

Evidence-Based Postural Correction: A Multimodal Approach

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Received: 01-Jul-2025, Manuscript No. jnp-25; **Editor assigned:** 03-Jul-2025, PreQC No. jnp-25(PQ); **Reviewed:** 17-Jul-2025, QC No. jnp-25; **Revised:** 22-Jul-2025, Manuscript No. jnp-25(R); **Published:** 29-Jul-2025, DOI: 10.4172/2165-7025.1000850

Citation: Horvat DK (2025) Evidence-Based Postural Correction: A Multimodal Approach. jnp 15: 850.

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Abstract

This compilation of studies explores diverse physiotherapy interventions for postural correction. It covers evidence-based approaches integrating biomechanics and personalized care, exercise protocols for specific conditions like forward head posture, and the roles of yoga, spinal manipulation, and kinesiology taping. Ergonomic strategies and proprioceptive retraining are discussed as vital components. The negative impact of prolonged smartphone use on cervical posture is addressed, alongside multimodal treatment strategies for complex cases. The overarching theme emphasizes individualized, comprehensive care for optimal postural health.

Keywords

Postural Correction; Physiotherapy; Biomechanics; Therapeutic Exercise; Proprioception; Forward Head Posture; Ergonomics; Yoga; Spinal Manipulation; Kinesiology Taping

Introduction

The multifaceted nature of postural correction techniques is a critical area of study within physiotherapy, emphasizing a personalized approach that integrates biomechanical principles with patient-specific needs. Identifying the root causes of postural deviations, such as muscle imbalances, habitual postures, and functional limitations, is paramount before implementing interventions [1]. A combination of manual therapy, therapeutic exercises, and proprioceptive training is advocated to restore optimal alignment and function.

The efficacy of specific exercise protocols in addressing forward head posture has been explored, detailing exercises targeting deep neck flexors and scapular stabilizers, alongside stretching for the pectoralis muscles and upper trapezius. Findings suggest that a consistent regimen of these exercises can lead to significant im-

provements in head posture and associated neck pain, underscoring the role of active patient participation [2].

Furthermore, the impact of ergonomic interventions in the workplace on postural health is significant, with prolonged sitting and improper workstation setups contributing to musculoskeletal disorders affecting the spine and shoulders. Recommendations include regular movement breaks, adjustable workstations, and education on proper sitting posture, demonstrating a preventative approach to postural issues [3].

The role of yoga in improving spinal mobility and posture has also been investigated. Specific yoga poses and breathing techniques help to decompress the spine, strengthen core muscles, and increase awareness of body alignment. Regular yoga practice can be a valuable adjunct therapy for individuals with postural imbalances and chronic back pain [4].

The biomechanics of scoliosis and the physiotherapeutic interventions for its management, particularly in adolescents, are crucial. Exercise-based approaches, such as the Schroth method, impact curve progression and pain reduction, highlighting the importance of early detection and individualized treatment plans [5].

The efficacy of kinesiology taping in improving postural awareness and correcting muscle imbalances associated with poor posture is examined. Different taping techniques applied to specific muscle groups show short-term effects on postural alignment and functional movement, suggesting taping as a useful adjunct to comprehensive rehabilitation programs [6].

The relationship between proprioception and postural control is explored, noting that impaired proprioceptive feedback can lead to postural instability and compensatory movements. Various methods for assessing proprioception and exercises to retrain proprioceptive input are crucial for effective postural correction [7].

Spinal manipulation for postural correction is reviewed, acknowledging its role in restoring joint mobility and reducing pain. However, its integration within a broader therapeutic framework, including exercise and patient education, is emphasized for long-term postural improvement [8].

The impact of prolonged smartphone use on cervical posture and associated symptoms, such as 'text neck,' is investigated. Specific stretches and strengthening exercises counteract forward head posture and muscle strain caused by excessive device use, advocating for mindful technology habits [9].

A case study demonstrating the successful application of a multimodal approach to correct postural asymmetry in an athlete is presented. The treatment involved manual therapy, tailored strengthening and stretching exercises, and biofeedback, resulting in significant improvements in posture, performance, and pain reduction, emphasizing personalized, comprehensive care [10].

Description

Postural correction techniques are approached in a multifaceted and personalized manner, integrating biomechanical principles with individual patient needs. Identifying the underlying causes of postural deviations, including muscle imbalances, habitual positions, and functional limitations, is a fundamental step prior to initiating treatment. The integration of manual therapy, specific therapeutic exercises, and proprioceptive training aims to re-establish optimal spinal alignment and overall body function [1].

Research into specific exercise protocols demonstrates their effectiveness in addressing conditions like forward head posture. These protocols typically involve exercises designed to strengthen the deep neck flexors and scapular stabilizing muscles, complemented by stretching exercises for the pectoral muscles and upper trapezius. Consistent adherence to such exercise regimens has been

shown to yield substantial improvements in head posture and a reduction in associated neck pain, highlighting the significance of active patient engagement in the therapeutic process [2].

Workplace ergonomics plays a pivotal role in maintaining postural health. Prolonged periods of sitting and inadequately set up workstations are identified as major contributors to musculoskeletal disorders, particularly impacting the spine and shoulders. Strategies such as incorporating regular movement breaks, utilizing adjustable workstations, and educating individuals on proper sitting posture are recommended as preventative measures against postural issues [3].

Yoga has emerged as a beneficial practice for enhancing spinal mobility and improving posture. Certain yoga poses and breathing exercises are effective in decompressing the spine, strengthening the core musculature, and cultivating a greater awareness of body alignment. Consistent yoga practice can serve as a valuable supplementary therapy for individuals experiencing postural imbalances and chronic back pain [4].

The biomechanical aspects of scoliosis and the physiotherapeutic interventions utilized for its management, especially in adolescent populations, are subjects of considerable interest. Exercise-based methodologies, such as the Schroth method, have demonstrated a positive impact on the progression of spinal curves and the alleviation of pain. The critical importance of early diagnosis and the development of tailored treatment plans are consistently emphasized [5].

Kinesiology taping is explored for its potential to enhance postural awareness and rectify muscle imbalances contributing to poor posture. Studies reviewing various taping techniques applied to specific muscle groups have indicated short-term benefits in postural alignment and functional movement. This suggests that kinesiology taping can be a valuable adjunct to a comprehensive rehabilitation program [6].

The intricate relationship between proprioception and the ability to maintain postural control is a key area of investigation. Deficiencies in proprioceptive feedback can result in postural instability and the development of compensatory movement patterns. The assessment of proprioception and the implementation of exercises designed to retrain proprioceptive input are essential components of effective postural correction strategies [7].

The application of spinal manipulation for postural correction is critically reviewed, with its benefits in restoring joint mobility and reducing pain acknowledged. However, the consensus is that spinal manipulation is most effective when incorporated into

a broader therapeutic approach that includes targeted exercises and comprehensive patient education to ensure sustained postural improvements [8].

Research has begun to examine the effects of prolonged smartphone usage on cervical posture and related symptoms, a phenomenon often referred to as 'text neck.' This overuse can lead to forward head posture and muscle strain, prompting the recommendation of specific stretching and strengthening exercises to counteract these effects, alongside promoting mindful technology usage habits [9].

A case report illustrates the successful implementation of a comprehensive, multimodal physiotherapy approach to address postural asymmetry in a professional athlete. This integrated treatment strategy included manual therapy, customized strengthening and stretching exercises, and biofeedback. The reported outcomes showed significant enhancements in posture, athletic performance, and a marked reduction in pain, underscoring the value of personalized and holistic care [10].

Conclusion

This collection of research highlights various approaches to postural correction. Evidence-based physiotherapy interventions include manual therapy, therapeutic exercises, and proprioceptive training to address muscle imbalances and functional limitations, emphasizing personalized care. Specific exercise protocols are effective for conditions like forward head posture, while yoga and spinal manipulation, when integrated into broader treatment plans, also show benefits. Ergonomic interventions in the workplace are crucial for prevention. Kinesiology taping and proprioceptive retraining are valuable adjuncts. The impact of modern technology, such as smartphones, on cervical posture is a growing concern, necessitating tar-

geted exercises. Multimodal approaches are emphasized for complex cases, including postural asymmetry in athletes.

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