
**Summary:**
The results from this study show that sling exercise improve the outcome on the Functional Movement Screen. Thus, sling exercise is considered effective for injury prevention in teenage athletes.

**Abstract**
The existing data indicate that the result of the Functional Movement Screen (FMS) test influences the likelihood of subsequent injury in professional athletes. Therefore, exercises increasing test scores of the FMS may be useful at various stages of sports activity. This study evaluated the effects of the NEURAC sling exercises method on the FMS test score in teenage volleyball players.

The study was conducted on 15 volleyball players aged 14 years. The FMS test was performed three times interspersed with a two-month interval. Between the first and the second assessment, neither additional treatment nor training was applied, while between the second and the third assessment, the participants performed stabilisation exercises based on the NEURAC method. Training was carried out twice a week, for eight weeks.

The analysis showed that between the first and the second measurement, no significant differences occurred. The use of specific sling exercises caused a significant improvement in FMS results \( (p \leq 0.01) \) between the first and the third, as well as the second and the third measurement.

The applied stabilisation exercises based on the NEURAC method positively influenced the FMS test result in male subjects practicing volleyball. Performance of such exercises also resulted in more than 90% of the subjects having a total FMS test score \( \geq 17 \), which may be important in the prevention of injuries. The preliminary results indicate that this type of exercise should be included in a teenage volleyball training routine.

---


**Summary:**
This review summarizes that sling based exercise in the treatment of stroke patients is effective to improve balance.

**Abstract**

**Objective:**
This study aims to evaluate the effect of sling exercise training (SET) on balance in patients with stroke.

**Methods:**
PubMed, Cochrane Library, Ovid LWW, CBM, CNKI, WanFang, and VIP databases were searched for randomized controlled trials of the effect of SET on balance in patients with stroke. The study design and participants were subjected to metrological analysis. Berg balance Scale (BBS), Barthel index score (BI), and Fugl-Meyer Assessment (FMA) were used as independent parameters for evaluating balance function, activities of daily living (ADL) and motor function after stroke respectively, and were subjected to meta-analysis by RevMan5.3 software.

**Results:**
Nine studies with 460 participants were analyzed. Results of meta-analysis showed that the SET treatment combined with conventional rehabilitation was superior to conventional rehabilitation treatments, with increased degrees of BBS \( \text{WMD} = 3.81, 95\% \text{ CI} [0.15, 7.48], P = 0.04 \), BI \( \text{WMD} = 12.98, 95\% \text{ CI} [8.39, 17.56], P < 0.00001 \), and FMA \( \text{SMD} = 0.76, 95\% \text{ CI} [0.41, 1.11], P < 0.0001 \).
Conclusion:
Based on limited evidence from 9 trials, the SET treatment combined with conventional rehabilitation was superior to conventional rehabilitation treatments, with increased degrees of BBS, BI and FMA. So the SET treatment can improve balance function after stroke, but the interpretation of our findings is required to be made with caution due to limitations in included trials such as small sample sizes and the risk of bias. Therefore, more multi-center and large-sampled randomized controlled trials are needed to confirm its clinical applications.


Summary:
The article concludes that using sling exercises in the treatment of LBP patients is not only effective for pain reduction, but also for improving the alignment of the lumbopelvic region.

Abstract
Purpose:
This study was conducted to quantify the effect of sling exercise therapy in the recovery of lumbosacral sagittal alignment (LSA) and in the control of low back pain.

Subjects and Methods:
A total of 102 chronic low back pain patients were divided into two groups, a physical therapy group and a sling exercise group. In both groups, programs were conducted twice a week for twelve weeks. With respect to LSA, pelvic tilt (PT), sacral slope (SS), and pelvic incidence (PI) were measured with plain radiography. Pain was measured on a visual analogue scale (VAS).

Results:
Differences were found in visual analogue scale, delta score of visual analogue scale, pelvic tilt, delta score of pelvic tilt, and delta score of pelvic incidence between sling exercise therapy and physical therapy groups. VAS, pelvic tilt, and pelvic incidence was positively changed after sling exercise. However, only the visual analogue scale was found to be improved after physical therapy.

Conclusion:
Sling exercise therapy and physical therapy were effective in reducing pain. However, pelvic tilt and pelvic incidence were positively changed after sling exercise therapy for Lumbosacral Sagittal Alignment, but were unchanged after physical therapy. Therefore, sling exercise therapy is more effective than physical therapy for the recovery of Lumbosacral Sagittal Alignment in patients with chronic low back pain.


Summary:
This study indicates that increased activity in superficial neck muscles in a low load exercise focusing on local muscle control, is an indicator for a dysfunction of the local muscles in the neck in long term neck pain patients.

Abstract
Background:
The craniocervical flexion test assesses the deep cervical flexor muscles (longus capitis, longus colli). Ideally, electromyography (EMG) studies measure activity in both deep and superficial [sternocleidomastoid, anterior scalene] flexors during the test, but most studies confine recordings to superficial muscle activity as the technique
to record the deep muscles is invasive. Higher activity of the superficial flexors has been interpreted as an indicator of reduced deep flexor activity in people with neck pain but how close the inverse relationship is during this test is unknown.

Methods:
EMG was recorded from the sternocleidomastoid, anterior scalene and deep cervical flexor muscles to quantify their relationship during the craniocervical flexion test, from 32 women (age: 38.0 ± 11.6 yrs) with a history of chronic non-specific neck pain. The range of craniocervical flexion at each of the five test stages was also measured.

Results:
A moderate negative correlation was identified \( r = -0.45; P < 0.01 \) between the average normalized EMG amplitude of the deep cervical flexors and sternocleidomastoid across all stages of the craniocervical flexion test. There was a moderate although weaker and non-significant negative correlation between deep cervical flexors and anterior scalene activity \( r = -0.34; P = 0.053 \).

Conclusions:
The results affirm the interpretation that higher levels of activity of the superficial flexor muscles are an indicator of reduced deep cervical flexor activity in the craniocervical flexion test. Further studies of neuromuscular and movement strategies used by people with neck pain to compensate for poorer activation of the deep cervical flexors will inform best clinical assessment.