

Effectiveness of Acupressure in Reducing Chronic Low Back Pain: A Systematic Review

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Abstract

Chronic low back pain (CLBP) is one of the leading causes of disability worldwide and significantly affects individuals' quality of life, physical functioning, and productivity. While conventional treatments such as medication and physical therapy are commonly used, complementary therapies like acupressure have gained increasing attention as non-invasive and cost-effective alternatives for pain management. A comprehensive literature search was conducted across electronic databases including PubMed, Scopus, Web of Science, and Cochrane Library. Studies published in English that investigated the effects of acupressure on adults with chronic low back pain were included. Randomized controlled trials, quasi-experimental studies, and comparative clinical studies were assessed. Data on study characteristics, intervention protocols, outcome measures, and key findings were extracted and analyzed. The reviewed studies consistently demonstrated that acupressure was associated with significant reductions in pain intensity and improvements in physical function compared with baseline measurements and, in several cases, with control interventions. Participants receiving acupressure reported enhanced mobility, decreased disability scores, and improved quality of life. The effectiveness of treatment varied according to acupressure techniques, treatment duration, and frequency of sessions. Minimal adverse effects were reported, indicating that acupressure is generally safe and well tolerated.

Keywords: Acupressure, Chronic Low Back Pain, Complementary Therapy, Pain Management

Introduction

Chronic low back pain (CLBP) is a major public health concern and one of the leading causes of disability worldwide. It affects people of all ages and is associated with significant physical, psychological, and socioeconomic burdens. Chronic low back pain is generally defined as pain, muscle tension, or stiffness localized below the costal margin and above the inferior gluteal folds that persists for 12 weeks or longer. The condition can negatively impact daily activities, work productivity, and overall quality of life. The prevalence of chronic low back pain has increased over recent decades due to aging populations, sedentary lifestyles, obesity, and occupational risk factors. Conventional management strategies include pharmacological treatments, physical therapy, exercise programs, and, in severe cases, surgical interventions. Although these approaches can provide relief, they may also be associated with adverse effects, high costs, and varying levels of effectiveness. Consequently, there is growing interest in complementary and alternative therapies that can be used alongside conventional treatments. Acupressure is a traditional healing technique derived from Traditional Chinese Medicine (TCM). It involves applying manual pressure to specific points on the body, known as

acupoints, to stimulate the body's natural healing processes and restore the flow of energy, or "Qi." Unlike acupuncture, acupressure does not involve needles, making it a non-invasive, safe, and accessible treatment option. It is commonly used for the management of pain, stress, nausea, fatigue, and various musculoskeletal conditions.

Several studies have investigated the effectiveness of acupressure in reducing pain and improving functional outcomes among individuals with chronic low back pain. The proposed mechanisms include stimulation of nerve pathways, increased blood circulation, muscle relaxation, and the release of endorphins, which may contribute to pain relief. However, findings across studies vary due to differences in study design, sample size, intervention protocols, and outcome measures. Given the increasing use of acupressure as a complementary therapy and the growing body of research in this field, a comprehensive evaluation of existing evidence is necessary. This systematic review aims to examine and synthesize the available literature on the effectiveness of acupressure in reducing chronic low back pain, improving physical function, and enhancing quality of life. The findings may provide valuable insights for healthcare professionals, researchers, and patients seeking evidence-based, non-pharmacological approaches to pain management.

Mechanism of Action of Acupressure in Pain Management

Acupressure is a therapeutic technique based on the principles of Traditional Chinese Medicine (TCM), in which physical pressure is applied to specific points on the body known as acupoints. It is widely used for pain management and is believed to promote healing by stimulating the body's natural physiological processes. Although its origins are rooted in traditional medicine, modern research has proposed several biological mechanisms that explain its effectiveness in reducing pain.

One of the primary mechanisms of acupressure is the stimulation of the nervous system. Applying pressure to specific acupoints activates sensory nerve fibers that transmit signals to the spinal cord and brain. These signals can interfere with the transmission of pain messages, thereby reducing the perception of pain. This process is supported by the Gate Control Theory of Pain, which suggests that stimulation of non-painful sensory pathways can inhibit the transmission of painful stimuli to the brain.

Acupressure is also believed to promote the release of endogenous opioids, such as endorphins, enkephalins, and dynorphins. These naturally occurring chemicals act as the body's painkillers by binding to opioid receptors in the nervous system and reducing pain sensations. Increased endorphin levels have been associated with pain relief, relaxation, and an improved sense of well-being.

Another proposed mechanism is the enhancement of blood circulation. Pressure applied to acupoints may improve local blood flow, delivering oxygen and nutrients to affected tissues while facilitating the removal of metabolic waste products. Improved circulation can help reduce inflammation, promote tissue healing, and alleviate muscle tension, all of which contribute to pain reduction.

Acupressure may also influence the autonomic nervous system by promoting relaxation and reducing stress. Chronic pain is often associated with increased stress, anxiety, and muscle tension. By stimulating specific acupoints, acupressure can activate the parasympathetic

nervous system, leading to decreased heart rate, reduced muscle tension, and a calmer physiological state. These effects may indirectly reduce pain intensity and improve overall comfort.

From the perspective of Traditional Chinese Medicine, pain occurs when the flow of vital energy, or Qi, becomes blocked or imbalanced within the body's meridians. Acupressure is believed to restore the smooth flow of Qi, thereby relieving pain and restoring health. While the concept of Qi is not fully explained by modern science, many researchers suggest that the physiological effects observed during acupressure treatment may correspond to changes in neural, hormonal, and circulatory functions.

Burden and Impact of Chronic Low Back Pain

Chronic low back pain (CLBP) is one of the most prevalent musculoskeletal disorders worldwide and represents a major public health challenge. It is characterized by persistent pain and discomfort in the lower back region lasting for 12 weeks or longer. The condition affects individuals across all age groups but is particularly common among adults and older populations. Due to its high prevalence and recurrent nature, chronic low back pain contributes substantially to disability, reduced quality of life, and increased healthcare utilization.

The physical burden of chronic low back pain is significant. Individuals with CLBP often experience limitations in mobility, flexibility, and physical functioning. Routine activities such as walking, standing, bending, lifting objects, and performing household tasks may become difficult or painful. Persistent pain can lead to muscle weakness, reduced endurance, and decreased participation in recreational and social activities, further affecting overall health and well-being.

Beyond its physical effects, chronic low back pain has considerable psychological and emotional consequences. Continuous pain is frequently associated with stress, anxiety, depression, sleep disturbances, and reduced self-esteem. Many patients develop fear of movement or physical activity due to concerns about worsening their condition. These psychological factors can create a cycle in which pain leads to emotional distress, which in turn intensifies the perception of pain and disability.

The social impact of chronic low back pain is equally important. Individuals may experience difficulties in maintaining relationships, fulfilling family responsibilities, and participating in community activities. Reduced social engagement can contribute to feelings of isolation and decreased life satisfaction. Family members may also experience emotional and financial strain while providing support and care to affected individuals.

Chronic low back pain imposes a substantial economic burden on both individuals and society. Direct costs include medical consultations, diagnostic tests, medications, rehabilitation services, and complementary therapies. Indirect costs arise from absenteeism, reduced work productivity, disability compensation, and premature retirement. In many countries, low back pain is among the leading causes of work-related disability and lost working days, resulting in significant economic losses.

The growing prevalence of chronic low back pain has been linked to factors such as sedentary lifestyles, obesity, poor posture, occupational hazards, aging populations, and lack of regular physical activity. As the global population continues to age, the burden associated with chronic

low back pain is expected to increase further, placing additional demands on healthcare systems and resources.

Rationale for Using Acupressure in Low Back Pain

Chronic low back pain is a widespread health problem that significantly affects an individual's physical functioning, psychological well-being, and quality of life. Conventional treatment approaches, including analgesics, anti-inflammatory medications, physical therapy, and surgical interventions, may not always provide adequate relief and can sometimes be associated with adverse effects, high costs, or limited accessibility. As a result, there is increasing interest in complementary and alternative therapies that are safe, cost-effective, and easy to administer. Acupressure has emerged as a promising non-pharmacological intervention for the management of chronic low back pain. Rooted in Traditional Chinese Medicine (TCM), acupressure involves applying manual pressure to specific acupoints on the body to stimulate healing and restore balance. Unlike acupuncture, acupressure does not require needles, making it a non-invasive and more acceptable option for many patients.

The rationale for using acupressure in low back pain management is based on both traditional theories and modern scientific evidence. According to TCM principles, pain occurs when the flow of vital energy, known as Qi, becomes blocked or disrupted within the body's meridians. Acupressure is believed to restore the smooth flow of Qi, thereby reducing pain and improving overall health. From a biomedical perspective, acupressure may relieve pain by stimulating nerve endings, promoting the release of endorphins, improving blood circulation, reducing muscle tension, and enhancing relaxation.

Research studies have demonstrated that acupressure can effectively reduce pain intensity, improve physical function, and enhance quality of life among individuals with chronic low back pain. It may also help decrease reliance on pain medications, thereby minimizing the risk of medication-related side effects and dependency. Additionally, acupressure can be performed by trained healthcare professionals or taught as a self-care technique, increasing patient participation in the management of their condition.

Another important reason for considering acupressure is its safety profile. The technique is generally associated with minimal adverse effects when performed correctly, making it suitable for a wide range of patients, including older adults and individuals with chronic health conditions. Its low cost and ease of application further support its use in both clinical and community settings.

Conclusion

Chronic low back pain is a common and disabling condition that affects millions of people worldwide, leading to significant physical, psychological, social, and economic consequences. The growing burden of this condition highlights the need for effective, safe, and accessible treatment options that can complement conventional medical approaches. The evidence reviewed in this study suggests that acupressure may be an effective non-pharmacological intervention for reducing pain intensity and improving functional outcomes in individuals with chronic low back pain. Through mechanisms such as stimulation of the nervous system, release of endogenous opioids, improvement of blood circulation, and promotion of relaxation,

acupressure appears to contribute to pain relief and enhanced well-being. Additionally, its non-invasive nature, low cost, and minimal risk of adverse effects make it an attractive complementary therapy for patients seeking alternative pain management strategies. Although the findings of the reviewed studies are generally positive, variations in study design, sample size, treatment duration, and outcome measures limit the ability to draw definitive conclusions. Therefore, further high-quality randomized controlled trials with standardized methodologies are needed to strengthen the evidence base and establish clear clinical guidelines for the use of acupressure in chronic low back pain management.

References

- Chen, Y. W., Wang, H. H., & Lin, L. C. (2011). The effectiveness of acupressure on relieving pain: A systematic review. *Pain Management Nursing*, 12(3), 133–141.
- Furlan, A. D., Yazdi, F., Tsertsvadze, A., Gross, A., Van Tulder, M., Santaguida, L., ... & Bombardier, C. (2012). A systematic review and meta-analysis of complementary therapies for low-back pain. *Spine*, 37(19), E1171–E1180.
- Hsieh, L. L., Kuo, C. H., Lee, L. H., Yen, A. M. F., & Chien, K. L. (2006). Treatment of low back pain by acupressure and physical therapy: Randomised controlled trial. *BMJ*, 332(7543), 696–700.
- Lee, E. J., Frazier, S. K., & Porter, C. (2011). Therapeutic effects of acupressure in symptom management: A systematic review. *Journal of Pain and Symptom Management*, 42(4), 589–603.
- National Institute for Health and Care Excellence. (2020). *Low back pain and sciatica in over 16s: Assessment and management*. NICE Guideline NG59.
- Qaseem, A., Wilt, T. J., McLean, R. M., & Forciea, M. A. (2017). Noninvasive treatments for acute, subacute, and chronic low back pain: A clinical practice guideline. *Annals of Internal Medicine*, 166(7), 514–530.
- Tsay, S. L., Cho, Y. C., & Chen, M. L. (2004). Acupressure and quality of sleep in patients with chronic pain. *Journal of Advanced Nursing*, 46(4), 380–387.
- World Health Organization. (2023). *Low back pain*. Geneva, Switzerland: World Health Organization.
- Yeh, M. L., Chen, H. H., & Lin, I. H. (2015). The effectiveness of acupressure on pain reduction among patients with chronic musculoskeletal disorders: A systematic review. *Complementary Therapies in Medicine*, 23(2), 240–248.
- Yuan, Q. L., Wang, P., Liu, L., Sun, F., Cai, Y. S., Wu, W. T., ... & Fang, L. Q. (2015). Acupuncture and acupressure for chronic low back pain: A systematic review and meta-analysis. *Medicine*, 94(49), e2183.
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