognosis recommendations for people with acute whiplash

Domain	Tool / factor	Strength of recommendation / Vote summary
Prognostic tools	1. WhipPredict 2. SF-OMPSQ (Orebro)	Strong for 9/9 100% strong for
Symptom factors	Initial pain intensity	Strong for 9/12 75% strong for; 3/12 25% conditional for
	Initial neck disability	
	Number of painful body areas	
	Number of painful symptoms	
Psychological factors	Post-traumatic stress symptoms	Strong for 12/13 92% strong for; 1/13 8% conditional for
	Expectations of recovery	
Psychological factors	Depression	Conditional for 8/13 62% conditional for; 5/13 38% strong for
	Pain catastrophising	
	Coping strategies	
Physical assessment factors	Cervical ROM	Conditional for 11/12 92% conditional for; 1/12 8% strong for
	Pain Sensitivity (cold hyperalgesia)	
Compensation factors	Claim status	Conditional for 8/10 80% conditional for; 2/10 20% neutral
	Lawyer retention	
Pre-crash	Widespread body pain	Conditional for 11/12 92% conditional for; 1/12 8% strong for
	Chronic neck pain	
	Pre-crash general health	
	Pre-crash mental health	
Physical assessment factors	Muscle function	Neutral 11/12 92% neutral; 1/12 8% conditional for
	Sensorimotor function	
	Sympathetic nervous system response	
	Cervical bony tenderness (manual palpation)	
	BMI	
Pre-crash	Co-morbid conditions	Neutral 12/12 100% neutral
Prognostic tools	Cancelliere et al 2021	Neutral
	Bohman et al 2012	



	PPS-WAD	8/11 73% neutral; 2/11 18% conditional against; 1/11 5% conditional for
Socio-demographic	Age	Conditional against 11/13 85% conditional against, 2/13 15% conditional for
	Gender	
	Education	
	Employment status	
	Living status	
	BMI	
	Occupation	
	Income	
Health care utilisation	Primary HCP	Conditional against 6/12 50% conditional against, 3/12 strong against, 2/12 neutral, 1/12 conditional for
	Hospital	
	GP	
Crash factors	Injury severity score	Conditional against 9/13 69% conditional against, 4/13 21% strong against
	Head restraint	
	Head position at impact	
	Awareness of collision	
	Vehicle type (injured person)	
	Speed	
	Seatbelt	
	Self-reported collision severity	
	Position in vehicle	
	Airbag	
	Direction of impact	
Radiological factors	Imaging: MRI, Xray CT	Strong against 10/11 91% strong against, 1/11 9% conditional against

See 'Acute whiplash: Prognosis recommendations' (section 11 of the guidelines) for implementation considerations for the prognosis of people with acute WAD.

### 3.1.3. Summary of Treatment recommendations

44 randomised controlled trials were retrieved from the existing Australian whiplash guidelines (1990-2007) and an electronic search of databases from 2007 to November 2022 informed the

acute WAD treatment recommendations. The guideline panel made the following recommendations for the treatment of people with acute whiplash (Table 3).

Table 3: Executive summary of Treatment recommendations for people with acute whiplash

Domain	Intervention	Strength of recommendation / Vote summary
Advice	Specific educational information	Conditional for 13/16 81% conditional for; 2/16 13% strong for; 1/16 6% neutral
Physical therapy: Exercise	Neck specific exercises	Conditional for 12/12 100% conditional for
	Dizziness specific exercises	Conditional for 13/14 93% conditional for; 1/14 7% neutral
	Psychologically informed exercise interventions	Conditional for 11/14 79% conditional for; 2/14 14% strong for; 1/14 7% neutral
HCP education	HCP implementation strategy	Conditional for 8/14 57% conditional for; 4/14 29% strong for; 2/14 14% neutral
Medications	Simple analgesics	Conditional for 9/9 100% conditional for
	Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)	Conditional for 9/9 100% conditional for
Physical therapy	Multimodal physical therapy (exercise, manual therapy + other)	Neutral 7/13 54% neutral; 4/13 31% conditional for; 2/13 15% strong for
Multidisciplinary	Multidisciplinary care	Neutral 8/9 89% neutral; 1/9 11% conditional for
Immobilisation	Intermittent immobilisation (soft collar)	Neutral 8/10 80% neutral; 2/10 20% conditional for
Medications	Amitriptyline	Neutral 6/9 67% neutral; 3/9 33% conditional for
	Pregabalin	Neutral 8/8 100% neutral
Passive physical therapy	Massage	Neutral 11/13 85% neutral; 2/13 15% conditional for
	Acupuncture	Neutral 10/11 91% neutral; 1/11 9% conditional against
		Thoracic – neutral

	Manipulation – high velocity low amplitude	12/13 92% neutral; 1/13 8% conditional against
		Cervical – Conditional against 8/13 62% conditional against; 3/13 23% strong against; 2/13 15% neutral
Medications	Opioids	Conditional against 8/10 80% conditional against; 2/10 20% neutral
Passive physical therapy	Electrotherapy	Conditional against 9/11 82% conditional against; 2/11 strong against
	Needling techniques	Conditional against 8/11 73% conditional against; 3/11 27% neutral
Injections	Botulinum toxin-A	Conditional against 13/15 87% conditional against; 1/15 strong against; 1/15 neutral
	Corticosteroid injection	Strong against 13/14 93% strong against; 1/14 7% conditional against
	IV steroid injection	Strong against 12/15 80% strong against; 3/15 20% conditional against
Other	Treatment for WAD associated headache	No specific recommendation - follow headache guidelines

See ‘Acute whiplash: Treatment recommendations’ (section 12 of the guidelines) for implementation considerations for the treatment of people with acute WAD.

### 3.1.4. Summary of Assessment consensus recommendations

32 studies retrieved from an electronic search of databases from existing TRACsa Australian whiplash guideline (database 1999- 2007), and an electronic search of databases from 2007 to June 2022 informed the assessment recommendations for people with acute whiplash. Studies were included if they compared people with whiplash to either controls or another pain condition or compared different sub-groups of people with whiplash. The assessment factor needed to be clinically feasible to assess and potentially inform treatment direction. The guideline panel made the following recommendations for the assessment of people with acute whiplash (Table 4).

Table 4: Executive summary of Assessment consensus recommendations for people with acute whiplash

Domain	Physical assessment factor	Strength of recommendation / Vote summary
Physical assessment	Cervical ROM	Strong consensus for 12/12 100% strong for
Pain sensitivity	Thermal hyperalgesia	Conditional consensus for 11/12 92% conditional for; 1/12 8% neutral
	Pressure hyperalgesia	
	Dynamic pain sensitivity	
	Brachial plexus provocation test	
Additional symptoms	Jaw pain	Conditional consensus for 10/12 17% conditional for; 2/12 83% neutral
	Upper limb symptoms	
	Sleep quality/ disturbance	
Physical assessment	Cervical muscle function	Neutral consensus 1/1 9% conditional for; 10/11 91% neutral
	Cervical muscle performance	
Sensorimotor assessment	Joint position error	Neutral consensus 1/12 8% conditional for; 11/12 92% neutral
	Cervical movement sense	
	Oculomotor disturbance	
	Balance	
Additional psychological factors	Fear avoidance	Neutral consensus 12/12 100% neutral
	Pain Self Efficacy	
Pain sensitivity	Vibration hyperalgesia	Conditional consensus against 9/12 (75%) conditionals against; 1/12(5%) strong against; 1/12 neutral (5%); 1/12 (5%) conditional for)
	Nociceptive Flexion reflex	
Advanced clinical (medical) testing	Stress hormones	Strong consensus against 11/12 92% strong against; 1/112 8% conditional against)
	Inflammatory biomarkers	Strong consensus against 11/12 92% strong against; 1/112 8% conditional against)
Advanced Imaging	MRI to assess muscle size and morphology (muscle fat infiltration)	Strong consensus against 10/12 strong against (83%), 1/12 conditional against, 1/12 conditional for)
	Advanced ultrasound to assess muscle stiffness	Strong consensus against 10/12 strong against (83%), 1/12 conditional against, 1/12 conditional for)

See ‘Acute whiplash: Assessment consensus recommendations’ (section 13 of the guidelines) for implementation considerations for the assessment of people with acute WAD.

### 3.2. Chronic whiplash recommendations

The following sections provide an executive summary of the Prognosis, Treatment, and Assessment recommendations for the management of people with chronic WAD.

#### 3.2.1. Summary of Prognosis recommendations

Six prospective longitudinal studies from an electronic search of databases from Jan 1995 to Jul 2022 informed the recommendations for prognosis of chronic whiplash. The guideline panel made the following recommendations regarding prognostic factors relevant to be assessed in people with chronic WAD (Table 5).

Table 5: Executive summary of Prognosis recommendations for people with chronic whiplash

Domain / Vote summary	Tool/ factor	Strength of recommendation / Vote summary
Symptom factors	Neck pain intensity	Conditional for 11/13 85% conditional for; 2/13 15% neutral
	Neck disability	
Psychological factors	Depression	Conditional for 11/13 85% conditional for; 2/13 15% neutral
	Perceived injustice	
Physical assessment factors	Cervical ROM	Neutral 12/13 92% neutral; 1/13 8% conditional for
	Joint position error	
	Cervical flexor and extensor strength	
Compensation factors	Claim status	Neutral 13 votes: 12/13 92% neutral; 1/13 8% conditional for
	Time to admit liability	
	Economic loss claim	
	Prior claim	
Previous health	Smoker	Neutral 12/13 92% neutral; 1/13 8% conditional for
	Physical activity levels	
	Physical health	
	Previous pain episodes	
	General health	

Sociodemographic	Age	Conditional against 9/13 69% conditional against; 2 strong against, 2 neutral, 1 strong for
	Gender	
	Employment status	
	Education status	
	Socio-economic status	
Crash factors	Driver	Conditional against 13 votes: 9/13 69% conditional against; 2 strong against, 2 neutral, 1 strong for
	Collision speed	

See 'Chronic whiplash: Prognosis recommendations' (section 15 of the guidelines) for implementation considerations for the prognosis of people with chronic WAD.

### 3.2.2. Summary of Treatment recommendations

19 RCT's retrieved from the existing TRACsa Australian whiplash guideline (database inception-2007) and an electronic search of databases from 2007 to November 2022 informed the chronic WAD treatment recommendations. The guideline panel made the following recommendations for the treatment of people with chronic whiplash (Table 6).

Table 6: Executive summary of Treatment recommendations for people with chronic whiplash

Domain	Intervention	Strength of recommendation / Vote summary
Advice	Specific educational information	Conditional for 12/16 75% conditional for; 3/16 19% neutral; 1/16 6% strong for
Physical therapy: Exercise	Neck specific exercises	Conditional for 11/13 85% conditional for; 2/13 15% neutral
	Dizziness specific exercises	Conditional for 12/13 92% conditional for; 1/13 8% neutral
	Psychologically informed exercise interventions	Conditional for 9/13 69% conditional for; 4/13 31% strong for
Physical therapy	Multimodal physical therapy (exercise, manual therapy and other)	Conditional for 9/12 75% conditional for; 2/12 17% neutral; 1/12 8% strong for
Psychological Interventions	Trauma focused CBT	Conditional for 13/16 81% conditional for; 3/16 19% neutral
HCP education	HCP implementation strategy	Conditional for

		8/14 57% conditional for; 4/14 29% strong for; 2/14 14% neutral
Multidisciplinary care	Multidisciplinary care	Conditional for 9/9 100% conditional for
Medications	Simple analgesics	Neutral 8/9 89% neutral; 1/9 11% conditional for
	NSAIDs	Neutral 8/9 89% neutral; 1/9 11% conditional for
	Amitriptyline	Neutral 6/9 67% neutral; 3/9 33% conditional for
	Pregabalin	Neutral 9/9 100% neutral
Psychological interventions	Exposure therapy	Neutral 8/15 53% neutral; 7/15 47% conditional for
Passive physical therapy	Massage	Neutral 8/13 62% neutral; 3/13 23% conditional against; 2/13 15% conditional for
	Acupuncture	Neutral 12/12 100% neutral
Surgery	Surgery for cervical radiculopathy	Neutral 7/8 88% neutral; 1/8 12% conditional against
Medications	Opioids	Conditional against 7/10 70% conditional against; 2/10 20% neutral; 1/10 10% strong against
Passive physical therapy	Electrotherapy	Conditional against 9/11 82% conditional against; 2/11 18% strong against
	Manipulation (high velocity low amplitude: cervical/thoracic)	Conditional against 8/13 62% conditional against; 3/13 23% strong against; 2/13 15% neutral
	Needling techniques	Conditional against 8/11 73% conditional against; 3/11 27% neutral

Medical procedure	Radiofrequency neurotomy (RFN)	Conditional against 9/11 82% conditional against; 2/11 18% strong against
Injections	Corticosteroid injection	Strong against 10/15 67% strong against; 5/15 33% conditional against
	Botulinum toxin-A	Strong against 10/14 71% strong against; 4/14 29% conditional against
	IV steroid injection	Strong against 9/15 60% strong against; 6/15 40% conditional against
Other	Treatment for WAD associated headache	No specific recommendation - follow headache guidelines

See 'Chronic whiplash: Treatment recommendations' (section 16 of the guidelines) for implementation considerations for the treatment of people with chronic WAD.

### 3.2.3. Summary of Assessment consensus recommendations

133 studies retrieved from an electronic search of databases from existing TRACsa Australian whiplash guideline (database 1999- 2007), and an electronic search of databases from 2007 to June 2022 informed the assessment recommendations for people with chronic whiplash. Studies were included if they compared people with whiplash to either controls or another pain condition or compared different sub-groups of people with whiplash. The assessment factor needed to be clinically feasible to assess and potentially inform treatment. The guideline panel made the following recommendations for the assessment of people with chronic whiplash (Table 7).

Table 7: Executive summary of Assessment consensus recommendations for people with chronic whiplash

Domain	Physical assessment factor	Strength of recommendation / Vote summary
Physical assessment	Cervical ROM	Strong consensus for 11/11 100% strong for
Pain sensitivity	Thermal hyperalgesia	Conditional consensus for 12/12 100% conditional for
	Pressure hyperalgesia	
	Brachial plexus provocation test	
Additional psychological factors	Depression	Conditional consensus for 12/12 (100% neutral for)



Additional symptoms	Jaw pain	Conditional consensus for 10/12 17% conditional for; 2/2 83% neutral
	Upper limb symptoms	
	Sleep quality/ disturbance	
Physical assessment muscle function	Cervical endurance	Conditional consensus for 12/12 100% conditional for
	Cervical muscle strength	
Sensorimotor	Joint position error	Conditional consensus for 11/12 92% conditional for; 1/12 8% neutral
	Cervical movement sense	
	Oculomotor disturbance	
	Balance	
Physical Assessment	Cervical muscle performance	Neutral consensus 1/11 9% conditional for; 10/11 91% neutral
Pain sensitivity	Dynamic pain sensitivity	Neutral consensus 1/12 8% conditional for; 11/12 92% neutral
Sensorimotor	Coordination Other proprioceptive tests	Neutral consensus 2/12 17% conditional for; 10/12 83% neutral
Additional psychological factors	Psychological distress	Neutral consensus 12/12 100% neutral
	Perceived cognitive deficits	
Pain sensitivity	Vibration hyperalgesia	Conditional consensus against 11/11 100% conditional against
	Nociceptive flexion reflex	
Advanced clinical (medical) testing	Stress hormones	Strong consensus against 1/12 8% strong for; 11/12 92% strong against
	Inflammatory biomarkers	
Advanced imaging	MRI to assess muscle size and morphology (muscle fat infiltration)	Strong consensus against 10/10 100% strong against
	Advanced US to assess muscle stiffness	

See 'Chronic whiplash: Assessment consensus recommendations' (section 17 of the guidelines) for implementation considerations for the Assessment of people with chronic WAD.

## Disclaimer

This publication may contain information that relates to the regulation of workers compensation insurance, motor accident compulsory third party (CTP) insurance and home building compensation in NSW. This publication does not represent a comprehensive statement of the law as it applies to particular problems or to individuals, or as a substitute for legal advice.

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