

**When
Moving
Hurts**



**Assess
Understand
Take Action**

GLOBAL YEAR AGAINST MUSCULOSKELETAL PAIN

OCTOBER 2009 – OCTOBER 2010

Neck Pain

Introduction

Neck pain is a common global problem, at least in the industrialized world, and it constitutes an important source of disability. The functional task of the cervical spine is to control head movements in relation to the rest of the body. Since the eyes and the vestibular organs are located in the head, information from mechanoreceptors in the structures of the neck is crucial for interpreting vestibular information and for controlling motor tasks that rely on visual information. Neck pain may therefore also have profound functional consequences.

Epidemiology and Economics

- Neck pain affects 30–50% of the general population annually.
- 15% of the general population will experience chronic neck pain (>3 months) at some point in their lives.
- 11–14% of the working population will annually experience activity limitations due to neck pain.
- Prevalence peaks at middle age, and women are more often affected than men.
- Risk factors include repetitive work, prolonged periods of the cervical spine in flexion, high psychological job strain, smoking, and previous neck/shoulder injury.

Pathophysiology

The pathophysiology for the majority of neck pain conditions is not clarified. There is evidence for disturbed oxidative metabolism and elevated levels of pain-generating substances in neck muscles, suggesting that impaired local muscle circulation or metabolism can be part of the pathophysiology.

Neck pain is also associated with altered coordination of cervical muscles and impaired proprioception in the neck and shoulders. Evidence suggests that these phenomena are caused by the pain, but also that they can aggravate the condition.

For neck pain with post-traumatic onset, soft-tissue injury can impair information from mechanoreceptors in the injured tissues, which can cause sensory and motor dysfunctions.

Clinical Features

- Neck pain conditions develop gradually or have a post-traumatic onset.
- Recurrent episodes are common.
- Clinical symptoms associated with neck pain are: pain and stiffness in the neck, headache, dizziness, and radiating pain to shoulders and the upper limbs.
- Neck pain with post-traumatic onset is associated with a wider range of symptoms including temporomandibular symptoms, visual and auditory disturbances, sleeping problems, and cognitive and emotional problems.
- Clinical findings associated with neck pain are: decreased range of cervical movement, increased fatigability, and decreased pressure pain thresholds of cervical muscles.
- Comorbidities such as anxiety, depression, and low back pain may indicate more severe conditions.

Diagnostic Criteria

- For the majority of neck pain conditions, objective diagnostic criteria are lacking. Therefore, diagnoses are symptom based.
- Diagnostic magnetic resonance imaging (MRI) is useful for specific disorders such as myelopathy and for severely injured patients, but is of limited value for the majority of neck pain disorders.
- Manual provocation tests are useful for determining the involvement of nerve root compression.
- For neck pain associated with whiplash trauma, a classification system has been proposed by the Québec Task Force (QTF). It defines five grades that correspond to the severity of the disorder.

Diagnosis and Treatment

Due to limited knowledge of the pathophysiology of most neck pain conditions, treatment of the cause is usually not possible. Therefore, treatment and rehabilitation interventions are mainly intended to reduce symptoms and improve function.

- There is strong evidence that multimodal rehabilitation programs, including physical exercise, mobilization and manipulation, and psychological interventions, improve function and participation in activities.
- For immediate or short-term pain management there is evidence that acupuncture, low-level laser therapy, and pulsed electromagnetic field can be effective.
- There is a lack of evidence that any pharmacological treatment is effective, except for short-term pain relief from intramuscular injections of lidocaine.

References

1. Cote P, van der Velde G, Cassidy JD, Carroll LJ, Hogg-Johnson S, Holm LW, Carragee EJ, Haldeman S, Nordin M, Hurwitz EL, Guzman J, Peloso PM. The burden and determinants of neck pain in workers: results of the Bone and Joint Decade 2000–2010 Task Force on Neck Pain and Its Associated Disorders. *Spine* 2008;33(4 Suppl):S60–74.
2. Falla D. Neuromuscular control of the cervical spine in neck pain disorders. In: Graven-Nielsen T, Arendt-Nielsen L, Mense S, editors. *Fundamentals of musculoskeletal pain*. Seattle: IASP Press; 2008. p. 417–30.
3. Gross AR, Goldsmith C, Hoving JL, Haines T, Peloso P, Aker P, Santaguida P, Myers C. Conservative management of mechanical neck disorders: a systematic review. *J Rheumatol* 2007;34:1083–102.
4. Hogg-Johnson S, van der Velde G, Carroll LJ, Holm LW, Cassidy JD, Guzman J, Cote P, Haldeman S, Ammendolia C, Carragee E, Hurwitz E, Nordin M, Peloso P. The burden and determinants of neck pain in the general population: results of the Bone and Joint Decade 2000–2010 Task Force on Neck Pain and Its Associated Disorders. *Spine* 2008;33(4 Suppl):S39–51.
5. Jensen I, Harms-Ringdahl K. Neck pain. *Best Pract Res Clin Rheumatol* 2007;21:93–108.
6. Nordin M, Carragee EJ, Hogg-Johnson S, Weiner SS, Hurwitz EL, Peloso PM, Guzman J, van der Velde G, Carroll LJ, Holm LW, Cote P, Cassidy JD, Haldeman S. Assessment of neck pain and its associated disorders: results of the Bone and Joint Decade 2000–2010 Task Force on Neck Pain and Its Associated Disorders. *Spine* 2008;33(4 Suppl):S101–22.
7. Spitzer WO, Skovron ML, Salmi LR, Cassidy JD, Duranceau J, Suissa S, Zeiss E. Scientific monograph of the Quebec Task Force on Whiplash-Associated Disorders: redefining “whiplash” and its management. *Spine* 1995;20(8 Suppl):1S–73S.
8. Sterner Y, Gerdle B. Acute and chronic whiplash disorders: a review. *J Rehabil Med* 2004;36:193–209.

