

# Exploration of Traditional Chinese Medicine Orthopedic Manipulative Therapy in the Treatment of Lumbar Disc Herniation

Xianwen Zeng<sup>1\*</sup>, Xuefang Qiu<sup>2</sup>, Lina Zeng<sup>3</sup>

<sup>1</sup>Zeng Xianwen Western Medicine Clinic, Heyuan 517100, Guangdong Province, China

<sup>2</sup>Department of Orthopedics, Lianping Hospital of Traditional Chinese Medicine, Heyuan 517100, Guangdong Province, China

<sup>3</sup>Lianping Chronic Disease Prevention and Treatment Station, Heyuan 517100, Guangdong Province, China

\*Corresponding author: Xianwen Zeng, 2141219414@qq.com

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**Abstract:** *Objective:* To investigate the clinical efficacy of traditional Chinese medicine (TCM) orthopedic manipulative therapy in the treatment of lumbar disc herniation in terms of relieving pain, improving lumbar function, enhancing quality of life, and reducing recurrence rates. *Methods:* A total of 120 patients with lumbar disc herniation were randomly divided into an experimental group (treated with TCM orthopedic manipulative therapy) and a control group (treated with conventional therapy), with 60 cases in each group. The Visual Analog Scale (VAS) was used to assess pain levels, the Oswestry Disability Index (ODI) to evaluate the lumbar function, and the 36-Item Short Form Health Survey (SF-36) to assess the quality of life. Recurrence rates were recorded during the follow-up period. VAS, ODI, and SF-36 scores were recorded and analyzed before treatment, four weeks after treatment, and at the end of the follow-up period. *Results:* The VAS scores in the experimental group were significantly lower than those in the control group after four weeks of treatment and at the end of the follow-up period ( $P < 0.001$ ). The improvement in ODI scores was also significantly better than the control group ( $P < 0.001$ ), and SF-36 scores were higher than those of the control group ( $P < 0.001$ ). The recurrence rate in the experimental group was 16.7%, significantly lower than the control group's 33.3% ( $P = 0.024$ ). *Conclusion:* TCM orthopedic manipulative therapy can significantly relieve pain in patients with lumbar disc herniation and improve lumbar function and quality of life, with a lower recurrence rate and a more stable efficacy, demonstrating value for clinical promotion.

**Keywords:** Lumbar disc herniation; TCM orthopedic manipulative therapy; Pain assessment; Quality of life

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## 1. Introduction

Lumbar disc herniation is a common chronic degenerative condition that primarily manifests as lower back

pain and leg numbness, significantly affecting patients' quality of life. Traditional treatment methods include medication, physical therapy, and surgery; however, medications and physical therapies often provide limited relief, while surgery carries inherent risks and a possibility of recurrence. Traditional Chinese medicine (TCM) orthopedic manipulative therapy, which primarily involves massage and spinal manipulation, aims to improve local blood circulation, correct spinal mechanics, and relieve pain and nerve compression. This study aims to evaluate the efficacy of TCM orthopedic manipulative therapy in treating lumbar disc herniation through a comparative experiment, offering further evidence to support its clinical application <sup>[1]</sup>.

## 2. Subjects and methods

### 2.1. Study subjects

This study included a total of 120 patients diagnosed with lumbar disc herniation who were treated at a TCM hospital between January 2023 and January 2024. All diagnoses conformed to the relevant provisions of the “Diagnostic Criteria for Lumbar Disc Herniation” and were confirmed through imaging examinations (such as MRI or CT). The inclusion criteria were as follows: (1) age between 30 and 65 years, regardless of gender; (2) clinical diagnosis of lumbar disc herniation with varying degrees of lower back pain, leg numbness, or other nerve root irritation symptoms; (3) no prior similar treatments, and voluntary participation in the study. Exclusion criteria included: (1) presence of other severe bone or joint diseases (such as osteoporosis, bone tumors, etc.); (2) severe internal diseases (e.g., serious cardiovascular or cerebrovascular conditions); (3) patients with mental disorders or cognitive impairments; (4) patients who had previously received the same or similar treatment and could not continue during the observation period <sup>[2]</sup>.

Eligible patients were randomly divided into an experimental group and a control group using a random number table, with 60 patients in each group <sup>[3]</sup>. The experimental group received TCM orthopedic manipulative therapy, while the control group underwent conventional treatment (including medication and physiotherapy). All patients maintained a standard lifestyle during the treatment and follow-up periods, with no additional treatments. The baseline characteristics, including gender, age, disease duration, and symptom severity, showed no statistically significant differences between the experimental and control groups ( $P > 0.05$ ), ensuring comparability <sup>[4]</sup>.

### 2.2. Methods

The control group received conventional treatment. The experimental group received traditional TCM orthopedic manipulative therapy for lumbar disc herniation, involving massage, spinal manipulation, and assisted physiotherapy <sup>[5]</sup>. Massage techniques such as pressing, kneading, and rolling targeting the lumbar and leg muscles to promote blood circulation and relieve pain, with moderate force, lasting 15–20 minutes per session, three times a week for four weeks. Spinal manipulation involved adjustments to the vertebral position based on the patient's condition, using traction and compression for realignment to restore lumbar physiological curvature and relieve nerve root compression. After each session, patients rested in bed for half an hour to ensure safety. Following manipulative therapy, a 15-minute, 40°C hot compress was applied to enhance blood circulation and support muscle recovery. Patients were advised to perform moderate lumbar and back muscle exercises and avoid prolonged sitting or poor posture, such as bending over <sup>[6]</sup>.

### 2.3. Study indicators

The efficacy of traditional TCM orthopedic manipulative therapy for lumbar disc herniation was assessed through

multiple indicators, including pain scoring, lumbar function scoring, quality of life scoring, and recurrence rate. Pain severity was evaluated using the Visual Analogue Scale (VAS), with scores ranging from 0 to 10, where higher scores indicate more severe pain. Assessments were recorded before treatment, after four weeks of treatment, and at the end of the follow-up period. Lumbar function was evaluated using the Oswestry Disability Index (ODI), with scores ranging from 0 to 100, where higher scores indicate more severe dysfunction, also recorded at the same time points. Quality of life was assessed using the 36-Item Short Form Health Survey (SF-36), covering eight dimensions, including physical functioning, emotional functioning, and social functioning; higher scores indicate a better quality of life, with evaluations at the same intervals. Recurrence rates were recorded during the follow-up period, defined as a VAS score of  $\geq 5$  persisting for over a week, considered as recurrence. Throughout the study, all assessment data were recorded by trained healthcare personnel to ensure accuracy and consistency<sup>[7]</sup>.

## 2.4. Statistical analysis

Data analysis was performed using SPSS26.0 software. Quantitative data (such as VAS, ODI, and SF-36 scores) were expressed as mean  $\pm$  standard deviation (SD). Between-group comparisons used independent sample *t*-tests, while within-group comparisons (before and after treatment) employed paired *t*-tests. Categorical data (such as recurrence rates) were expressed as frequency and percentage [*n* (%)], with group comparisons performed using the chi-square test. A significance level of  $P < 0.05$  was set to indicate statistical significance<sup>[8]</sup>.

## 3. Results

### 3.1. Pain score (VAS score)

In the experimental group, the VAS score decreased from an average of 7.8 to 2.5 after four weeks of treatment and was 3.0 at the end of the follow-up period. In the control group, the scores were 7.7, 4.3, and 5.0, respectively. The improvement in the experimental group was significantly greater than in the control group ( $t = 8.45$ ,  $P < 0.001$ ), indicating more effective pain relief in the experimental group (**Table 1**).

**Table 1.** VAS scores (mean  $\pm$  SD)

Group	Pre-treatment	After four weeks	Follow-up at the end	<i>t</i>	<i>P</i>
Experimental group	7.8 $\pm$ 1.2	2.5 $\pm$ 1.1	3.0 $\pm$ 1.2	8.45	< 0.001
Control group	7.7 $\pm$ 1.3	4.3 $\pm$ 1.2	5.0 $\pm$ 1.3	6.2	< 0.001

### 3.2. Lumbar function score (ODI score)

After four weeks of treatment, the ODI score in the experimental group decreased from 68.5 to 25.6, and was 28.5 at the follow-up end. In the control group, the scores were 67.8, 39.2, and 42.1, respectively. The experimental group showed a more significant reduction in functional impairment ( $t = 9.50$ ,  $P < 0.001$ ), highlighting the advantage of TCM manipulative therapy in improving lumbar function (**Table 2**).

**Table 2.** ODI scores (mean ± SD)

Group	Pre-treatment	After four weeks	Follow-up at the end	<i>t</i>	<i>P</i>
Experimental group	68.5 ± 8.5	25.6 ± 5.3	28.5 ± 5.9	9.5	< 0.001
Control group	67.8 ± 9.0	39.2 ± 6.7	42.1 ± 7.1	7.3	< 0.001

### 3.3. Quality of life score (SF-36 score)

The quality of life for patients in the experimental group improved significantly, with scores increasing from 42.3 to 78.4, and reaching 75.8 at the follow-up end. In the control group, the scores were 43.1, 61.0, and 59.7, respectively. The experimental group showed a significantly larger increase ( $t = 10.50$ ,  $P < 0.001$ ), indicating a substantial improvement in quality of life (Table 3).

**Table 3.** SF-36 scores (mean ± SD)

Group	Pre-treatment	After four weeks	Follow-up at the end	<i>t</i>	<i>P</i>
Experimental group	42.3 ± 6.5	78.4 ± 5.9	75.8 ± 6.2	10.5	< 0.001
Control group	43.1 ± 6.8	61.0 ± 7.0	59.7 ± 6.9	8.3	< 0.001

### 3.4. Recurrence rate

The recurrence rate was 16.7% in the experimental group and 33.3% in the control group, with a significantly lower recurrence in the experimental group ( $\chi^2 = 5.10$ ,  $P < 0.05$ ), suggesting the experimental group's advantage in maintaining therapeutic efficacy (Table 4).

**Table 4.** Recurrence rates [*n* (%)]

Group	Recurrence rate	$\chi^2$	<i>P</i>
Experimental group	10 (16.7)	5.1	0.024
Control group	20 (33.3)	5.1	0.024

## 4. Discussion

### 4.1. Pain relief effect (VAS score)

In this study, the VAS scores of the experimental group significantly decreased after four weeks of treatment and remained at a low level at the end of the follow-up period, indicating that TCM orthopedic manipulative therapy has a remarkable effect on pain relief for patients with lumbar disc herniation and can maintain sustained effects during the follow-up period. Although the control group showed a reduction in VAS scores after four weeks, their scores were still significantly higher than those of the experimental group at the end of the follow-up period. A *P*-value of less than 0.001 suggests that the improvement in pain relief in the experimental group is statistically significant [9].

TCM orthopedic manipulative therapy primarily utilizes techniques such as massage and spinal adjustment on the patient's lumbar muscles and joints. By improving local blood circulation and promoting the recovery



of soft tissue around the lumbar spine, it alleviates nerve root compression, ultimately reducing pain. Although conventional drug therapy in the control group can also provide short-term pain relief, it mainly relies on analgesics and physiotherapy to alleviate symptoms, lacking direct corrective effects on the lumbar region. Therefore, the pain improvement and sustainability were not as pronounced as in the experimental group. Overall, TCM orthopedic manipulative therapy demonstrates unique advantages and effective results in alleviating pain and reducing inflammation <sup>[10]</sup>.

## **4.2. Improvement of lumbar function (ODI score)**

In this study, the ODI scores of the experimental group were significantly lower than those of the control group after four weeks of treatment and at the end of the follow-up period, reflecting the substantial improvement in lumbar function in the experimental group, with a *P*-value of less than 0.001, indicating strong statistical significance. This suggests that TCM orthopedic manipulative therapy not only effectively relieves pain but also significantly improves lumbar function impairment.

Lumbar disc herniation often leads to restricted lumbar function, affecting patients' daily activities and quality of life. The TCM therapy used in this experiment, involving specific spinal adjustment techniques to realign displaced vertebrae, helps restore normal spinal curvature and reduces nerve compression. Massage techniques, which relax lumbar muscles and reduce inflammation, further alleviate functional impairments. In contrast, conventional drug therapy in the control group primarily focuses on symptom relief and does not directly address the underlying causes of lumbar dysfunction, leading to weaker improvement in ODI scores. The study results demonstrate that orthopedic manipulative therapy more effectively improves lumbar dysfunction, thereby enhancing daily life convenience and mobility <sup>[11]</sup>.

## **4.3. Quality of life improvement (SF-36 score)**

The results show that the SF-36 scores in the experimental group were significantly higher than those in the control group after four weeks of treatment and at the end of the follow-up period, with a *P*-value of less than 0.001, indicating significant statistical relevance. This demonstrates that after TCM orthopedic manipulative therapy, patients' quality of life was greatly improved and maintained at a high level during the follow-up period. In comparison, the control group experienced limited improvement in quality of life, with scores slightly declining by the end of the follow-up period <sup>[12]</sup>.

Quality of life is a comprehensive indicator of treatment effectiveness, encompassing various aspects such as physical, emotional, and social functions <sup>[13]</sup>. TCM orthopedic manipulative therapy, by relieving pain and improving functional impairment, not only reduces physical discomfort but also provides patients with substantial psychological comfort and confidence. The recovery of lumbar function enables patients to re-engage in social and family activities, further enhancing their quality of life. Although the control group showed some short-term improvement, the lack of sustained impact made it challenging for patients to achieve long-term quality-of-life enhancements. The study results indicate that TCM orthopedic manipulative therapy can significantly improve patients' quality of life, underscoring its notable clinical value <sup>[14]</sup>.

## **4.4. Recurrence rates**

The experimental group had a recurrence rate of 16.7%, which was significantly lower than the control group's 33.3%, with a *P*-value of 0.024, indicating a statistically significant effect of the experimental group in reducing

recurrence rates. This result further supports the stability and durability of TCM orthopedic manipulative therapy, showing that it is not only effective in alleviating short-term symptoms but also plays a positive role in preventing recurrence <sup>[15]</sup>.

Recurrence is a common issue for patients with lumbar disc herniation after treatment, exacerbating the condition and affecting quality of life. TCM orthopedic manipulative therapy reduces the likelihood of recurrence by improving the mechanical structure of the lumbar spine and adjusting the soft tissue around the vertebrae, maintaining better lumbar function <sup>[16]</sup>. In contrast, the control group, relying solely on medication and physiotherapy, cannot fundamentally address the misalignment of the lumbar spine and the root cause of disc herniation, leading to a higher recurrence rate. The study results suggest that TCM orthopedic manipulative therapy has a more stable long-term therapeutic effect for lumbar disc herniation and a positive impact on reducing recurrence rates, providing strong evidence for the clinical application and promotion of this treatment method <sup>[17]</sup>.

## 5. Conclusion

The results of this study demonstrate that TCM orthopedic manipulative therapy is highly effective in relieving pain, restoring lumbar function, and improving quality of life for patients with lumbar disc herniation, with a lower recurrence rate compared to the conventional treatment group <sup>[18]</sup>. Through techniques such as massage and spinal adjustment, TCM orthopedic therapy can effectively reduce lumbar pressure, improve blood circulation, and provide long-term relief from pain and functional impairment. Data analysis shows that this therapy has significant statistical and clinical value, making it suitable for widespread application as a conservative treatment for lumbar disc herniation, offering patients a safer and more effective treatment option <sup>[19,20]</sup>.

## Disclosure statement

The authors declare no conflict of interest.

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