

# Electrotherapy for neck pain (2013)

**Peter Kroeling, Anita Gross, Nadine Graham, Stephen J Burnie, Grace Szeto, Charles H Goldsmith, Ted Haines, Mario Forget**



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## Overview of the study

### Objectives

- To assess the short, intermediate, and long-term effects of electrotherapy on neck pain with and without radiculopathy or cervicogenic headache.

### Methods

- Evidence current up to 15 August 2012
- Participants: Adults (aged 18 or older) who suffered from acute, sub-acute, or chronic neck pain\*
- Intervention: Electrotherapy
- Outcomes measured
  - Primary outcomes: pain relief, disability, function including work-related outcomes
  - Secondary outcomes: patient satisfaction, global perceived effect and quality of life

\*Categorized as non-specific mechanical neck pain including WAD category I, II, and myofascial neck pain, and degenerative changes including osteoarthritis and cervical spondylosis; cervicogenic headache; and neck disorders with radicular findings

## Results & Conclusion

- 20 trials (1239 participants) included.

Treatment	Evidence	Quality of evidence
Pulsed electromagnetic field therapy (PEMF), Repetitive magnetic stimulation(rMS), Transcutaneous electrical nerve stimulation (TENS)	More effective than placebo	Very low
Modulated galvanic current, Iontophoresis, Electric muscle stimulation (EMS)	No more effective than placebo	Very low
Permanent magnets (necklace)	No more effective than placebo	Low

⇒ Current evidence for PEMF, rMS, and TENS shows that these modalities might be more effective than placebo, but the estimate of effect is uncertain due to low quality of evidence

# Exercises for mechanical neck disorders (2012)

**Theresa M Kay, Anita Gross, Charles H Goldsmith, Sherrill Rutherford, Sandra Voth, Jan L Hoving, Gert Brønfort, Pasqualina L Santaguida**



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## Overview of the study

### Objectives

- To improve pain, disability, function, patient satisfaction, quality of life and global perceived effect in adults with neck pain

### Methods

- Evidence current up to 18 February 2012
- Participants: Adults ( $\geq 18$  years of age) with acute, sub-acute or chronic neck disorders\*
- Intervention: Exercise therapy prescribed or performed in the treatment of neck pain\*\*
- Outcomes measured
  - Primary outcomes: pain, measures of function, patient satisfaction, global perceived effect and quality of life
  - Secondary outcomes: adverse events and costs of care

\*Mechanical neck disorders (MND) including whiplash associated disorders (WAD) category I and II, myofascial neck pain, osteoarthritis, cervical spondylosis, cervicogenic headache (CGH), neck disorders with radicular findings (NDR)

\*\* Excluded: multidisciplinary/multimodal treatment, exercises requiring manual therapy techniques by a trained individual

## Results & Conclusion

- 21 trials (2159 participants) included

Treatment	Evidence	Quality of evidence
Combined cervical, scapulothoracic stretching and strengthening	- Beneficial for neck pain relief post treatment and intermediate follow-up - Improved function short and intermediate term for chronic neck pain	Moderate
Exercise	Beneficial for pain in the short term and for function up to long-term follow up for chronic neck pain	Low
Upper extremity stretching and strengthening, or general exercise program	No benefit for chronic neck pain	Low to moderate

⇒ There is low to moderate quality evidence for the short and intermediate term efficacy of certain types of exercises on chronic neck pain

# Manipulation or mobilisation for neck pain (2010)

Anita Gross, Jordan Miller, Jonathan D'Sylva, Stephen J Burnie, Charles H Goldsmith, Nadine Graham, Ted Haines, Gert Brønfort, Jan L Hoving



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## Overview of the study

### Objectives

- To assess if manipulation or mobilisation improves pain, function/disability, patient satisfaction, quality of life, and global perceived effect in adults with acute/subacute/chronic neck pain with or without cervicogenic headache or radicular findings compared to a control group or to another treatment.

### Methods

- Evidence current up to 8 July 2009
- Participants: Adults (> 18 years old) with neck pain or cervicogenic headache, or neck disorders
- Intervention: Manipulation or mobilisation techniques
- Outcomes measured: Pain relief, disability including work related outcomes, patient satisfaction, global perceived effect, QoL



## Results & Conclusion

- 51 trials ( 2992 participants) included

Intervention	Evidence	Quality of evidence
Cervical manipulation	Manipulation and mobilisation produced similar effects on pain, function and patient satisfaction at intermediate-term follow-up for subacute/chronic neck pain	Moderate
	Manipulation alone compared to a control may provide short-term relief for pain and disability in cervicogenic headache	Low
Thoracic manipulation	Thoracic manipulation as an additional therapy may be beneficial for pain reduction and increased function in acute pain; and for immediate pain reduction compared to placebo for chronic neck pain	Low
Mobilisation	A combination of Maitland mobilisation techniques was similar to acupuncture for immediate pain relief and increased function; but as additional treatments, no difference found between mobilisation and acupuncture	Low

⇒ Cervical manipulation and mobilisation may provide immediate or short term change

# Massage for Mechanical Neck Disorders (2012)

**Kinjal C Patel, Anita Gross, Nadine Graham, Charles H Goldsmith,  
Jeanette Ezzo, Annie Morien, Paul Michael J Peloso**



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## Overview of the study

### Objectives

- To assess the effects of massage on pain, function, patient satisfaction, global perceived effect, adverse effects and cost of care in adults with neck pain versus any comparison at immediate post-treatment to long-term follow-up

### Methods

- Evidence current up to 4 February 2012
- Participants: Adults suffering from acute, sub-acute, or chronic neck disorders\*
- Intervention: Massage (subtle energy manipulation based techniques excluded)
- Outcomes measured
  - Primary outcomes: pain relief, neck-related disability and function
  - Secondary outcomes: patient satisfaction, QoL, global perceived effect, adverse events, cost

\*neck pain with/without radiculopathy, including non-specific neck pain of unidentified etiology, whiplash associated disorders, neck pain associated with myofascial pain syndrome, neck pain with degenerative change, and cervicogenic headache

## Results & Conclusion

- 15 trials (810 participants) included

Treatment	Evidence	Quality of evidence
Massage	Certain massage techniques (traditional Chinese massage, classical and modified strain/counterstrain technique) may have been more effective than control or placebo in improving function and tenderness	Very low
	More beneficial than education in the short term for pain bothersomeness	Very low
Ischaemic compression and passive stretch	More effective in combination rather than individually for pain reduction	Low

⇒ The effectiveness of massage for neck pain remains uncertain and no recommendations for practice can be made.

# Mechanical traction for neck pain with or without radiculopathy (2008)

Nadine Graham, Anita Gross, Charles H Goldsmith, Jennifer Klaber Moffett, Ted Haines, Stephen J Burnie, Paul Michael J Peloso



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## Overview of the study

### Objectives

- To assess the effects of mechanical traction for neck disorders

### Methods

- Evidence current up to 30 March 2008
- Participants: Adult ( $\geq 18$  years) with acute, sub-acute or chronic neck disorders\*
- Intervention: Mechanical traction techniques, alone or combined with other therapies
- Outcomes measured: Pain relief, functional or disability measures (including work-related disability), return-to-work, patient satisfaction, global perceived effect, QOL

\* Categorized as neck disorders with radicular symptoms including WAD Grade 3; neck disorders with headache; neck disorders including WAD Grades 1 and 2

## Results & Conclusion

- Seven RCTs (958 participants) included.

Treatment	Evidence	Quality of evidence
Continuous traction	No statistically significant difference between continuous traction and placebo traction in reducing pain or improving function	Low
Intermittent traction	More effective than exercise, heat and patient education for reducing pain	Low

⇒ There is no evidence that supports or refutes the efficacy or effectiveness of either continuous or intermittent traction for neck pain

# Patient education for neck pain (2012)

**Anita Gross, Mario Forget, Kerry St George, Michelle MH Fraser, Nadine Graham, Lenora Perry, Stephen J Burnie, Charles H Goldsmith, Ted Haines, David Brunarski**



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## Overview of the study

### Objectives

- To assess the short- to long-term effects of therapeutic patient education (TPE) strategies on neck pain

### Methods

- Evidence current up to 11 July 2010
- Participants: Adults (> 18 years old) with neck disorders
- Intervention: Therapeutic patient educational techniques
- Outcomes measured:
  - Primary: Pain intensity, function, disability, knowledge transfer, behaviour change
  - Secondary: QoL, global perceived effect, patient satisfaction

## Results & Conclusion

- 15 trials (2187 participants) included.

Intervention	Evidence	Quality of evidence
Advice focusing on activation	More beneficial for acute whiplash-related pain when compared with no treatment at intermediate term	Moderate
	Less beneficial for pain reduction and no better in improving function and global perceived improvement for acute whiplash at short or intermediate term	Low
Advice focusing on pain & stress coping skills and workplace ergonomics	-No difference compared to other treatment	Very low
	-Specific exercise training was more effective for chronic neck pain at short-term	Low
Self-care strategies	Did not relieve pain for acute to chronic neck pain at short-term follow up	Very low

⇒ Evidence has not shown effectiveness for educational interventions including advice to activate, advice on stress-coping skills, workplace ergonomics and self-care strategies

# Workplace interventions for neck pain in workers (2011)

**Randi Wågø Aas, Hanne Tuntland, Kari Anne Holte, Cecilie Røe, Thomas Lund, Staffan Marklund, Anders Moller**



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## Overview of the study

### Objectives

- To determine the effectiveness of work place interventions (WIs) in adult workers with neck pain

### Methods

- Evidence current up to 15 July 2009
- Participants: Working age adults (18 to 67 years; at work or absent from work) with neck pain (acute, subacute, or chronic)
- Intervention: workplace interventions aimed at modifying body function, activity performance, participation, environmental and personal factors \*
- Outcomes measured
  - Primary outcomes: pain severity or pain prevalence, work absenteeism
  - Secondary outcomes: global improvement, functional status, and well-being/quality of life

\* Environmental factors include workstation design, work layout changes, and new equipment; personal factors include life cycle adaptation, lifestyle redesign, and change habits

## Results & Conclusion

- 10 RCTs (2745 participants) included

Treatment	Evidence	Quality of evidence
Workplace interventions (WI)	No significant effect of WIs compared to no intervention for pain prevalence or severity	Low
	Significant effectiveness of a four-component WI in reducing sick leave in the intermediate-term (but not in the short or long-term)	Moderate

⇒ No evidence supported or refuted the benefits of any specific WI for pain relief