

**Original article:**

**Effectiveness of Pilates exercise in people with chronic neck pain:**

**Observational study**

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**Abstract:**

**Introduction:** Neck pain poses a huge medical challenge in terms of pain and disability on patient. Therapeutic exercise has been reported to be an effective intervention for the treatment of patients with chronic neck pain.

**Material and methods:** The present study was conducted in our department for two months duration. The routine OPD patients with neck pain were included in present study. The sample size was estimated with the help of expert. In our study a total of 30 patients were included. We collected patients randomly basis from OPD .

**Results:** According to numerical Pain Rating Scale (NPRS) and neck Disability Index (NDI) there was found highly progressive improvement in patients.

**Conclusion:** Thus the effectiveness of the Pilates method for the treatment of chronic mechanical neck pain, resulting in improvement of pain, function, quality of life, and reduction of the use of analgesics.

**Introduction:**

Neck pain poses a huge medical challenge in terms of pain and disability on patient. Therapeutic exercise has been reported to be an effective intervention for the treatment of patients with chronic neck pain.<sup>1</sup>Chronic neck pain is characterized by pain and limited movement, from small discomforts to severe and disabling pain<sup>2</sup>. This condition causes reduction in quality of life<sup>3</sup>, leading to drug dependence, emotional changes and difficulties at work<sup>3,4</sup>. Approximately 14 to 71% of adults will present an episode of neck pain at some point in their life, with annual prevalence varying from 16 to 75%<sup>6</sup> and a recurrence rate of 75% in the following five years<sup>7</sup> Pilates is a method of exercise that consists of low-impact flexibility and muscular strength and endurance movements. Pilates emphasizes proper postural alignment, core strength and muscle balance.<sup>5</sup> However, there is no evidence so far for Pilates prescription for neck pain and functional improvement. Thus, the aim of the present study was to study of effectiveness of Pilates exercise in people with chronic neck pain .

**Material and methods:**

The present study was conducted in our department for two months duration. The routine OPD patients with neck pain were included in present study. The sample size was estimated with the help of expert. In our study a total of 30 patients were included. We collected patients randomly basis from OPD . Only the patients with other associated complications were not included in present study.

The patients were included only those voluntarily participated with written informed consent, after explaining proper study objectives. In our study age range was found from 20 years to 62 years patients. Pain intensity, sleep disturbance, neck disability were assessed using numerical pain rating scale, sleep disturbance history, neck disability index, respectively at baseline, 4th week (mid-intervention) and 8th week (post intervention). Data were analysed using SPSS software. The Numerical Pain Rating Scale (NPRS) is a subjective measure in which individuals rate their pain on an eleven-point numerical scale. The scale is composed of 0 (no pain at all) to 10 (worst imaginable pain)

The Neck Disability Index (NDI) is a self-report questionnaire used to determine how neck pain affects a patient's daily life and to assess the self-rated disability of patients with neck pain.

**Results:**

Table 1) Age wise distribution of patients ( N=32)

S NO	Age ( Years )	Number of patients
1	20-29	2
2	30-39	4
3	40 -49	10
4	50 and above	16

In our study maximum patients were in range of more than 50 years.

Table 2) Gender wise distribution of patients ( N=32)

S NO	Gender	Number of patients
1	Male	8
2	Female	24

In our study, we found more common in female patients.

Table 3) Numerical Pain Rating Scale (NPRS) results ( N=32) ( In number of patients )

S NO	Numerical Pain Rating Scale (NPRS)	First visit	4 <sup>th</sup> week visit	8 <sup>th</sup> week visit
1	0-2	0	1	14
2	3-5	5	22	18
3	6-8	18	7	0
4	More than 8	9	2	0

Table 4) Neck Disability Index (NDI) results ( N=32) ( In number of patients )

S NO	Numerical Pain Rating Scale (NPRS)	First visit	4 <sup>th</sup> week visit	8 <sup>th</sup> week visit
1	Minor pain only	0	2	32
2	Neck pain	4	18	0
3	Neck pain with stiffness	20	11	0
4	Very painful and stiffness	8	1	0

According to numerical Pain Rating Scale (NPRS) and neck Disability Index (NDI) there was found highly progressive improvement in patients.

**Discussion:**

A stiff neck is most commonly caused by a neck muscle strain or soft tissue sprain. Most people are familiar with the pain and inconvenience of a stiff neck, whether it appeared upon waking up one morning or perhaps developed later in the day after some strenuous activity, such as moving furniture.<sup>7</sup>In 2017, the global annual incidence of neck pain was also found to be higher in females and generally increased with age, peaking at the 65-69 age groups. The number of incident cases was highest at age 45-49 years . In our study we found similar results.

Regarding the type of intervention, Dunleavy et al.<sup>8</sup> adopted solo Pilates exercises guided by physiotherapists trained in the method, focusing on stabilization, mobilization and strengthening of the extensor muscles of the spine, with greater focus on the shoulder girdle, in classes performed with groups composed of four to eight individuals. According to numerical Pain Rating Scale (NPRS) and neck Disability Index (NDI) there was found highly progressive improvement in patients.

In the study conducted by Dunleavy et al.<sup>8</sup> the evaluations were performed before the beginning of the study, in the 6<sup>th</sup>, 12<sup>th</sup> and 18<sup>th</sup> weeks, the latter referring to the follow-up, performed after six weeks of the end of the practice. In the study performed by Cazotti et al.<sup>9</sup> pre-intervention evaluations were carried out after 45, 90 and 180 days, or, in weekly approaches, at week zero, six, 13 and 26, and the follow-up was conducted at an interval of 13 weeks. It is important to point out the importance of conducting evaluations after an intervention pause period, which allows for the verification of the preservation of the obtained benefits.

#### **Conclusion:**

Thus the effectiveness of the Pilates method for the treatment of chronic mechanical neck pain, resulting in improvement of pain, function, quality of life, and reduction of the use of analgesics.

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