

# Are physiotherapy-led stabilisation exercises effective in reducing pain and disability in adults with chronic neck pain?

## **Clinical Bottom Line**

There is no high quality evidence of the effectiveness of cervical stability exercises alone in reducing pain and disability for patients with chronic neck pain.

Although there is some evidence that combining cervical stability exercises with other exercises improves quality of life and reduction in pain in the short term further research is needed in a multi-modal treatment approach with a long term follow up.

## **Criteria for Critically Appraised Topic**

### ***Population:***

Male or female adults – 18 years or over  
Chronic cervical / neck pain lasting 3 months or more

### ***Intervention:***

Neck stability exercises or stabilisation exercises, deep neck flexor muscle exercises, kinetic control exercise  
To include postural correction exercises

### ***Comparison:***

No treatment or placebo.  
Any other treatment e.g. other exercises, other physiotherapy treatments, advice and education, GP care, usual care

### ***Outcomes:***

#### ***Primary Outcomes:***

- Reduced pain
- Reduced neck disability

#### ***Secondary outcomes:***

- Improved quality of life
- Medication use
- Cost effectiveness

### ***Inclusions:***

- Neck or cervical spine pain

**Exclusions:**

- Fractures, surgical interventions, children, red flags, malignancy, cadaver studies, rheumatoid arthritis, recent trauma, neural involvement

**Databases Searched:**

Cochrane, Pedro, Medline, Amed, Cinahl, Embase, Clinical Evidence, Bandolier, NELH, Professional websites, Clinical Guidelines, NICE

**Type of study:**

- Systematic reviews
- Randomised Controlled Trials (RCT's)
- Guidelines
- English language

**Key words searched:**

cervical spine, neck, pain, chronic, disability, neck stability exercises, neck stabilisation exercises, deep neck flexor exercises, cervical flexor exercises, kinetic control exercises, postural correction exercises, advice and education, physiotherapy, GP care, usual care, physiotherapy treatments, physical therapy, exercises

**Time Frame:**

Past 10 years: 2000-2010

<b>Database</b>	<b>Relevant abstracts</b>	<b>Relevant articles</b>
<b>Cochrane</b>		
<b>Pedro</b>		
<b>Medline</b>		
<b>AHMED/CINAHL/EMBASE</b>		
<b>Guidelines</b>		
<b>Clinical Evidence</b>		
	<b>265</b>	<b>28</b>

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**Results:**

265 abstracts were initially evaluated and 28 articles retrieved. Subsequently 3 randomised controlled trials were identified that answered our clinical question.

From these trials there is some evidence that routine neck strengthening exercises combined with stability exercises can improve quality of life. There is also some evidence that stability exercises in addition to routine exercises can provide improvements in VAS and quality of life at 9 and 12 month follow up.

**Griffiths C (2009)**

A randomized controlled trial of 74 patients looked at whether specific neck stabilization exercises, in addition to general neck advice and exercise, provide better clinical outcomes than general neck advice and exercise alone. Assessments were taken at baseline, 6 weeks and 6 months. Outcomes measured used were Neck Pain and Disability Scale (NPDS), visual analogue scale (VAS) and Northwick Park Neck Pain Questionnaire (NPQ).

Good study analysis at baseline for group characteristics and power calculation. 91% loss to follow up at 6 weeks and 92% at 6 months. The results showed that there was no significant difference between the two groups in NPDS, NPQ or VAS. However there was only a short term follow up of six months.

**O'Leary (2007)**

This study compared 48 female volunteers randomized to two groups receiving two different types of cervical muscle flexor exercises. The measures were taken at rest and during active range of movement exercises immediately after the exercises were performed.

Group 1 – cranio-cervical flexion, nodding action with the head in contact with the bed, Group 2 – cervical flexion, endurance head lift (lifting, and holding the head off the bed). There is some evidence to provide support for immediate local pain relief when performing active range of movement after completing the cranio-cervical exercises. It does not examine how long these effects last.

Also all subjects were female, therefore can we generalise this to our patients?

**Duncelli Y (2009)**

A RCT of sixty patients, split into three groups. The control group received physical agents (electrotherapy). The other two groups had either the addition of isometric strengthening exercises and stretches OR stability exercises. Outcome measures used were VAS (measured by paracetamol intake), Neck Disability Index, Beck Depression Scale and range of motion in three planes taken at baseline 1,3,6,9 and 12 months.

There was no significant difference between the groups at 6/12 on VAS (measured by paracetamol intake) they had all improved since baseline measurements. The stability exercise group had a significant difference at 9/12 and 12/12 for Neck Disability Index, Beck Depression Scale and also VAS.

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However the study had a small sample size to start with prior to randomizing into three smaller groups. A high dropout rate affects the power of the statistical significance

### **Implications for practice**

There is a lack of evidence i.e. large RCTs of neck stability exercises alone to recommend neck stabilisation exercises alone for chronic neck pain. The evidence found lacks long-term follow up to give recommendations of long-term effects

### **Further research question**

There is a need for further research into the benefit of stability exercises in addition to multi-modal/routine exercises, with a long term follow up.

Due to lack of large good quality trials there is a need for more research OR a need to look at the literature of a multi-modal treatment approach incorporating strength, endurance and posture exercises which may be more in keeping with current practice

### **References**

Griffiths C, Dziedzic K, Waterfield J, Sim J. Effectiveness of specific neck stabilization exercises or general neck exercise program for chronic neck disorders: A randomized controlled trial. Journal of Rheumatology (2009); 36(2): 390-397.

O'Leary S, Falla D, Hodges PW, Jull G, Vicenzino B. Specific therapeutic exercise of the neck induces immediate local hypoalgesia. The Journal of Pain (2007); 8(11): 832-839.

Dusuncelli Y, Ozturk C, Atamaz F, Hepguler S, Durmaz. Efficacy of neck stabilization exercises for neck pain: A randomized controlled study. The Journal of Rehabilitation Medicine (2009); 41: 626-631.