

Royal Dutch Society
for Physical Therapy

KNGF Guideline

Neck Pain



In the context of international collaboration in guideline development, the Royal Dutch Society for Physical Therapy (Koninklijk Nederlands Genootschap voor Fysiotherapie, KNGF) has decided to translate its Clinical Practice Guidelines into English, to make the guidelines accessible to an international audience. International accessibility of clinical practice guidelines in physical therapy makes it possible for therapists to use such guidelines as a reference when treating their patients. In addition, it stimulates international collaboration in the process of developing and updating guidelines. At a national level, countries could endorse guidelines and adjust them to their local situation if necessary.

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KNGF's objective is to create the right conditions to ensure that high-quality physical therapy is accessible to the whole of the Dutch population, and to promote recognition of the professional expertise of physical therapists. KNGF represents the professional, social and economic interests of over 20,000 members.

The guideline is summarized on a flowchart; the Practice Guidelines as well as the flowchart can be downloaded from www.fysionet.nl.

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Practice Guideline

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A Introduction

This Royal Dutch Society for Physical Therapy (Koninklijk Nederlands Genootschap voor Fysiotherapie, KNGF) clinical practice guideline is the first Dutch guideline for the diagnosis and treatment of neck pain. It outlines recommendations for physical and manual therapy for patients with neck pain. The Clinical Practice Guideline is supported by the 'Verantwoording en toelichting' ('Justification and explanation'), in which the choices made with regard to how neck pain is defined as well as the recommended physical examination and treatments are clarified and accompanied by supporting background information. The guideline is presented as a flow chart in the Summary Chart. This guideline replaces the KNGF guideline for Whiplash from 2005.

A.1 Goals

This KNGF guideline is intended to support physical or manual therapists in the diagnosis and treatment of neck pain. Where a recommendation is explicitly intended and reserved for manual therapists, this will be made clear. All recommendations are based on current evidence and/or expert opinion. The primary goals of treatment are to help the patient to achieve the highest possible level of activity and/or participation and the lowest possible level of pain, and to prevent the development of chronic and/or recurrent neck pain.

A.2 When to use the guideline

The KNGF Guideline on Neck Pain should be used for patients who have neck pain as chief presenting complaint. Neck pain is defined as 'an unpleasant sensory and emotional experience that is associated with actual or potential tissue damage' in the neck region (from the superior nuchal line to the scapular spine), potentially accompanied by pain in the head, shoulder, and/or arm (see Figure 1). The severity of neck pain is classified into four grades or levels, Grades I to IV.

Grade I: Neck pain and associated disorders with no signs or symptoms suggestive of major structural pathology and no or minor interference with activities of daily living.

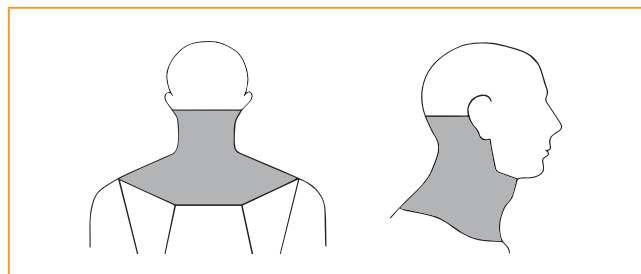


Figure 1. Anatomical region of the neck viewed from the back and the side.

Grade II: Neck pain without signs or symptoms indicative of major structural pathology but which may significantly affect daily activities.

Grade III: Neck pain without signs or symptoms indicative of major structural pathology but with neurological symptoms possibly caused by cervical herniated disc or spinal stenosis, such as reduced tendon reflexes, muscle weakness, or sensory disorders (hypoesthesia or hyperesthesia) in the upper extremity.

Grade IV: Neck pain with signs or symptoms indicative of serious structural pathology. Major structural pathologies include (but are not limited to) fracture, vertebral dislocation, injury to the spinal cord, infection, neoplasm, or systemic disease including the inflammatory arthropathies.

The guideline focuses on the identification of Grade I–IV neck pain and physical therapy appropriate for Grade I–III neck pain. Patients with Grade IV neck pain should be referred to their general practitioner or to the referring specialist.

A.3 Course and prognosis

Neck pain constitutes the fourth largest category of complaints and symptoms relating to the musculoskeletal system. Most people (approximately 70%) suffer from some form of neck pain during their lives, although it will generally cause little or no interference

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with their daily activities. Roughly 20% of the Dutch population suffering from neck pain visits a doctor or physical therapist at any given point in time. In the general population, 50–85% of patients with neck pain report recurrent or persistent neck pain in the subsequent 5 years.

Neck pain usually decreases by 45%, accompanied by a decrease in the limitations in activities and/or participation, within 6 weeks of pain onset. This reflects a normal course of recovery. However, if the pain and the limitations in activities and/or participation do not improve or become worse in the first 6 weeks, the course of recovery is considered deviant.

Neck pain may fluctuate in severity. Recurrent pain and limitations in activities and/or participation in the first 6 weeks after the first symptoms are considered the same episode of neck pain. The term

'recurrent pain' is used when pain recurs after 6 weeks, either once or on multiple occasions. In this case, there may be other functional or anatomical disorders that affect the extent to which activities and/or participation are limited.

Normal and deviant recovery

1

Recovery is considered to be 'normal' if the neck pain decreases within the first 6 weeks of its onset and/or if activities and/or participation increase. Recovery is considered to be 'deviant' if the neck pain persists for longer than 6 weeks or if it recurs.

Table 1. Risk factors for deviant recovery.

	General population	Work related	Trauma related
angular deformity of the neck			0
hypersensitivity/hyperalgesia to cold			-
high pain intensity			-
history of other musculoskeletal disorders	-	-	-
previous episode of neck pain		-	
serious neck-related limitations in activities			-
regular cycling	-		
regular physical activity	0	0	
anxiety			-
catastrophic thinking			-
depression			-
pain-related anxiety	-		
need to socialize	-		
advanced age	-	0	0
gender		0	
post-traumatic stress symptoms at onset			-
passive coping style	-		-
psychosocial stress	-		
poor psychological health	-		
having seen the collision coming			0
high workload		-	
headrest present			0
rear impact collision			0
type of work		0	
low impact of own work		-	
position of the driver			0
vehicle stationary during collision			0

- Related to deviant recovery. 0 Not related to deviant recovery. Empty field: the relation has not been studied.

A distinction is also made between trauma related neck pain and work related neck pain. Trauma related neck pain occurs as a result of a trauma. This term is preferred to whiplash-associated disorder (WAD) because of the negative connotations of the term 'whiplash'. Neck pain that patients think is the result of their work is regarded as work related neck pain. This classification into subgroups aids the identification of potential risk factors for an deviant recovery (Table 1).

B Diagnostic process

During the diagnostic process, the physical therapist should distinguish between grades I to IV neck pain. Once Grade IV neck pain has been excluded, physical therapy, if indicated, should be tailored appropriately to Grade I, II, or III neck pain.

B.1 History

The physical therapist should first and foremost exclude the possibility of Grade IV neck pain on the basis of the pattern of complaints or symptoms and relevant red flags (Table 2) that may indicate serious pathology (Grade IV) requiring further medical diagnosis. The patient should be referred to their general practitioner (GP) or referring specialist, if the following is established: 1) a pattern of complaints or symptoms suggestive of potentially serious pathology, or 2) a pattern of complaints or symptoms that is not recognized by the physical therapist.

Once Grade IV has been excluded, the physical therapist should take the patient's history, covering the following points:

- exclude/establish Grade III neck pain on the basis of the signs and symptoms indicative of cervical radiculopathy (Table 3);
- verify the severity and nature of the symptoms (functional or anatomical disorders) and the extent to which symptoms interfere with daily functioning (activity limitations and re-restricted participation);
- establish the course of symptoms (normal or deviant)
 - normal: level of pain and severity of activity limitations or participation restrictions decrease within the first 6 weeks of the onset of the neck pain;
 - deviant: level of pain and severity of activity limitations and/or participation restrictions do not improve or even worsen within the first 6 weeks of the onset of the neck pain;
- distinguish between Grade I and II neck pain
 - Grade I: neck pain has little effect on the patient's daily activities;
 - Grade II: neck pain has a significant effect on the patient's daily activities;
- establish whether the symptoms are associated with work or trauma;
- collect additional information, for example, risk factors for deviant recovery (Table 1), comorbidity, current treatments/aids, and social history.

B.2 Physical examination

Treatment for Grade III neck pain (cervical radiculopathy) differs from treatment for Grade I and II neck pain. For this reason, the main aim of the physical examination is to confirm or exclude suspected Grade III neck pain (Table 3).

Red flags

2

During the first consultation, it is essential that the physical therapist exclude serious pathology (Grade IV neck pain), based on the pattern of symptoms and red flags. Once Grade IV neck pain has been excluded, the physical therapist should distinguish between Grade I, II, and III neck pain and treat accordingly.

The presence of objectively observable neurological symptoms and signs, such as reduced tendon reflexes, muscle weakness, or sensory disorders, is suggestive of Grade III neck pain. In order to confirm this suspicion, the physical therapist should carry out the Spurling's test and/or the traction/distraction test, with Grade neck pain III being deemed likely if one or both tests have a positive outcome.

Grade III neck pain may theoretically be excluded if there are no objectively observable neurological symptoms and signs, or if the outcomes of both confirmatory tests are negative. However, if the physical therapist still has suspicion of Grade III neck pain, he/she may consider carrying out the Upper Limb Tension Test (ULTT)* for the brachial plexus/median nerve to exclude (negative result) Grade III neck pain.

Any further physical examination should focus on the affected area of the body and the relevant biomechanical, physiological, and anatomical structures.

This includes:

- examination of the cervical and thoracic spinal cord, shoulder girdle, and shoulder joints, namely,
 - each motion segment, in terms of range of motion, direction of motion, resistance to motion, and end feel;
 - provocation or reduction of neck pain and radiating pain;
- muscle examination, namely,
 - muscle length, elasticity, end feel, sensitivity on contraction and elongation, and muscle tone;
 - muscle coordination and strength by testing the endurance of the deep neck flexor muscles or by carrying out a craniocervical flexion test.

Grade III neck pain

3

The following tests may be considered if Grade III neck pain is suspected:

- identification of sensory symptoms in the arm, such as paresthesia, numbness, reduced sense of touch;
- identification of restricted cervical range of motion, defined as rotation less than 60 degrees or limited and painful rotation;
- identification of reduced muscle strength, muscle control, or sensory disorders;
- Spurling's test and/or traction/distraction test;
- Upper Limb Tension Test (ULTT).

Grade III neck pain is considered likely if there are one or more signs and symptoms suggestive of cervical radiculopathy and a positive Spurling's test and/or traction/distraction test.

* This test is also referred to as the Upper Limb Neurodynamic Test (ULNT).

Table 2. Red flags suggestive of specific serious pathology (Grade IV neck pain).

Possible pathology	Corresponding red flag
fracture	advanced age, trauma in medical history, use of corticosteroids, osteoporosis
cervical arterial dysfunction	cerebrovascular symptoms such as dizziness, double vision, nausea, vomiting, weakness of the limbs, and papillary changes
damage to spinal cord or cervical myopathy	neurological symptoms, including widespread neurological signs in both arms and/or legs, such as sensory disorders, loss of muscle strength in extremities, bowel and bladder dysfunction
infection (including urinary tract infection or skin infection)	symptoms and signs of infection (e.g. fever, night sweats), risk factors for infection (e.g. underlying pathological process, in the case of immunosuppressants, an open wound, intravenous drug use, exposure to infectious diseases)
malignant tumors	cancer in medical history, no improvement in symptoms after 4 weeks of treatment, unexplained weight loss, age >50 years, trouble swallowing, headaches, vomiting
systemic diseases (herpes zoster, spondylitis ankylosis, inflammatory arthritis, rheumatoid arthritis)	headache, fever, unilateral skin rash, burning pain, itching

Table 3. Symptoms, signs, and tests to confirm or exclude Grade III neck pain (cervical radiculopathy).

Symptoms	<ul style="list-style-type: none"> • sensory symptoms in the arm, such as paresthesia, numbness, reduced sense of touch • restricted cervical range of motion, defined as rotation <60 degrees or limited and painful rotation • reduced muscle strength or muscle control • radiating pain in the arm
Signs	<ul style="list-style-type: none"> • reduced tendon reflexes, muscle weakness, or sensory disorders
Tests	<p>confirmation of Grade III neck pain:</p> <ul style="list-style-type: none"> • a positive Spurling's test and/or • a positive traction/distraction test <p>exclusion of Grade III neck pain:</p> <ul style="list-style-type: none"> • a negative Upper Limb Tension Test (ULTT)* for the brachial plexus and median nerve

* Also called Upper Limb Neural Test.

B.3 Assessment tools and instruments

It is recommended that the Patient-Specific Functional Scale (PSFS) questionnaire and the Numeric Pain Rating Scale (NPRS) be completed before (in order to predict the course of the neck pain and to serve as baseline for treatment goals) and after (to evaluate recovery and outcomes) treatment (Figure 2). There should minimally be a 2-point difference in both measurements (on a 0–10 scale) to establish improvement or deterioration of symptoms. In addition, a number of other tools may be considered for specific patients, as mentioned in the Verantwoording en toelichting (Justification and explanation) document. All tools recommended and described in this *Clinical Practice Guideline* and the *Verantwoording en toelichting* document are available via www.meetinstrumentenzorg.nl.

Assessment tools and instruments

4

The following tools should be used when examining patients:

- Numeric Pain Rating Scale (NPRS, scale 0–10 points) for objective assessment of the average pain over the last 24 hours;
- Patient-Specific Functional Scale (PSFS, measured on a numeric scale of 0–10 points) questionnaire for objective assessment of limitations in activities.

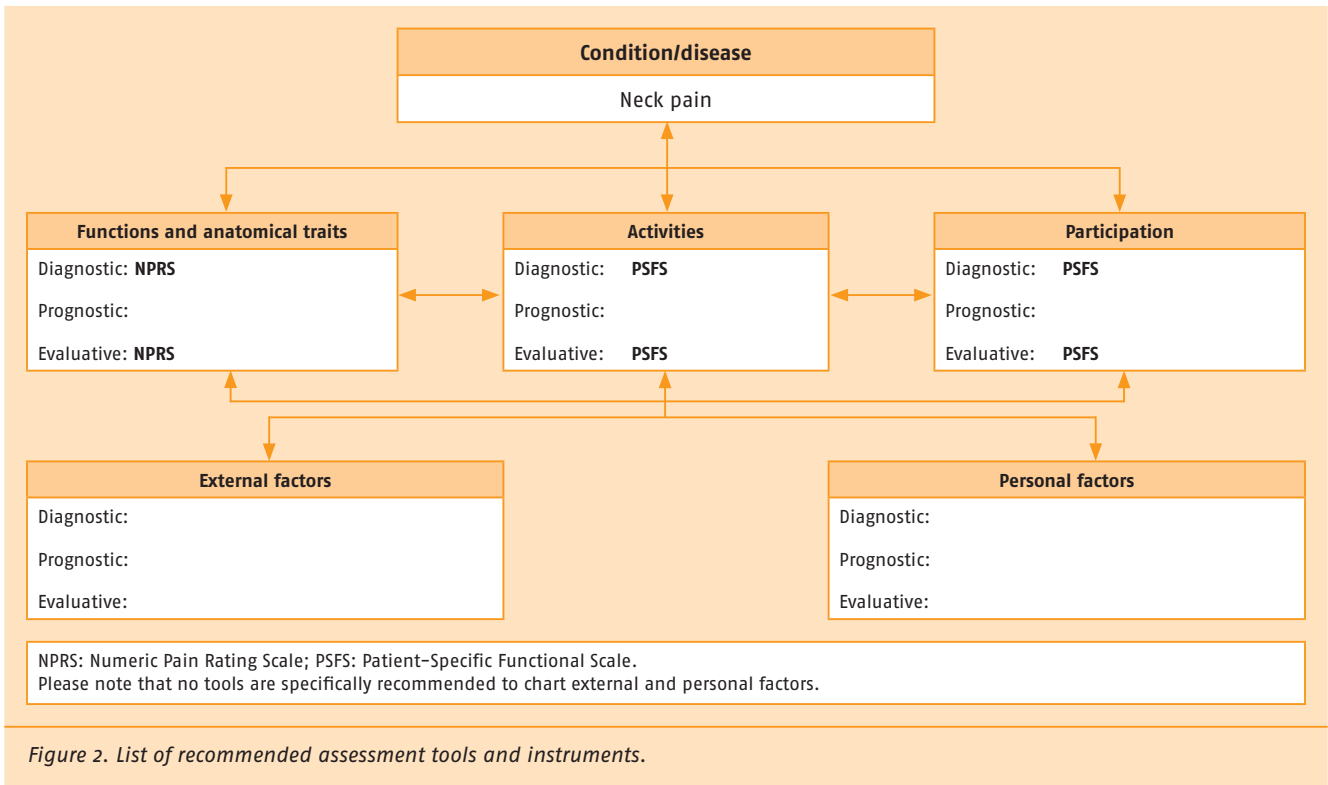


Figure 2. List of recommended assessment tools and instruments.

B.4 Imaging studies

In the Netherlands, physical therapists are not currently authorized to request imaging studies such as radiography, magnetic resonance imaging, computed tomography, or ultrasound. Given the limited validity of these imaging techniques, and the tendency of imaging studies to detect anomalies in people without symptoms or complaints (false positive), physical therapists are advised not to recommend imaging studies.

Imaging research 5
The physical therapist should not recommend imaging studies because of the limited level of evidence supporting their use and the substantial chance of false-positive findings.

B.5 Evaluation and diagnosis

The physical therapist should use the information from the case history and the findings of the physical examination to evaluate the neck pain, other potential functional or anatomical disorders, activity limitations and/or participation restrictions, and any interaction between them. This will enable the therapist to chart the patient's health problem and provide an answer to the following questions:

1. How severe (grade) is the neck pain?
2. Do complaints or symptoms follow normal or deviant course of recovery?
3. Does the patient have trauma related or work related neck pain?
4. Are there risk factors (psychosocial, personal, and environmental factors) for an deviant course of recovery and can these factors be influenced by physical therapy?

Treatment profiles 6
Patients with neck pain should be treated according to one of the treatment profiles given in Table 4, based on their case history and findings from the physical examination.

5. Is there a link between the activity limitations and/or participation restrictions and the neck pain or other functional/anatomical disorders, and can this link be influenced by physical therapy?

Four treatment profiles have been developed, based on the available literature. On the basis of the evaluation, the physical therapist should establish whether physical therapy is indicated and which treatment profile is appropriate.

The treatment profiles are organized by the severity or grade of neck pain, by the course of symptoms or complaints (normal vs. deviant), and by the presence of psychosocial factors that may hinder recovery (yes vs. no). As psychosocial factors play a key role in delaying recovery, they partly determine the choice of treatment profile (treatment profile B vs. C). Although patients with Grade I neck pain will probably not visit a physical therapist, because symptoms are expected to resolve within 6 weeks, Grade I neck pain has been assigned a treatment profile (Treatment Profile A) for the sake of completeness. The treatment profiles are clearly defined in Table 4.

Table 4. Treatment profiles for patients with neck pain.

Profile	Features	Description
Treatment profile A	Grade I and II neck pain with a normal course	neck pain that (to a greater or lesser extent) has an impact on daily activities and which is expected to improve within the first 6 weeks after the onset of symptoms
Treatment profile B	Grade I and II neck pain with risk factors for a deviant course of recovery but no psychosocial factors that could delay recovery.	neck pain that (to a greater or lesser extent) affects daily activities and which is not expected to improve or which may even worsen within the first 6 weeks of the onset of symptoms or complaints. Psychosocial factors that could impede recovery are not present
Treatment profile C	Grade I and II neck pain with risk factors for a deviant course of recovery, and psychosocial factors that delay or inhibit recovery	neck pain that (to a greater or lesser extent) affects daily activities and which is not expected to improve or which may even worsen within the first 6 weeks after the onset of symptoms or complaints. Psychosocial factors that could impede recovery are present
Treatment profile D	Grade III neck pain	neck pain with neurological signs and symptoms

B.6 Pre-manipulation decision-making

If a manual therapist is considering cervical manipulation, he/she should be aware of the possible risk of cervical arterial dysfunction. In the light of this potential risk, the Dutch Association for Manual Therapy (NVMT) has published advice about the recommended pre-manipulation decision-making process. Please see: <https://nvmt.kngf.nl>.

C Treatment plan

Once an indication for physical therapy has been established, the physical therapist should draw up a tailored treatment plan in consultation with the patient. A third party (e.g. from another discipline, such as a psychologist or a company doctor) may also be involved.

C.1 Treatment profile A

Grade I/II neck pain with a normal course of recovery: neck pain which (to a greater or lesser extent) interferes with daily activities and which is expected to have a normal course of recovery.

Given the normal course of recovery of pain and activities, the physical therapist should aim to provide short-term treatment limited to informing the patient about the normal course of recovery and facilitating an adequate coping style to prevent a deviant course of recovery. The patient is not expected to require additional therapy. 7

Information and advice

- Reassure the patient by explaining that neck pain has a favorable course in most patients, that it is not harmful, and that an increase in pain is not related to damage to body functions and structures.
- Advise the patient to remain physically active. Explain that recovery may benefit from a moderate and gradual increase in the level of exercise, a gradual increase in the level of activities, and the continuation of, or return to, work (if necessary, with adaptation of tasks or duties or work-related care).
- Avoid any recommendations that might encourage the patient to remain passive. Instead, advise them to embrace a physically active lifestyle and active coping style.

Additional note for work related neck pain

- Explain that certain aspects of work may be risk factors for the development of neck pain, such as a heavy workload; work with little social support or support from the work environment; work consisting of repetitive tasks; sedentary work; work by which the neck is held in a forward flexion position for long periods of time; work with a poor desk set-up and a poor working posture; precision work; and working environment (e.g. unpleasant working relationship with colleagues and supervisors, negative atmosphere).
- Physical therapists may consider recommending a consultation with, or referring the patient to a physical therapist specialized in worker rehabilitation in the case of absenteeism or production loss without absenteeism.

Conclusion

- Aim for no more than approximately three treatment sessions.

Treatment profile B: see next page.

C.2 Treatment profile B

Grade I/II neck pain with a deviant course of recovery: neck pain that (to a greater or lesser extent) interferes with daily activities and which is expected to have a deviant course of recovery. Psychosocial factors that may delay recovery are not present.

Treatment should focus on factors, both physical and non-physical, that may delay recovery.

8

Information and advice

Similar to Treatment profile A.

Recommended additional therapy

- Combine exercise therapy with cervical and/or thoracic mobilization or manipulation*
- Tailor exercise therapy to the patient's needs, limitations, and goals.

Optional therapy (if treatment is insufficiently effective)

The following interventions should be considered if, in consultation with the patient, the physical therapist concludes that the recommended therapy has had no or little effect on the patient's problem:

- cervical cushion;
- cognitive behavioral therapy;
- kinesiotape (for trauma related neck pain) for pain relief in the short term;
- massage (provided that it is combined with other forms of therapy) for pain relief in the short term;
- heat therapy (provided that it is combined with other forms of therapy);
- workplace interventions (for work-related neck pain).

Treatments that are not recommended

- dry needling
- electrotherapy
- ultrasound/shockwave
- laser

Additional note for work related neck pain

Similar to Treatment profile A, plus:

- If factors related to the patient's work are thought to impede recovery, the patient should be advised to contact the occupational health officer or a physical therapist specialized in worker rehabilitation to discuss treatment options or – in the case of absenteeism – the Occupational Health & Safety Service (Arbodienst) to discuss a reintegration procedure.
- In the case of absenteeism or production loss without absenteeism that persists longer than 4 weeks, the patient should be asked about what has been agreed with the occupational health officer. In addition, the physical therapist should consider contacting or referring the patient to a physical therapist specialized in worker rehabilitation and/or consulting with the occupational health officer in order to tailor further treatment, provided that the patient agrees to this.

Conclusion

- Evaluate treatment content, adherence, and results, preferably using the NPRS and the PSFS.
- Treatment should be ended once treatment goals have been achieved or if there is no improvement after 6 weeks.
- If treatment has had insufficient effect on pain and the level of activity and participation after 6 weeks, the physical therapist should – with the patient's approval – contact his/her GP or occupation health officer in order to discuss treatment options other than physical therapy.

* Physical therapists should be cautious about upper cervical manipulation (see NVMT Statement).

Treatment profile C: see next page.

C.3 Treatment profile C

Grade I/II neck pain with a deviant course of recovery: neck pain that (to a greater or lesser extent) interferes with daily activities and which is expected to have a deviant course of recovery. Dominant presence of psychosocial factors that delay or inhibit recovery.

Treatment should focus on the factors (both physical and non-physical) that delay or inhibit recovery, with a particular focus on psychosocial factors. It is less effective to focus on pain, because this will only increase the patient's awareness of pain and resulting pain behavior. 9

Information and advice

Similar to Treatment profile B, plus:

- Emphasize that psychosocial factors (anxiety, restlessness, depression, fear of movement (kinesiophobia), catastrophic thinking, and so on) may adversely affect recovery.
- Regarding fear of movement (kinesiophobia) or pain-related anxiety, explain that an increase in activity will facilitate recovery and encourage the patient to take more exercise.
- Regularly discuss the impact of psychosocial factors that could delay recovery, to check whether these factors have changed and whether their impact on neck pain has decreased.
- If psychosocial factors indeed hinder recovery, the patient should be encouraged to contact his/her GP, psychologist, and/or psychosomatic physical therapist and discuss treatment options.

Recommended additional therapy

Similar to Treatment profile B, plus:

- In exercise therapy, place more emphasis on behavioral principles and encourage a gradual increase in physical activity.

Optional therapy (if treatment is insufficiently effective)

Similar to Treatment profile B.

Treatments that are not recommended

Similar to Treatment profile B.

Additional note for work related neck pain

Similar to Treatment profile B.

Conclusion

Similar to Treatment profile B.

Treatment profile D: see next page.

C.4 Treatment profile D

Grade III neck pain: neck pain with neurological signs and symptoms.

The patient may benefit from physical therapy; however, because of potentially serious underlying pathology, it is vital that a clear timeline is established beforehand.

10

Information and advice

Similar to Treatment profile B, but with due observance of the following:

- Explain the diagnosis and reassure the patient that the neurological signs and symptoms of the arm will often stop or disappear by themselves.
- Advise a physically active lifestyle and an active coping style. However, also recommend that the patient avoid movements or activities that may provoke radiating pain or other symptoms of the arm.

Recommended additional therapy

Similar to Treatment profile B.

Optional therapy (if treatment is insufficiently effective)

Similar to Treatment profile B, plus:

- cervical and/or thoracic mobilization combined with neurodynamic mobilization exercises;
- soft neck collar, for short-term pain relief. Evaluate the effect after 2 weeks and be aware of patient dependence (not in trauma related pain);
- traction.

Treatments that are not recommended

Similar to Treatment profile B.

Additional note for work related neck pain

Similar to Treatment profile B.

Conclusion

Similar to Treatment profile B, but with due observance of the following:

- If treatment has had insufficient effect on pain and the level of activity and participation or has even led to deterioration (increase in pain, additional sensory symptoms, or increasing loss of motor control), the patient should be referred back to the GP.

C.5 Ending treatment

Treatment should be ended once the treatment goals have been achieved. However, even if treatment goals are not achieved, it is probably not effective to continue treatment for longer than 6 weeks, because there is little likelihood of further improvement. This aspect must be discussed with the patient before the last treatment session.

It is recommended that treatment be evaluated during the last session, using the NPRS and PSFS scales or other scales, if appropriate and used before treatment was started.

During the last session, patients should be advised to remain physically active regardless of any residual pain and to be aware of the possibility that their neck pain may recur under the influence of risk factors for a deviant recovery (Table 1).

Appendices

Appendix 1 Recommendations

Diagnostic process

1 Normal and atypical recovery

Recovery is considered normal if pain decreases or if there is an increase in activities and/or participation within the first 6 weeks of symptom onset. Recovery is considered atypical if neck pain is recurrent or persists longer than 6 weeks.

2 Red flags

Serious pathology (Grade IV neck pain) should be excluded in the initial consultation, based on the pattern of complaints or symptoms and possible red flags. If there is no evidence of serious pathology (Grade IV neck pain), a distinction should be made between Grade I, II, and III neck pain in order to deliver appropriate treatment.

3 Grade III neck pain

The following should be considered if Grade III neck pain is suspected:

- identification of sensory symptoms in the arm, such as paresthesia, numbness, reduced sense of touch;
- identification of restricted cervical range of motion, defined as rotation less than 60 degrees or limited and painful rotation;
- identification of reduced muscle strength, muscle control, or sensory disorders;
- Spurling's test; traction/distraction test;
- Upper Limb Tension Test (ULTT).

Grade III neck pain is deemed likely in the presence of one or more signs and symptoms suggestive of cervical radiculopathy and a positive Spurling's test and/or traction/distraction test.

The following tests should be used if Grade III neck pain is suspected:

- the Spurling's test, where a positive result confirms Grade III neck pain; and/or
- the traction/distraction test, where a positive result confirms Grade III neck pain;
- the Upper Limb Tension Test (ULTT) for the brachial plexus and the median nerve, where a negative test excludes Grade III neck pain.

4 Assessment tools and instruments

Recommended tools

The following tools should be used during the treatment of patients:

- Numeric Pain Rating Scale (NPRS, scale of 0–10 points) for objective assessment of the average pain experienced over the last 24 hours as part of the ICF domain 'Bodily function';
- Patient Specific Functional Scale (PSFS, measured on a numeric scale of 0–10 points) for objective assessment of limitations of activities as part of the ICF component 'Activities and participation'.

Optional tools

The following tools may be used if considered relevant on the basis of the case history:

- Craniocervical Flexion Test (CCFT);
- Cervical Range of Motion (CROM) device;
- Fear Avoidance Beliefs Questionnaire (FABQ) if pain-related anxiety is suspected;
- Neck Bournemouth Questionnaire (NBQ);
- Neck Disability Index (NDI);
- Sensory test;
- Short Form 36 (SF-36) if a poor health perception or health-related quality of life is suspected;
- Deep neck flexor endurance test;
- Tampa Scale for Kinesiophobia (TSK) if kinesiophobia (fear of movement) is suspected;
- Endurance test;
- Visual Analogue Scale (VAS);
- Four-Dimensional Symptoms Questionnaire (4DSQ) if anxiety, depression, stress, or somatization is suspected.

5 Imaging studies

Physical therapists should not recommend diagnostic imaging because there is moderate evidence of their effectiveness and because of the likelihood of false-positive findings.

6 Treatment profiles

Treatment should be provided according to the treatment profiles outlined in this Table.

Profile	Features	Description
Treatment profile A	Grade I* and II neck pain with a normal course	Neck pain that (to a greater or lesser extent) has an impact on daily activities and which is expected to improve within the first 6 weeks after the onset of symptoms
Treatment profile B	Grade I* and II neck pain with risk factors for atypical recovery, but no psychosocial factors that could delay recovery.	Neck pain that (to a greater or lesser extent) affects daily activities and which is not expected to improve or which may even worsen within the first 6 weeks of the onset of symptoms or complaints. Psychosocial factors that could delay recovery are not present
Treatment profile C	Grade I* and II neck pain with risk factors for atypical recovery and psychosocial factors that delay or inhibit recovery	Neck pain that (to a greater or lesser extent) affects daily activities and which is not expected to improve or which may even worsen within the first 6 weeks after the onset of symptoms or complaints. Psychosocial factors that could delay recovery are present.
Treatment profile D	Grade III neck pain	Neck pain with neurological signs and symptoms

* Although Grade I neck pain has been included in the treatment profile classification, it is not expected that patients with this degree of neck pain will consult a physical therapist.

7 Grade I/II neck pain with normal recovery

Given the normal course of recovery, the physical therapist should aim to provide short-term treatment. This should be limited to informing the patient about the normal course of recovery and facilitating an adequate coping style to prevent delayed recovery. It is not anticipated that additional therapy will be required.

Information and advice

- Reassure the patient by explaining that neck pain usually has a favorable course of recovery in most patients, that it is not harmful, and that an increase in pain is not related to damage to body functions and structures.
- Advise the patient to remain physically active. Explain that recovery may be facilitated by a moderate and gradual increase in exercise and activities, and by continuing or returning to work (if necessary, with adaptation of tasks or work-related care).
- Avoid any recommendations that may encourage the patient to remain passive. Instead, advise him/her to adopt a physically active lifestyle and active coping style.

Additional note for work related neck pain

- Explain that potential risk factors may contribute to the development of neck pain, such as heavy workload; work with little social support or support from the work environment; repetitive work; sedentary work; work in which the neck is held in a forward flexion position for a long period of time; work with a poor desk set-up, and a poor work posture; precision work; and the work environment (e.g. unpleasant working relationship with colleagues and supervisors, negative atmosphere).
- Physical therapists may consider recommending a consultation with, or referring the patient to, an occupational therapist in the case of absenteeism or production loss without absenteeism.

Conclusion

- Aim for no more than three treatment sessions.

8 Grade I/II neck pain with atypical recovery

Treatment should focus on influencing risk factors (both physical and non-physical) related to a delayed recovery.

Information and advice

Similar to Treatment profile A.

Recommended additional therapy

- Combine exercise therapy with cervical and/or thoracic mobilization or manipulation. (Physical therapists should be cautious about upper cervical manipulation; see NVMT opinion).
- Tailor exercise therapy to the patient's needs, limitations, and goals.

Optional therapy (if treatment is insufficiently effective)

The following interventions should be considered if, in consultation with the patient, the physical therapist concludes that therapy has had no or little effect on the patient's problem:

- cervical cushion;
- cognitive behavioral therapy;
- kinesiotape (for trauma related neck pain) for pain relief in the short term;
- massage (provided that it is combined with other forms of therapy) for pain relief in the short term;
- heat or cold therapy (provided that it is combined with other forms of therapy);
- workplace interventions (for work-related neck pain).

Treatments that are not recommended

- dry needling
- electrotherapy
- ultrasound/shockwave
- laser

Additional note for work related neck pain

Similar to Treatment profile A, plus:

- If the therapist suspects that work-related factors impede recovery, he/she should advise the patient to contact the occupational health officer or a physical therapist specialized in worker rehabilitation to discuss treatment options or – in the case of absenteeism – the Occupational Health & Safety Service (Arbodienst) to discuss a reintegration procedure.
- If absenteeism or production loss without absenteeism persists for longer than 4 weeks, the physical therapist should ask the patient what has been agreed with the occupational health officer. The physical therapist should also consider contacting or referring the patient to a physical therapist specialized in worker rehabilitation and/or consulting with the occupational health officer in order to tailor further treatment, provided that the patient agrees with this.

Conclusion

- Evaluate treatment content, adherence, and results, preferably using the NPRS and the PSFS.
- End treatment once treatment goals have been achieved or if there is no improvement after 6 weeks.
- If the treatment has had insufficient effect on pain and the level of activity and participation after 6 weeks, the physical therapist should – with the patient's approval – contact their GP or occupation health officer in order to discuss further treatment options.

9 Grade I/II neck pain with deviant recovery

Treatment should focus on influencing risk factors (physical and non-physical) that may delay recovery, particularly psychosocial factors. It is less effective to focus on the patient's pain because this may increase awareness of pain and resulting pain behavior.

Information and advice

Similar to Treatment profile B, plus:

- Emphasize that psychosocial factors (anxiety, restlessness, depression, fear of movement (kinesiophobia), catastrophic thinking, and so on) may have an adverse effect on recovery.
- Regarding fear of movement (kinesiophobia) or pain-related anxiety, explain that an increase in activity will facilitate recovery and encourage more exercise.
- Regularly discuss the impact of psychosocial factors that could hinder recovery, to check whether these factors have changed and whether their impact on the neck pain has decreased.
- If psychosocial factors are indeed impeding recovery, contact or encourage the patient to contact their GP, psychologist and/or psychosomatic therapist and discuss treatment options.

Recommended additional therapy

Similar to Treatment profile B, plus:

- In exercise therapy, place more emphasis on behavioral principles and encourage a gradual increase in physical activity.

Optional therapy (if treatment is insufficiently effective)

Similar to Treatment profile B.

Treatments that are not recommended

Similar to Treatment profile B.

Additional note for work related neck pain

Similar to Treatment profile B.

Conclusion

Similar to Treatment profile B.

10 Grade III neck pain

The patient may benefit from physical therapy; however, because of potentially serious underlying pathology, it is vital that a clear timeline is established beforehand.

Information and advice

Similar to Treatment profile B, but with due observance of the following:

- Explain the diagnosis and reassure the patient that the neurological signs and symptoms of the arm will often stop or disappear by themselves.
- Advise a physically active lifestyle and an active coping style. However, also recommend that the patient avoid movements or activities that may provoke radiating pain or other symptoms in the arm.

Recommended additional therapy

Similar to Treatment profile B.

Optional therapy (if treatment is insufficiently effective)

Similar to Treatment profile B, plus:

- cervical and/or thoracic mobilization combined with nerve mobilization exercises;
- soft neck collar, for short-term pain relief. Evaluate the effect after 2 weeks and be aware of patient dependence (not in trauma related pain);
- traction.

Treatments that are not recommended

Similar to Treatment profile B.

Additional note for work related neck pain

Similar to Treatment profile B.

Conclusion

Similar to Treatment profile B, but with due observance of the following:

- If the treatment has insufficient effect on the pain and the level of activity and participation or has even led to deterioration (increase in pain, additional sensory symptoms or increasing loss of motor control), the patient should be referred back to the GP.

