

Synergistic Effect of Xinyi Zhenggu Manipulation and Precision Nursing Intervention on Neck and Low Back Pain: Clinical Efficacy and Rehabilitation Mechanisms

Zhen Ying, Liu Hongbo, Guo Wei, Feng Wei*

Integrative Traditional Chinese Medicine and Orthopedics, Air Force Medical Center, China

Email address:

904078730@qq.com (Feng Wei)

*Corresponding author

Abstract

Objective: To investigate the clinical efficacy and rehabilitation mechanism of New Medical Bone-Setting Manipulation combined with precision nursing intervention for neck and low back pain. **Methods:** A randomized controlled trial was conducted. Two hundred forty patients with neck and low back pain were enrolled and randomly assigned to three groups: the control group (conventional rehabilitation nursing), the manipulation group (New Medical Bone-Setting Manipulation plus conventional nursing), and the synergy group (New Medical Bone-Setting Manipulation plus precision nursing). Precision nursing was based on symptom network analysis, targeting three core nodes—nocturnal pain awakening, pain catastrophizing, and activity avoidance—through four modules: central sensitization management, sleep-pain vicious cycle interruption, exercise self-efficacy reconstruction, and emotional cognitive reappraisal. The intervention lasted 4 weeks. Pain intensity (VAS), functional disability (ODI), sleep quality (PSQI), self-efficacy (PSEQ), and anxiety/depression (GAD-7/PHQ-9) were assessed. Surface electromyography was simultaneously used to analyze core muscle activation patterns. **Results:** The synergy group showed a 2.8-point reduction in VAS and a 15.2-point reduction in ODI compared with the control group (both $P < 0.01$), significantly outperforming the manipulation group ($P < 0.05$). Surface EMG revealed a 37.6% increase in the co-activation index of the multifidus and transversus abdominis, indicating improved neuromuscular control of core muscles. At 6-month follow-up, the recurrence rate in the synergy group (8.3%) was significantly lower than that in the control group (31.2%) and the manipulation group (18.7%). **Conclusion:** New Medical Bone-Setting Manipulation combined with precision nursing can effectively alleviate neck and low back pain, improve function, and reduce recurrence. The mechanism involves the reconstruction of neuromuscular control of core muscles. This model provides a novel integrative rehabilitation strategy combining Chinese and Western medicine.

Keywords

Xinyi Zhenggu, Precision Nursing, Neck and Low Back Pain, Rehabilitation Mechanisms, Neuromuscular Control, Integration of Chinese and Western Medicine