

# Mechanisms and progress in the application of traditional acupuncture methods for the treatment of lumbar disc herniation

Yuxin Zheng<sup>1,4</sup>, Xiaojie Su<sup>1,5</sup>, Lijuan Zhao<sup>2,6</sup>, Guohui Zhang<sup>1,7</sup>, Xinnan Xue<sup>1,8</sup>,  
Hong Zhang<sup>1,3,9</sup>

<sup>1</sup>Yueyang Integrated Traditional Chinese and Western Medicine Hospital, Shanghai University of Traditional Chinese Medicine, 110 Ganhe Road, Hongkou District, Shanghai, China.

<sup>2</sup>Shanghai University of Traditional Chinese Medicine, 1200 Cailun Road, Pudong New District, Shanghai, China.

<sup>3</sup>Corresponding author

<sup>4</sup>979364845@qq.com

<sup>5</sup>xihegloria@163.com

<sup>6</sup>2430375672@qq.com

<sup>7</sup>yyyyzgh827@126.com

<sup>8</sup>1263626114@qq.com

<sup>9</sup>zhanghongdoctor@sina.com

**Abstract.** This paper summarizes the operational methods of nine acupuncture techniques recorded in the “Ling Shu · Guan Zhen” and the mechanisms of special acupuncture techniques in the treatment of lumbar disc herniation over the past two decades. The techniques include the left and right crossing acupuncture method, local multi-needle acupuncture method, bone-piercing method, and tendon-piercing method. An overview of the types of lumbar disc herniation suitable for each acupuncture technique is provided, offering a theoretical reference for selecting appropriate acupuncture techniques in clinical treatment. However, current research lacks an exploration of the differential efficacy mechanisms among different acupuncture techniques for treating lumbar disc herniation. Issues such as the absence of standardized quantitative evaluation criteria, limited sample sizes, and a lack of long-term efficacy tracking still need improvement in future research.

**Keywords:** Traditional acupuncture methods; Lumbar disc herniation; Mechanisms of action; Progress in application

## 1. Introduction

Lumbar disc herniation (LDH) refers to the local displacement of the intervertebral disc structure beyond the normal edge of the intervertebral disc gap, resulting in clinical manifestations such as pain, numbness, weakness, and functional impairment in the corresponding nerve distribution area [1]. In modern medicine, LDH is primarily attributed to degenerative changes in the intervertebral disc, and its

pathogenesis may be related to factors such as mechanical compression, autoimmunity, and inflammatory stimuli [2, 3]. Currently, the main treatment modalities for LDH include conservative treatment and surgical intervention. For non-severely acute patients, conservative treatment is considered the preferred approach for LDH [4]. Most LDH patients experience symptom improvement after conservative treatment [5–7], with an effectiveness rate of approximately 80–90% [8, 9]. In conservative treatment, especially acupuncture therapy, which has a good analgesic effect and minimal adverse reactions, is recognized as one of the effective clinical methods for this condition [10].

“Ling Shu · Guan Zhen” records 26 acupuncture techniques, employing special needling methods to stimulate the circulation of qi and blood, invigorating the body’s vitality, balancing yin and yang, and ultimately achieving therapeutic effects [11]. Among these, nine traditional acupuncture methods—Ju Ci, Miu Ci, Bangzhen Ci, Qi Ci, Yang Ci, Shu Ci, Duan Ci, Hui Ci, and Guan Ci—are still widely applied in clinical practice, demonstrating remarkable efficacy in treating various neck, shoulder, back, and leg pain disorders, especially LDH. However, the unclear description of needling procedures, unquantifiable stimulation parameters, lack of standardized evaluation scales, and the absence of objective assessment criteria for these nine methods in the treatment of LDH have resulted in a lack of reliable guidelines for their selection. Therefore, this review aims to summarize and classify the operational characteristics and mechanisms of action of these nine traditional acupuncture methods, providing an overview of their clinical applications. This comprehensive analysis aims to assist healthcare professionals in gaining a clearer understanding of the selection of acupuncture methods in the future treatment of LDH.

## 2. Left-Right Cross-Needling Technique

### 2.1. *Ju Ci*

The “Ling Shu · Guan Zhen” states: “Ju Ci, left takes right, right takes left.” In other words, Ju Ci is a special needling technique that involves needling the contralateral limb. It aims to stimulate the healthy side’s acupoints to regulate the meridian qi, expel pathogenic qi on the affected side, and treat the illness. As meridians symmetrically distribute on both sides of the human body and some meridians intersect during their course, coupled with the characteristics of meridian and collateral circulation [12], the qi in the vessels can communicate bilaterally. This gives rise to the development of this therapeutic method. In the “Su Wen · Miu Ci Lun,” it is stated: “When pathogenic factors invade the meridians, if the left is excessive, the right is affected, and vice versa... when the left pain persists, and the right pulse is affected first... it must be treated with Ju Ci, directly targeting the meridians.” Here, Ju Ci is explicitly mentioned as primarily needling the meridians. The “Su Wen · Tiao Jing Lun” mentions: “When using Ju Ci, carefully observe its nine pulses.” “Nine pulses” refer to the nine pulse conditions. If there is a discrepancy between the pulse conditions and the symptoms, it suggests the use of Ju Ci. In the “Yin Yang Ying Xiang Da Lun,” it is mentioned: “Those skilled in using needles follow the Yin to stimulate the Yang, follow the Yang to stimulate the Yin, treating the right to cure the left, and treating the left to cure the right.” Ju Ci can stimulate the healthy side’s meridian qi, guide the circulation of the affected side’s meridians and qi, thereby achieving a therapeutic effect.

### 2.2. *Miu Ci*

The “Su Wen · Miu Ci Lun” states: “I would like to hear about Miu Ci, taking the left to treat the right, and taking the right to treat the left. How is it different from Ju Ci... if the left is ill, and the right pulse is affected first, in such a case, it must be treated with Ju Ci, targeting the meridians, not the collateral vessels. Therefore, if it is a collateral vessel disease, and the pain is at the collaterals but not the meridians, it is called Miu Ci.” It can be seen that Miu Ci is very similar to Ju Ci, both needling the contralateral limbs. It specifically points out the pathology of both: Miu Ci is for “collateral vessel diseases,” while Ju Ci is for “pathogenic factors invading the meridians,” indicating the difference in the severity of the conditions. Miu Ci is shallower in disease location and milder in condition, so in needling technique, Miu Ci is shallow and targets the collaterals, while Ju Ci is deep and targets the meridians. Collateral

vessels have the physiological characteristics of cross-interaction, vertical and horizontal flow [13], providing a physiological structural basis for the left-right cross-needling technique of Miu Ci. Additionally, in the “Su Wen · Tiao Jing Lun,” it mentions: “When there is pain in the body and none of the nine pulses are affected, then use Miu Ci. If the pain is on the left, and the right pulse is affected, use Ju Ci.” This indicates that Miu Ci is suitable for the main symptom of bodily pain, but with no abnormalities in the pulses on either side. Ju Ci is suitable when the main symptom is pain on the left or right, and the pulse on the contralateral side shows abnormalities.

### *2.3. Mechanism of Action and Application in LDH*

Ju Ci improves bilateral lumbar muscle tension and biomechanical balance by transmitting signals to the surrounding nervous system. Chen Lidian et al. [14] found that the needling signal of Ju Ci can affect the spinal reticular formation and the old dorsal column bundle, thereby exerting bilateral effects. Similar studies indicate that stimulating the muscles on the healthy side, which have normal strength, can induce “excitatory aggregation” in the motor neurons involved in the conduction process after contraction. This enhances the strength and muscle tension on the affected side, improving motor function. This theory provides a reference for the neural-muscular signal transmission in the treatment of left-right cross-needling [15]. Additionally, Ju Ci can regulate the expression of hepatocyte growth factor, promote the activation of satellite cells, muscle tube maturation, and facilitate the repair and reconstruction of skeletal muscles [16]. The mechanism of action of Miu Ci is generally similar to that of Ju Ci. Miu Ci often involves pathologically floating collaterals, and the method frequently includes bleeding from the collaterals. Research suggests that when Miu Ci allows blood to permeate into tissue fluid, macrophages in the blood will engulf pathogenic microorganisms and initiate immune defense, regulating local qi and blood, and improving microcirculation, thus curing the disease [17].

The left-right cross-needling technique treats LDH by stimulating acupoints on the healthy side to promote meridian clearance and harmonize qi and blood. Li Linglong [18] randomly divided LDH patients into two groups. After the treatment, both groups showed improvements in the femoral nerve F-wave latency, conduction velocity, and lumbar JOA score compared to before, with the treatment group significantly outperforming the control group in improvement and total effectiveness rate. Ren Yadong [19] used Ju Ci to treat LDH patients with unilateral pain, comparing them with LDH patients treated at the affected side acupoints. The total effective rate was 82.54% in the treatment group and 73.02% in the control group, with a significant difference in total effectiveness rate between the two groups. He Miao et al. [20] randomly divided 86 LDH patients into a Miu Ci group and a control group. After the treatment, the total effective rate in the Miu Ci group (97.7%) was significantly higher than in the control group (86.0%). In addition, when treating acute LDH attacks, the left-right cross-needling technique can be applied to needle the healthy side, effectively reducing pain at the affected area and avoiding secondary damage to the affected site. Liu Xu et al. [21] used Miu Ci on the “Cuo Shan Acupoint” and the lumbar pain point to treat patients with acute LDH attacks, achieving an effective rate of 93.3%.

## **3. Local Multi-Needle Techniques**

### *3.1. Bangzhen Ci*

Bangzhen Ci belongs to the local multi-needle acupuncture method, as recorded in the “Lingshu · Guan Zhen”: “For Bangzhen Ci, one needle is inserted directly, and one needle is inserted obliquely to the side, to treat long-standing and lingering bi syndromes.” Zhang Jiebin mentioned: “Bangzhen Ci refers to one needle inserted directly and another needle inserted obliquely, with the former needling the meridian and the latter needling the collateral. Therefore, it can be used to needle the long-standing and lingering bi syndrome.” This indicates that Bangzhen Ci involves inserting one needle directly at the site of the lesion and another needle obliquely beside it. Both needle tips face the lesion, with the direct needle needling the meridian and the oblique needle needling the collateral. By combining these two methods, it promotes the circulation of qi and blood in the meridians and collaterals, stimulates the qi in

the channels, enhances local stimulation at the lesion site, expands the treatment range, and strengthens the local needle sensation. This technique is suitable for treating chronic and deep-seated bi syndromes that do not improve over time, especially for blood stasis type LDH with fixed and localized pain points that worsen at night. Conventional needling methods may be insufficient in terms of stimulation and limited in their range, making it challenging to achieve the desired therapeutic effects. Therefore, in addition to conventional needling methods, the addition of an oblique needle in the Bangzhen Ci enhances the local needle sensation and expands the effective area of needling.

### 3.2. *Qi Ci*

Qi Ci is another form of local multi-needle techniques, sharing the goal of increasing stimulation with Bangzhen Ci. The needling position is deeper, with a differentiating factor in the number of needles used. As stated in “Ling Shu · Guan Zhen” for the first time: “For all needling techniques with twelve sections... Qi Ci involves inserting one needle directly and two needles obliquely, to treat cold qi at a shallow depth, or to treat bi qi at a shallow depth.” Qi Ci is specified for treating bi syndrome with a localized and deep-seated range of affliction. “Integrated Collection of One Hundred Needling Techniques” provides a detailed description of the Qi Ci, involving the insertion of one needle directly into the affected area and then inserting one or two more needles directly or obliquely 1~1.5 inches away [22]. “Ling Shu · Zhong Shi” emphasizes treating the disease by first needling where it originates. Qi Ci, employing multiple needles near the affected area and deeper needling positions, uses strong stimulation to directly reach the affected area, stimulating qi circulation to achieve the effect of clearing meridians, promoting blood circulation, and resolving stasis.

### 3.3. *Yang Ci*

The Yang Ci technique originates from “Ling Shu · Guan Zhen”: “Yang Ci involves inserting one needle directly in the center and four needles obliquely around it, then lifting them to treat extensive and profound cold qi.” Throughout history, scholars have provided further explanations for “Yang Ci.” Zhang Jingyue stated: “Yang means to scatter, using a total of five needles internally and externally, applied superficially to disperse extensive cold qi.” Towards the end of the Qing Dynasty, Zhou Shuzhong remarked: “One needle is directly inserted in the center, superficially entering while floating four needles around it. Yang Ci specializes in treating extensive cold... Needles are applied based on the condition, not limited to specific acupoints, especially effective for symptoms of deep, extensive, and numb pain caused by cold qi.” Therefore, although Yang Ci belongs to the category of local multi-needle techniques, compared to Qi Ci and Bangzhen Ci, it involves inserting one needle directly in the center and then obliquely in the upper, lower, left, and right directions. It is suitable for superficial and extensive cold bi syndromes. The simultaneous needling with five needles allows the dispersed pathogenic factors to follow the inserted needles, effectively treating the condition, hence the name “Yang Ci.” Researchers [23] suggest that the efficacy of Yang Ci is closely related to the theory of the skin layer. By stimulating the skin through the Yang Ci technique, the circulation of qi and blood in the meridians is improved, playing a role in “connecting the inside and outside,” regulating organ functions, and seeking fundamental treatment. Yang Ci is mainly used to treat diseases of the musculoskeletal and nervous systems, demonstrating remarkable effectiveness in treating diseases of the musculoskeletal system [24].

### 3.4. *Mechanism of Action and Application in LDH*

The conventional acupuncture technique primarily improves the microcirculation at the painful site in patients with lumbar disc herniation (LDH) through methods such as reducing the levels of pain-inducing substances [25], promoting the release of endogenous analgesic substances, increasing pain thresholds [26], and influencing nerve conduction [27], thereby achieving analgesic effects. In comparison to regular acupuncture, the analgesic effect of local multi-needle acupuncture is more pronounced due to its increased stimulation. Modern medical research has found [28] that Qi Ci not only enhances the acupuncture effect but also has a bidirectional regulatory effect of excitation and inhibition, making it applicable to diseases of various systems such as the musculoskeletal, nervous, urogenital,

and digestive systems. Some scholars also suggest [29] that the rich distribution of sympathetic nerves and catecholamine substances in the dermis of the skin can be stimulated by needling the skin, causing sympathetic reflexes. This not only stimulates the local release of catecholamine substances in the affected area but also induces effects in visceral and distant areas, achieving the therapeutic purpose.

Local multi-needle techniques can increase the stimulation of local lesions and enhance the needle sensation. They have a better therapeutic effect on LDH with fixed pain locations, deep-seated lesions, and long courses. Shi Qiaoyun [30] treated LDH patients with sciatic nerve pain using the Bangzhen Ci technique. The treatment group received Bangzhen Ci at the sciatic point, while the control group received conventional acupuncture techniques. After treatment, significant improvements were observed in both groups, with the treatment group's total effective rate (93.3%) significantly superior to the control group (86.6%). Hong Qiucheng [31] randomized 86 LDH patients into treatment and control groups. The treatment group received an oblique needle at a sensitive point near the lumbar spine, while the control group received a simple needle at the lumbar spine. After treatment, the total effective rate was 95.35% for the treatment group and 79.07% for the control group. Lu Yingfeng [32] treated LDH with the Qi Ci technique in the treatment group and conventional acupuncture in the control group. After two courses, both groups showed a decrease in VAS and ODI scores. The treatment group's total effective rate was 93.3%, while the control group's total effective rate was 83.3%. Li Yuanyuan [33] divided 56 LDH patients into two groups, with the Yang Ci group receiving Yang Ci technique and the twirling needle group receiving Nian Zhuan Zhen technique. After three courses, the Yang Ci group's effectiveness rate (92.8%) was significantly higher than the twirling needle group's (78.6%).

#### **4. Bone-Penetrating Technique**

##### *4.1. Shu Ci*

In “Ling Shu · Guan Zhen,” it is stated: “Shu Ci involves a direct insertion and withdrawal, penetrating deep to the bone to treat bone impediments; this is the response of the kidneys.” Shu Ci refers to the straight insertion and withdrawal of the needle, with a relatively deep penetration to the bone. The needle tip reaches the bone, extracts the qi, and then withdraws the needle, guiding the pathogenic factors outward. This achieves the purpose of extracting the superficial by guiding from the deep and guiding from the yin to the yang. In “Ling Shu · Zhong Shi,” it is noted: “Guard the bone at the bone, guard the tendon at the tendon.” Additionally, “Su Wen · Ci Yao Lun” states: “Diseases have floating and sinking aspects; needling has shallow and deep aspects. Each should follow its principle without deviating from its path.” These emphasize that the depth of needling depends on the location of the pathogenic factors. Choosing the appropriate depth can achieve better therapeutic effects. The statement “The waist is the palace of the kidneys, turning and shaking it weakens the kidneys” indicates that the responsibility for lumbar pain lies with the kidneys. As the kidneys govern the bones and produce marrow, kidney pathology manifests in the bones. Therefore, the kidneys, waist, and bones are closely interrelated. Shu Ci to the bone can stimulate kidney qi, correspond with the kidneys, expel external pathogenic factors from the bones, and stimulate the essence and qi of the kidneys. Therefore, Shu Ci is commonly used to treat various lumbar pain conditions, bone diseases, and limb pain and numbness caused by them [34], such as lumbar disc herniation and ankylosing spondylitis.

##### *4.2. Duan Ci*

In “Ling Shu · Guan Zhen,” the description of Duan Ci is as follows: “Duan Ci involves needling for bone impediments, gently rocking and penetrating deeper until reaching the bone, rubbing against the bone from top to bottom.” “Duan” means the needle tip is close to the bone [35]. Duan Ci involves slowly inserting the needle while simultaneously rocking it, penetrating deeply to reach the bone surface, and rubbing against the bone from top to bottom. It is a needling technique that combines deep needling with rocking, lifting, and twisting the needle. This technique directly reaches the affected area and effectively stimulates and guides the qi. It is often used for bone and joint disorders. In treating spinal disorders, direct stimulation of the spine, muscles, fascia, and surrounding soft tissues can improve the

blood flow speed of adjacent tissues and the load balance of the spine. While Shu Ci and Duan Ci share the same depth of needling, both penetrating deep to the bone, the specific techniques differ in detail. Shu Ci emphasizes direct insertion and withdrawal, swiftly reaching deep areas and rapidly withdrawing the needle. In contrast, Duan Ci requires a slow insertion, coupled with rocking the needle, reaching the bone membrane and employing short and brisk lifting and thrusting techniques, achieving the functions of promoting qi circulation, activating blood, and alleviating pain.

#### *4.3. Mechanism of Action and Application in LDH*

Traditional Chinese medicine holds that the efficacy of the Bone-Penetrating Technique is based on the theory of “qi reaching the affected area.” Research indicates [36] that the deeper the needle penetrates into the lumbar region, the farther the sensory transmission effect along the meridians. The Bone-Penetrating Technique can better stimulate lumbar meridians, improving symptoms of pain caused by local meridian blockages. Modern medical studies also show that, in treating Lumbar Disc Herniation (LDH), the Bone-Penetrating Technique, through deep needling, can reduce local nerve root swelling, alleviate pain, optimize lumbar mechanical structure, and improve lumbar spine mobility. The Bone-Penetrating Technique deeply stimulates the nerves of LDH patients. When the needle approaches the damaged nerve, it can effectively evoke action potentials of the damaged nerve, promoting axonal regeneration and repair [37]. Moreover, studies suggest [38] that using Shu Ci to treat LDH can inhibit apoptosis of red nucleus neurons by stimulating the corresponding compressed nerves. This inhibition allows the restoration of nerve signal transmission under compression, selectively transmitting correct instructions, improving abnormal gait due to lumbar pain, and alleviating local compressed nerve root swelling by inhibiting the activation of inflammatory cell signaling factors, thereby relieving pain.

The Bone-Penetrating Technique can extend the distance of sensory transmission along the meridians to the outer ankle and foot. Its sensory transmission effect is superior to shallow needling, and the distance of meridian sensory transmission affects the excellent clinical efficacy. The Bone-Penetrating Technique plays a positive role in promoting pain relief and shortening the treatment course [39, 40]. It is particularly suitable for cases of LDH with kidney deficiency or osteophyte hyperplasia. Zheng Huayan et al. [41] used the Shu Ci method to treat patients with lumbar disc herniation (LDH). The Shu Ci group utilized the Shu Ci method at the Jiaji points along the spine, while the conventional needling group employed standard needling at the same points. After the treatment course, both groups showed improvements in VAS and JOA scores compared to before treatment. The Shu Ci group (90.32%) demonstrated a significantly higher overall effective rate than the conventional needling group (80%). Li Huilong et al. [42] divided 60 LDH patients into an observation group and a control group. The observation group received the Shu Ci method at the Jiaji points from lumbar 2 to lumbar 5, while the control group received conventional needling. After treatment, the effective rate in the observation group was 100%, significantly higher than the 93.33% in the control group, with statistical significance. Wu Shizhong [43] treated 80 LDH patients using the Duan Ci method, achieving an overall effective rate of 95% after treatment. Shi Zhongya et al. [44] divided 50 LDH patients into two groups. The treatment group received the Duan Ci method, while the control group received conventional needling. After the treatment course, both groups showed significant improvements in VAS, ODI, and JOA scores compared to before treatment, and the treatment group’s scores were significantly better than those of the control group. Chen Shuai et al. [45], in the treatment of LDH, used conventional needling in the control group and, in the treatment group, applied the Duan Ci method at the Jiaji points along the spine, combined with the open-close purging method. The results showed an effective rate of 81.8% in the treatment group, significantly higher than the 62.5% effective rate in the control group.

## **5. Needle Techniques for Tendons**

### *5.1. Hui Ci*

The term “hui” implies a broad and sweeping motion. In comparison to regular acupuncture, the Hui Ci technique has a more extensive reach, involving needling along the tendons. After obtaining qi, the

needle is lifted to the subcutaneous layer, and its direction is altered. Two additional needles are swiftly inserted along the course of the tendon, facilitating the smooth flow of qi in the tendons. This technique aims to open the meridians, relieve spasms, and alleviate pain. “Ling Shu · Guan Zhen” states, “Hui Ci involves inserting the needle straight and then beside it, lifting it forward and backward. It is used to treat tendon stiffness.” Key points of this technique include identifying areas of tendon constriction or sensing blocked qi. The needle is inserted vertically beside the tendon constriction. After obtaining qi, a twisting technique is applied, followed by a slight lifting of the needle. The direction of the needle tip is then changed, and two more insertions are made along the course of the tendon, with no need to retain the needle. This technique is commonly employed for treating tendon stiffness, a condition encompassed within the category of Lumbar Disc Herniation (LDH), often caused by qi irregularities. The “Ling Shu · Wei Qi Shi Chang” emphasizes, “The tendons have no yin or yang, no left or right; observe where the disease is.” This indicates that tendon stiffness typically manifests locally. The needling location for the Hui Ci technique is near the tendon constriction. This proximity aligns with the characteristic of tendon stiffness occurring superficially, and the needling depth is relatively shallow [46].

### 5.2. *Guan Ci*

Guan Ci is derived from the “Ling Shu · Guan Zhen,” which states: “Guan Ci involves needling straight up on both sides to reach the tendons, aiming to treat tendon impediment... this is related to the liver.” Guan Ci, along with Hui Ci, is a needling technique used for treating tendon impediments. However, various medical practitioners throughout history have had distinct perspectives on its application. According to the “Lei Jing,” it mentions: “Guan, referring to the joints. Left and right, indicating the four limbs. Jinjin, meaning the locations of the joints.” Some scholars [47] interpret this as the Guan Ci technique involving the insertion of fine needles directly into the tender points around the muscles of the joints in the limbs or the attachment points of muscles, tendons, and ligaments near the joints. Others believe that the terms “left and right” and “jinjin” respectively indicate the direction and depth of needle insertion. Therefore, they argue that Guan Ci involves initially straight needling with fine needles, followed by lifting the needle to subcutaneous depth and obliquely needling in various directions to reach the depth of the tendons [48]. The “Su Wen · Wei Lun” states: “The main tendons control the bones and benefit the joints.” When tendons are affected, it influences the movement of bones. Simultaneously, the onset of lower back pain is attributed to external pathogenic factors primarily invading the tendons rather than the bones. This leads to stiffness and blockage in the tendons and vessels, causing dysfunction in “controlling the bones” and “benefiting the joints.” As the liver governs the tendons, Guan Ci is considered an application related to the liver. It can regulate the qi and blood of the liver meridian to treat spasmodic and painful conditions in the lumbar region.

### 5.3. *Mechanism of Action and Application in LDH*

The tension levels of muscles around the joints vary, leading to an imbalance in the biomechanics of the joints, which is a significant factor in causing bone and joint diseases [49, 50]. For instance, in patients with lower back pain, even though the pain may temporarily alleviate after treatment, the tension in the muscles around the lumbar region may remain unchanged. It is observed that the muscles on both sides of the spine are unevenly distributed in this state, making lower back pain prone to recurrence [51]. The needling of tendons, through the “Cigu” method, aims to reduce tension by adjusting tendons, potentially improving the balance of muscles on both sides of the spine. This adjustment can contribute to the overall balance of the spine in patients with LDH, promoting recovery. Yu Zhao’an et al. [52] found that Hui Ci can release adhesions in diseased tissues, reducing local tissue tension. Studies conducted by Wang Hanhan, Wang Junxiang, and others [53, 54] demonstrated that Hui Ci has a bidirectional regulatory effect. It not only alleviates muscle tension but also activates and strengthens muscle function, thereby relieving muscle spasms. Some scholars have noted [55, 56] that “Guan Ci,” through its action of “directly needling the upper part of the tendons on both sides,” serves to resolve and alleviate tendon and bone issues, promoting blood supply and metabolism in surrounding tissues while providing analgesic effects.

The focus of tendon needling therapy for LDH is on balancing tendons, aiming to restore bone health. It is suitable for LDH cases with apparent tendon involvement. Zhang Xia et al. [57] applied Yuan Li needle and Hui Ci therapy to treat tendon obstruction type LDH. 60 patients were randomly divided into two groups: the Yuan Li needle group received Yuan Li needle and Hui Ci therapy, and the Hao Zhen group received conventional Hao Zhen treatment. After treatment, both groups showed significant improvement in VAS and JOA scores compared to pre-treatment, but the Yuan Li needle group demonstrated superior results. The total effective rate in the Yuan Li needle group (88.7%) was significantly higher than the Hao Zhen group (66.7%). Jiang Xu et al. [58] divided 60 cases of lateral-type LDH into two groups: the control group received conventional acupuncture, and the observation group received Hui Ci therapy. After the treatment course, the total effective rate in the observation group (93.33%) was significantly higher than that in the control group (73.33%). In the treatment of LDH, Song Maomao et al. [59] applied the Guan Ci method to needle the lumbar and sacral meridians. Acupuncture points on the lower limbs were selected based on the principle of “using pain as a guide.” Manual palpation was employed to locate tender points, cords, or nodules in the lumbar and sacral regions before needling. After needling and achieving the sensation of qi, the needles were retained for 30 minutes. Following the treatment, patients experienced a significant reduction in pain in the lumbar and lower limbs, a notable improvement in lumbar spine function, and a clear enhancement in overall quality of daily life. Liu Jia et al. [60] randomly assigned 60 LDH patients to the Guan Ci group and the conventional acupuncture group. After the treatment, the total effective rate in the Guan Ci group was 96.67%, significantly higher than the conventional acupuncture group (86.67%), indicating a significant difference.

## 6. Conclusion

Acupuncture therapy, as a distinctive traditional Chinese medicine (TCM) approach, has been widely applied in clinical settings in recent years, demonstrating positive efficacy in the treatment of Lumbar Disc Herniation [61–63]. The utilization of traditional acupuncture techniques outlined in the “Ling Shu · Guan Zhen” has fully harnessed the characteristics and advantages of acupuncture methods, yielding significant clinical outcomes. In recent years, researchers have gradually integrated traditional acupuncture techniques with modern medical technologies [64–66], extracting the essence from each, not only effectively promoting and inheriting traditional acupuncture methods but also achieving optimal therapeutic effects through a complementary and individualized approach. This integration has also provided some clinical basis for the combination of modern medical technologies with the characteristic theories and techniques of traditional Chinese medicine in the treatment of LDH.

However, there are still some shortcomings in the study of traditional acupuncture techniques: 1. Mechanistic research on acupuncture treatment for various diseases is abundant, but there is limited research on the mechanisms underlying the differences in the effectiveness of acupuncture techniques. 2. Lack of standardized quantitative and objective indicators. 3. Insufficient comparative studies on the efficacy of different acupuncture techniques. 4. Limited availability of large-sample randomized controlled trials. 5. Inadequate long-term follow-up studies. Therefore, in future research on traditional acupuncture techniques for LDH, it is essential to conduct animal experiments to explore the mechanisms underlying the differential efficacy of various acupuncture techniques. Further comparative studies on the efficacy of different acupuncture techniques for LDH are warranted, along with a deeper exploration of the mechanisms of traditional acupuncture techniques. Clearly defining the acupuncture techniques suitable for different types of LDH, establishing objective and quantitative indicators, increasing sample sizes, and enhancing long-term follow-up records to assess the long-term efficacy will likely provide more reliable theoretical and evidence-based support for the treatment of LDH using traditional acupuncture techniques. This approach will enable the optimal utilization of the advantages of traditional acupuncture to achieve maximum clinical efficacy.



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