



Clinical guidelines for the physiotherapy management of Whiplash Associated Disorder

Quick reference guide

Moore A, Jackson A, Jordan J, Hammersley S, Hill J, Mercer C, Smith C, Thompson J, Woby S, Hudson A (2005).

Introduction

This is a summary of the recommendations made in the Clinical guidelines for the physiotherapy management of Whiplash Associated Disorder (WAD) (Moore et al, 2005). Practitioners are advised to use this guide as an aide memoire once familiar with the content of the complete guidelines document. The guidelines contain details of the guideline development process, a comprehensive discussion of the supporting evidence and the recommendations cross-referenced to the evidence. The guidelines include additional sections, outcome measures, legal issues, implementation, using the guidelines in practice, links with other guidelines and questions for future research. A range of questions are addressed in the guidelines. The main question addressed is, Which physiotherapy treatments are most effective for assisting people with WAD return to normal activity? These guidelines are available from the Chartered Society of Physiotherapy.

The term 'person with WAD' has been used throughout this document on the advice of the lay member of the Guideline Development Group (GDG). However, there are instances where the word 'patient' was more appropriate e.g. in discussing 'patient satisfaction', 'patient centred care', 'patient empowerment' or 'patient preference'.

Scope of the guidelines

The scope of this guideline is the patient journey from diagnosis to outcome, with the main emphasis on physiotherapy interventions. The scope includes people with acute and chronic WAD, physiotherapy management, issues and concerns of physiotherapists and people with WAD in the UK. It excludes children under 16 years and shaken baby syndrome.

Definitions of Whiplash Associated Disorder (WAD)

People with Whiplash Associated Disorder (WAD) present with a variety of symptoms occurring as a result of bony or soft tissue injury caused by whiplash injury to the neck during:

- An acceleration-deceleration mechanism of energy transfer to the neck
- A rear end or side impact motor vehicle collision
- A sporting accident e.g. in diving or rugby. (Adapted from Spitzer 1995)

WAD is a common injury that is treated in physiotherapy clinics in the United Kingdom and beyond. It is sometimes a disabling condition and it usually occurs during transport accidents and in sporting mishaps. It is characterised by a range of signs and symptoms and can present complex challenges to clinicians. The syndrome involves trauma to a multiplicity of tissues in the cervical spine and it can affect other areas of the vertebral column. WAD can be complicated by a range of psychosocial factors.

Levels of evidence and grading of recommendations

The GDG's central focus was to understand which physiotherapy interventions are most effective in assisting people with WAD return to normal activity. The GDG examined and synthesised the available evidence, interpreting its relevance for practice and developing the recommendations presented in the guidelines. The guidelines were extensively reviewed prior to their publication.

The treatment recommendations for people with acute, sub-acute and chronic WAD which address the main clinical question are based on a systematic review of the literature. However, the other clinical recommendations which provide background information and highlight links to other literature are not based on a systematic review of the literature. They were developed by members of the GDG, experts from outside the group and by using the results of the Delphi survey. Whilst it is recognised that these supporting sections are addressed less systematically their inclusion was considered vital to producing practical and complete guidelines.

Levels of evidence

An evidence summary is provided at the end of each section of the evidence review in the complete guidelines, with an indication of the level of the evidence summarised.

Levels of evidence (CSP, 2003)

Level	Type of evidence
Ia	Evidence obtained from a systematic review of randomised controlled trials
Ib	Evidence obtained from at least one randomised controlled trial (RCT)
IIa	Evidence obtained from at least one well-designed controlled study without randomisation or a poor quality RCT
IIb	Evidence obtained from at least one other type of well-designed quasi-experimental study
III	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies
IV	Evidence obtained from expert committee reports or opinions and /or clinical experience of respected authorities e.g. from the Delphi questionnaire

Grading the Recommendations

The recommendations for practice are derived from the literature and from the Delphi questionnaire. Each recommendation is clearly graded to indicate the type and level of the evidence on which it is based.

Grading guidelines recommendations (adapted from CSP, 2003)

Grade	Evidence
A	At least one randomised controlled trial of overall good quality and consistency addressing the specific recommendation (evidence levels Ia and Ib)
B	Well-conducted clinical studies but no randomised clinical trials on the topic of the recommendation (evidence levels IIa, IIb and III)
C	Evidence from Delphi methods or other expert committee reports. This indicates that directly applicable clinical studies of good quality are absent (evidence level IV)
Good practice point	Recommended good practice based on the clinical experience of the GDG

Definitions of agreement from the results of the Delphi questionnaire

Percent of respondents	Definition of agreement
100%	Unanimity
75-99 %	Consensus
51-74%	Majority view
0-50%	No consensus

The percentages used to categorise the levels of consensus agreement were derived by combining data for "strongly agree" and "agree" and again combining 'strongly disagree' and "disagree" from the second Delphi round questionnaires, and calculating these as a percentage of the total data for that question.

Summary of the recommendations

The recommendations in these guidelines are intended to assist physiotherapists and people with WAD in making decisions about physiotherapeutic options for interventions. Although, they indicate best physiotherapy practice for adults treatment cannot be prescriptive and should always follow individual assessment.

Mechanisms of injury	Grade
Physiotherapists should be aware of theories that are developing to explain the mechanism of whiplash injury in order that they can relate the site of injury to the person's symptoms and plan their physiotherapy management	B

Classification	Grade
The Quebec Task Force classification should be used by physiotherapists for WAD with grade II subdivided into IIa and IIb, in order to assist with diagnosis and prognosis.	Good practice point

Recovery	Grade
Physiotherapists should advise people with WAD that they are very likely to recover.	C

Risk factors that may influence prognosis	Grade
Information should be sought in order that risk factors can be identified at the assessment stage as they can adversely affect prognosis.	–
At the time of injury, the following factors indicate that a poorer prognosis is likely:	Grade
Relatively low weight of person's vehicle compared with other vehicle involved	B
Poor headrest position (i.e. not level with the top of the head, not close to the back of the head)	C
Rear end collisions where the person is looking to one side.	C

The following pre-existing factors indicate that a poorer prognosis is likely:	Grade
Pre-trauma neck ache	B
Pre-existing degenerative changes	C
Low level of job satisfaction	C
Pre-trauma headaches	C
The following post-injury factors indicate that a poorer prognosis is likely:	Grade
High initial pain intensity	B
Headache for more than six months following injury	C
Neurological signs present after injury	C

Barriers to recovery	Grade
Psychosocial barriers to recovery (yellow flags)	
Compensation issues may not be a barrier to recovery from WAD	B
Physiotherapists should be aware of the wide range of psychosocial barriers to recovery: <ul style="list-style-type: none"> • high fear of pain and movement • low self-efficacy • severe anxiety • severe depression • low pain locus of control • high use of passive coping strategies • chronic widespread pain • high tendency to catastrophise • problems in relationships with others • a series of previously failed treatments • non-compliance with treatment and advice • unrealistic expectations of treatment • inability to work because of the pain • negative expectations of treatment • poor understanding of the healing mechanism • failure of the physiotherapist to meet an individual person's needs • poor clinical reasoning by the physiotherapist 	C
Physiotherapists should assess for psychosocial barriers at all stages after injury	C
Ongoing moderate to severe symptoms six months after injury are likely to be associated with post-traumatic stress syndrome	C
Occupational barriers to recovery	Grade
Physiotherapists should be aware that perception of work and job context and working conditions may be barriers to recovery	C

Range of possible symptoms encountered with WAD	Grade
Physiotherapists should be aware that the symptoms of WAD can include: neck pain, headache, shoulder and arm pain, generalised hypersensitivity, paraesthesia and muscle weakness, temporomandibular joint pain and dysfunction, visual disturbance, impairment of the proprioceptive control of head and neck position and impaired cognitive function	B

Physiotherapy assessment and examination of people with WAD	Grade
Valid consent	
Valid consent should be sought and recorded in line with national standards and guidance, and local organisational policy	C
Access to physiotherapy services	Grade
Physiotherapists should prioritise entry into the physiotherapy service by:	
• Screening individual people	C
• Providing a physiotherapy service in the accident and emergency department	C
• Assessing individual people by telephone	C
Physiotherapists should prioritise people who:	
• Find their activities of daily living disrupted as a result of WAD	C
• Are unable to work as a result of WAD	C
• Have a more recent injury	C
Subjective assessment	Grade
A thorough subjective assessment is essential to help plan subsequent examination and treatment.	Good practice point
Serious pathology (red flags)	Grade
People with WAD must be screened for red flags.	Good practice point
People with bilateral paraesthesia, gait disturbance, spastic paresis, positive Lhermittes sign, hyper reflexia, nerve root signs at more than two adjacent levels, progressively worsening neurological signs, symptoms of upper cervical instability, non-mechanical pain which is unremitting and severe must be referred immediately to the nearest accident and emergency department.	Good practice point
People with positive stress tests of the cranio-vertebral joints, vertebral column malignancy or infection, a past history of cancer, rheumatoid arthritis, long-term steroid use, osteoporosis, systemically unwell, structural deformity, other conditions and syndromes associated with instability or hypermobility should be treated with caution.	Good practice point
The physical examination	Grade
Joint instability testing should only be conducted by a specially trained physiotherapist	Good practice point
Cervical manipulation and pre-manipulative testing techniques should be avoided for people with WAD	Good practice point
Physiotherapists need to know when special tests and investigations are indicated and how to carry out the tests or refer people appropriately	Good practice point
People with WAD presenting with signs and symptoms of instability must immediately be referred for further investigation	Good practice point
Inexperienced physiotherapists must know when to ask advice from senior staff	Good practice point

Defining the aims of physiotherapy treatment	Grade
Although treatment is tailored to individual needs general aims of physiotherapy treatment should be to:	
• Improve function	C
• Facilitate empowerment of the person with WAD	C
• Return the person to normal activity /work	C
• Relieve symptoms	C
Advising on pain relief	Grade
Physiotherapists should refer to local guidelines for prescription of analgesia	Good practice point
Where guidelines do not exist physiotherapists and people with WAD should seek appropriate medical advice	Good practice point

Treatment recommendations for physiotherapy intervention for WAD in the acute stage (zero to two weeks after injury)	
Soft collars	Grade
The use of soft collars is not recommended	C
Manual mobilisation	Grade
Manual mobilisation should be considered for the reduction of neck pain in the initial stages	B
Manual mobilisation should be considered to increase neck range of movement	C
Manual mobilisation should be considered to improve function	C
Soft tissue techniques should be considered for the reduction of pain	C
Exercise therapy	Grade
Active exercise should be used to reduce pain	A
Active exercise for pain reduction should be started within 4 days of injury	A
An active exercise programme devised for each individual following assessment should be considered for the reduction of pain	C
Education and advice	Grade
Education on self-management should be provided, to reduce patients' symptoms	A
Returning to normal activities as soon as possible should be encouraged	A
Providing education about the origin of the pain should be considered for reducing pain	C
Providing advice about coping strategies may be helpful for the reduction of pain	C
Relaxation should be considered for reducing pain	C
Physical agents (including electrotherapy)	Grade
The use of TENS should be considered for reducing pain	C
The following are unlikely to be effective in reducing pain:	C
• Traction	
• Infrared light	
• Interferential therapy	
• Ultrasound treatment	
• Laser treatment	

There is insufficient evidence to support or refute the use of the following <ul style="list-style-type: none"> • Massage • Acupuncture • Pulsed Electromagnetic Therapy (PEMT) 	C C Good practice point
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Treatment recommendations for physiotherapy intervention for WAD in the sub acute stage (i.e. more than 2 weeks and up to 12 weeks after injury)	Grade
Manipulation and manual mobilisation	
Combined manipulation and manual mobilisation should be considered for reducing pain	C
Combined manipulation and manual mobilisation should be considered for improving function	C
The risk of serious adverse events from cervical manipulation may be increased after whiplash injury	Good practice point
Exercise therapy	Grade
There is unlikely to be any benefit in including kinaesthetic exercise in a programme of functional improvement exercise	B
Muscle retraining including deep neck flexor activity may be effective in improving function	C
Multimodal packages	Grade
A multimodal programme (including postural training, manual techniques and psychological support) should be used to reduce pain and speed return to work	A
Acupuncture	Grade
The use of acupuncture cannot be supported or refuted	C
Education and advice	Grade
Education should be considered for the improvement of neck function	C
Advice about coping strategies should be considered, to enable people to return to normal activities	C
Physical agents (including electrotherapy)	Grade
The following treatments could be considered for the reduction of pain: <ul style="list-style-type: none"> • Transcutaneous Electrical Nerve Stimulation (TENS) • Massage • Soft tissue techniques 	C
The following treatments are unlikely to reduce neck pain: <ul style="list-style-type: none"> • Traction • Infrared light • Interferential therapy • Laser treatment • Ultrasound 	C

Treatment recommendations for physiotherapy intervention for people with WAD in the chronic stage (i.e. more than 12 weeks after injury)	Grade
Manipulation and manual mobilisation	
The following should be considered for pain reduction: <ul style="list-style-type: none"> • Manual mobilisation • Manipulation • Combination of manipulation and manual mobilisation. 	C
Combination of manual mobilisation and manipulation should be considered to improve function	C
Combining manipulation and exercise	Grade
A combination of manipulation and exercise may be more effective than manipulation alone in: <ul style="list-style-type: none"> • Reducing pain • Improving function • Increasing patient satisfaction 	C
Exercise therapy	Grade
Combined advice about coping strategies and exercise may be more effective than exercise alone in assisting people's return to normal activity	C
Mobilising exercises should be considered for the reduction of pain	C
Group exercise should be considered to improve function	C
Proprioceptive exercises should be considered to improve function	C
Strengthening exercises may be more effective than passive treatment in improving function and in reducing pain	C
Exercise based on individual assessment is likely to be better than general exercise in improving function	C
Standard exercise (stretching, isometric, isotonic) may be more effective than phasic exercise (rapid eye-hand-neck movements) in improving function	C
Extension retraction exercises could be considered to improve neck function	C
Multidisciplinary psychosocial packages	Grade
Multidisciplinary rehabilitation may be more effective than traditional rehabilitation (physiotherapy, rest, sick leave) in improving function	C
Acupuncture	Grade
There is no evidence to support or refute the use of acupuncture for people with WAD	–
Physical agents (including electrotherapy)	Grade
The use of the following cannot be supported or refuted: <ul style="list-style-type: none"> • Ultrasound • Electromyography (EMG), biofeedback • Thermotherapy • Electrical stimulation • TENS • Massage 	–

Recommendations on education and advice that should be given to people with WAD	Grade
Physical serious injury is rare	C
Reassurance about good prognosis is important	C
Over medicalisation is detrimental	C
Recovery is improved by early return to normal pre-accident activities, self-exercise and manual therapy	C
Positive attitudes and beliefs are helpful in regaining activity levels	C
Collars, rest and negative attitudes and beliefs delay recovery and contribute to chronicity	C

References

Chartered Society of Physiotherapy (2003). Guidance for developing clinical guidelines. The Chartered Society of Physiotherapy, London.

Moore A, Jackson A, Jordan J, Hammersley S, Hill J, Mercer C, Smith C, Thompson J, Woby S, Hudson (2005). Clinical guidelines for the physiotherapy management of Whiplash Associated Disorder (WAD) Chartered Society of Physiotherapy, London.

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