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# A concise rehabilitation protocol for sub-acute and chronic non-specific neck pain

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**Summary** There is increasing evidence in support of multidisciplinary approaches for management of chronic neck pain. Although presence of different team members is one of the strengths of these approaches, it can limit the access to these treatments. The main objective of this study is designing and investigating the efficacy of a concise rehabilitation program. Thirty-nine patients with sub-acute and chronic non-specific neck pain underwent an 8-week rehabilitation program. Baseline and 8 weeks' follow-up data regarding neck pain (visual analog scale, neck disability index and quality of life) were compared using paired T test. After eight weeks of study, pain and disability significantly decreased: −3.8 of 10 (95% CI: −4.6 to −3.0) (p-value $< 0.001$) for pain and −18.4 of 100 (95% CI: −23.7 to −13.2) (p-

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value < 0.001) for disability. Also, all SF-36 domain scales improved significantly. By using this concise rehabilitation approach, pain, disability, and quality of life improved significantly in patients with sub-acute and chronic non-specific neck pain.


## Introduction

In recent years, neck pain (NP) has become a common musculoskeletal problem. In previous studies, 12-month prevalence of neck pain has been reported between 12.1% to 71.5% and 27.1%–47.8% in general population and workers, respectively (Haldeman et al., 2008; Hogg-Johnson et al., 2008).

Although most people experience neck pain during their life time, the prevalence of chronic neck pain has been reported in the range of 2.2%–14.3% (Goode et al., 2010; Picavet and Schouten, 2003).

While 12-month prevalence of limited activity due to NP has been estimated from 1.7 to 11.5% in general population and 11%–14.1% in workers (Cote et al., 2008; Hogg-Johnson et al., 2008), NP ranks fourth in years lived with disability (YLDs) in the global burden of diseases (Vos et al., 2012).

Indirect costs of NP, such as absence from work and disability, have been estimated about 77% of total costs attributed to NP (Borghouts et al., 1999); therefore, effective and affordable treatment plans seem to be necessary for its prevention. A wide range of non-invasive treatments have been proposed for management of chronic NP such as exercise therapy, electrotherapy, spinal manipulation, massage, acupuncture, traction, low-level laser therapy, magnetic stimulation, various pillows, applied relaxation, cognitive behavior therapy (CBT), cervical collar, NSAID, and biopsychosocial rehabilitations (Bryans et al., 2014; Hurwitz et al., 2009; Teichtahl and McColl, 2013). Also, injection procedures and surgical treatments have been suggested for patients with severe impairments and cervical radicular symptoms (Carragee et al., 2008).

Among the aforementioned non-invasive treatments there is a consensus regarding the efficacy of biopsychosocial rehabilitations (Bergstrom et al., 2012; Buchner et al., 2006).

While presence of different team members, such as physicians, psychologists, ergonomists, and physiotherapists, is one of the strengths of multidisciplinary approaches, it can restrict the access to these treatments to major medical centers where such teams are available. Hence, the main objective of this study is to design a concise biopsychosocial protocol for management of chronic NP independent of health care providers as much as possible, and investigation of its efficacy.

## Material and methods

Designing a concise rehabilitation program for management of patients with sub-acute and chronic non-specific neck pain and investigation of its efficacy were the main objectives of this quasi-experimental study.

### Participants

Outpatients with more than 6 weeks of non-specific NP who came for treatment to the clinic of Sports and Exercise Medicine and met the inclusion criteria were recruited in the study from Dec 2013 to Nov 2014. The study was carried out on patients between 18 and 60 years old who met the following inclusion criteria: having a non-specific neck pain for more than six weeks, having no history of spinal trauma, malignancy and infection, having no radicular pain and sensorimotor deficits in upper limbs, having no history of psychological problems such as depression or anxiety disorders based on DSM-4 criteria, not being pregnant, and having no history of systemic diseases which may affect the spine such as Ankylosing Spondylitis (AS). Also, the exclusion criteria were development of radicular pain, paresthesia, or motor deficiency in upper limbs, not complying with the rehabilitation program, and getting pregnant during the study.

After patients were informed regarding the aim and process of study, all participants signed a written consent. Also, the study was approved by the ethical committee board of university.

### Outcome measures

The main outcome measures were neck pain (primary outcome), disability and quality of life (secondary outcomes). Pain right now and the average pain over the past week were measured by visual analog scale (0–10).

Neck disability was measured by Iranian version of Neck Disability Index questionnaire (NDI) which is valid and reliable (Mousavi et al., 2007). This questionnaire has 10 items which scores between 1 (normal function) to 5 (the worst possible situation) for self-evaluation of function and disability in patients with neck pain. The original scoring system ranges from 0 (no disability) to 50 (maximum disability) which has been categorized in 5 intervals (0–4: no disability, 5–14: mild disability, 15–24: moderate disability, 25–34: severe disability, and above 34: complete disability) (Vernon and Mior, 1991).

For assessment of quality of life, Iranian version of the Short-Form Health Survey Questionnaire (SF-36) was applied (which is valid and reliable (Montazeri et al., 2005)) and domain scales were calculated based on the user manual provided along with it.

Regarding the minimal clinically important difference (MCID), previous studies have shown that thresholds for MCID concerning NDI are19-percentage points (Cleland et al., 2008), 30% gains for SF-36 domain scores (Monticone et al., 2012; Spratt, 2009) and 2.5-point decrease (scale range 0–10) for pain scores (Kovacs et al., 2008; Pool et al., 2007).

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