

shown to reduce intervertebral compression and alleviate tension in adjacent soft tissues. This is particularly relevant in the older age group, where degenerative disc changes, facet joint stiffness, and kyphotic drift may predispose patients to chronic inflammation and structural imbalance. As shown by Adams et al. [8], such degenerative changes alter mechanical loading patterns, and passive decompression may realign forces and reduce load asymmetry during sleep. In addition to symptom reduction, improvements in functional capacity as measured by the NDI are particularly notable. A mean reduction of over 20 points in the >50 group exceeds the Minimum Clinically Important Difference (MCID) established in the literature, emphasizing real-world impact. Similar findings have been reported in trials of custom or orthopedic pillows [49], but few studies have included long-term data or age-based subgroup analysis. From a health economics standpoint, interventions like the MagniStretch® Pillow offer potential value by reducing dependence on medications, physical therapy sessions, and costly imaging or injections. While this study did not formally assess cost-effectiveness, the results support its consideration as a first-line ergonomic therapy in chronic cervicalgia, especially in aging populations. This study has several notable strengths. First, it is among the few investigations to assess the long-term effects of a biomechanically designed cervical pillow over a 12-month period, offering valuable insights into sustained clinical outcomes. Second, the inclusion of multiple validated outcome measures, VAS for pain, NDI for functional disability, and PSQI for sleep quality, provides a comprehensive evaluation of the intervention's impact on key domains affected by chronic neck pain. Third, the stratification of participants by age allowed for meaningful subgroup analyses, revealing important age-dependent differences in therapeutic response. Fourth, the study included a relatively homogeneous patient population with well-defined inclusion and exclusion criteria, enhancing internal validity. Finally, the use of a single, standardized ergonomic device with certified medical and safety compliance ensures reproducibility and applicability in clinical settings. Despite its strengths, this study has several limitations that should be acknowledged. First, the lack of a randomized controlled design limits the ability to establish causality between the intervention and observed outcomes; without a control or placebo group, it is not possible to rule out the influence of natural symptom fluctuation, placebo effects, or other confounding factors. Second, although outcome measures were validated and commonly used in clinical research, they were all self-reported, potentially introducing subjective bias. Third, the study did not include objective biomechanical or imaging-based assessments of cervical alignment or muscular activity, which could have provided additional insights into the mechanism of action. Fourth, adherence to pillow use was not monitored or quantified, and variations in patient compliance could have affected the results. Finally, the relatively small sample size,

particularly after age-stratification, may have limited the statistical power to detect smaller differences between groups or additional interactions. Future studies should consider a randomized, controlled design with larger samples and multimodal assessment strategies to confirm and expand upon these findings.

Conclusion

The results of this 12-month prospective study suggest that the use of the MagniStretch® Pillow, a certified ergonomic medical device, is associated with significant reductions in cervical pain intensity, disability, and sleep disturbance in patients with chronic neck pain. These benefits became statistically and clinically evident after sustained use, particularly in patients over 50 years of age, indicating a potential age-dependent therapeutic effect. The integration of biomechanical traction and anatomical cervical support during sleep may represent a safe, non-invasive, and accessible adjunct to standard care for managing chronic cervicalgia. Further randomized controlled trials with larger samples and objective outcome measures are warranted to confirm these findings and explore underlying mechanisms.

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